Fuji Electric

Innovating Energy Technology

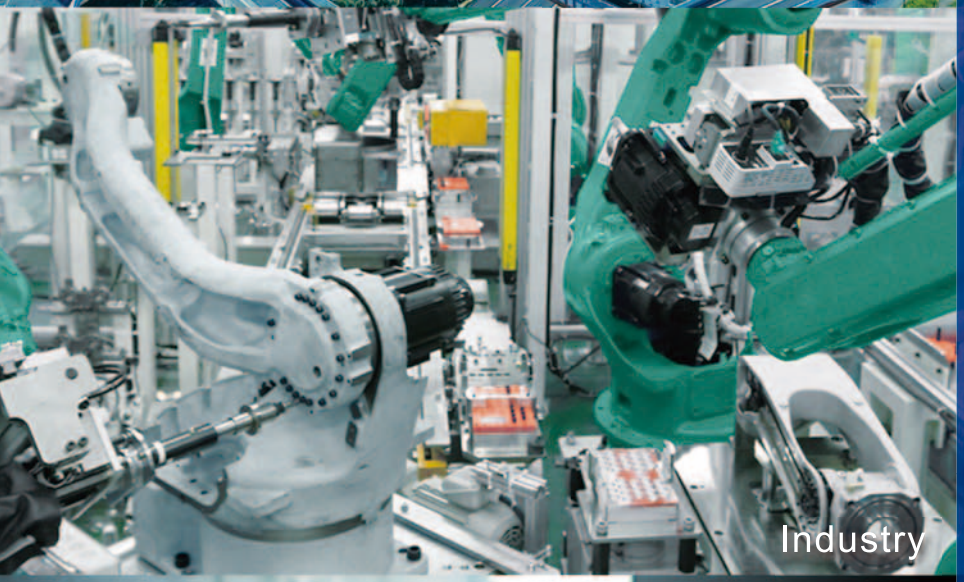
FUJI SEMICONDUCTORS

Supporting Society with
Energy and Environmental Technology

25A2-E-0001c

Fuji Electric Power Semiconductors contibuting Energy Management in various fields

Fuji Electric provides Power Semiconductors enabling high-efficiency energy usage in various fields such as industrial machinery, automobile, railroad, social infrastructure, renewable energy, consumer electronics and information equipment in order to achieve low-carbon society.
Fuji Electric contributes to realization of safe and secure sustainable society through continuous technology inovation and product development of Power Semiconductors as key devices in Power Electronics technology.



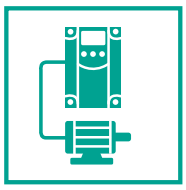
INDEX

The pictures on this page show examples of various applications which may use Fuji Electric Power Semiconductors, they aren't necessarily used in the products in these pictures.

Fuji Electric provides Power Semiconductors well suited for various applications. You will find more information on products for each application shown below at our Web site.

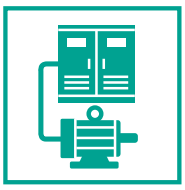
www.fujielectric.com/products/semiconductor/usage/

Inverters



Semiconductor products best suited for general-purpose inverters that carry out variable-speed operation of motors in products such as belt conveyors, fans and pumps

Medium-Voltage Inverters



Semiconductor products suitable for medium-voltage inverters that drive 3-phase AC 3k/6k/6.6kV high-voltage motors used in iron and steel plants, textile plants and paper mills

NC / Servos

Semiconductor products best suited to NC and servos that carry out speed control and positioning of machine tools, as well as robots that have multi-spindle control features used in assembly, welding and conveyance

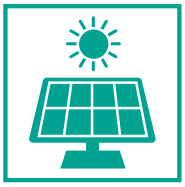
Railroads

Semiconductor products suited for the power electronics of railroad cars such as the main motor drive and auxiliary power supply equipment of rolling stock

Wind Power Generation

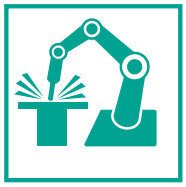
Semiconductor products suitable for AC/DC converters that convert the AC power output from wind turbine generators to DC power, as well as for inverters that convert DC power to the AC power of commercial frequencies

Solar



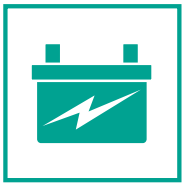
Semiconductor products best suited for power conditioners that convert solar-panel generated DC power into AC power to enable the residential consumption, as well as to facilitate the recovery of the power to the power systems of power companies

Welding Machines



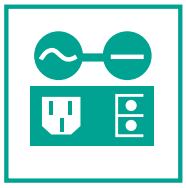
Semiconductor products suitable for switching circuits that generate resistance heat in welding machines to melt and integrate by adding heat or pressure to two or more metallic members

UPS



Semiconductor products ideal for the power conversion circuits of UPS (uninterruptible power supply) that prevent system shutdown during power outages and instantaneous power failures

Switching Power Supplies

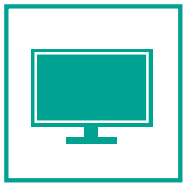


Semiconductor products best suited for general-purpose switching power supplies used in a wide variety of applications such as equipment for general consumers and OA and communication devices

PC / Servers

Semiconductor products suitable for the power supplies of increasingly high-performance desktop PCs and servers, as well as of increasingly compact and lightweight notebook PCs

Flat-screen TVs



Semiconductor products ideal for the power supplies of TV sets that require low power consumption and large screens that are increasingly thinner and more lightweight

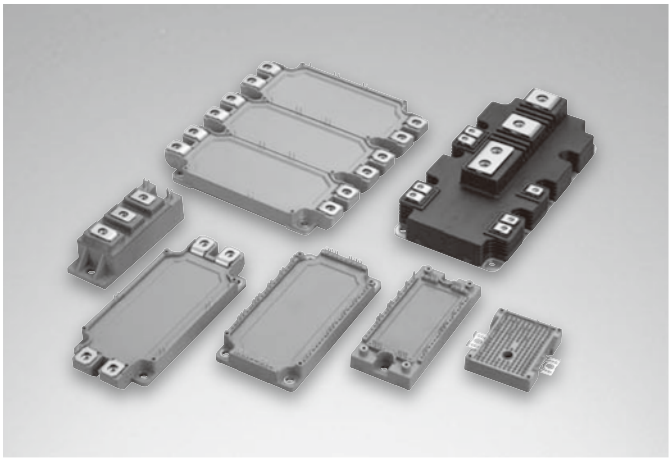
Automobiles

IGBT modules, power ICs, MOSFETs and pressure sensors as semiconductor products for automobiles developed with the theme "Car Electronics Solutions - Contributing to the Environment, Safety and Comfort"

CONTENTS

IGBT Module

Fuji Electric has been developing IGBT modules designed to be used as switching elements for power converters of variable-speed drives for motors, uninterruptable power supplies, and more. IGBT has superior characteristics combining the high-speed switching performance of a power MOSFET with the high-voltage/high-current handling capabilities of a bipolar transistor.



Features of IGBT Module X Series

● Reduces power dissipation to contribute to energy saving
The IGBT and diode devices of Fuji electric's 7th-generation X series that constitute these modules have been made thinner and miniaturized, thereby optimizing the device structure. This has successfully reduced power dissipation in inverter operation compared with conventional products (Fuji Electric's 6th-generation V Series), contributing to energy saving and power cost reduction of the equipment on which the module is installed.

● Achieves equipment size reduction
A newly developed insulating substrate has been applied in order to improve the module's heat dissipation. Combined with the feature described above (reduced power dissipation) to suppress heat generation, an approximately 36%*1 reduction has been achieved in comparison to the conventional module. In addition, the maximum temperature guaranteed in continuous operation has been increased from the conventional 150°C to 175°C, which allows the output current to be increased by up to 35%*2 while maintaining the size of the equipment on which the module is installed. This contributes to reducing the size and total cost of the equipment.

*1: Mounting area ratio with 1200 V 75A PIM models
*2: Value estimated from simulation results

● Contributes to improving equipment reliability
Newly developed structures and materials of the module have realized to increase its stability and durability in high-temperature operation. This contributes to improving the stability and reliability of the equipment on which the module is installed.

Features of IGBT Module V Series

● A compact design allows for greater power output
· High performance 6th-generation V series IGBT/FWD chipset
· $T_{vj(max.)}$=175°C, $T_{vj(op)}$=150°C
● Environmentally friendly modules
· Easy assemblage, solder free options
· RoHS compliant (Some parts are Non RoHS.)
● Turn-on switching characteristics
· Improved noise-loss trade-off
· Reduced turn-on dv/dt, and di_C/dt
● Turn-off switching characteristic
· Soft switching behavior, turn-off oscillation free

Product lineup

Number of IGBT Switches	Products Category	Page	Internal Configuration				Max V_{CE}					Rated Current					
			IGBT Module			Discrete IGBT	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
			Standard Module	Power Integrated Module	Intelligent Power Module												
7	**Small-PIM**	12,13,14		✓			✓	✓	✓			✓					
	PIM EconoPIM™	15,18		✓			✓	✓				✓	✓				
		16,19							✓			✓	✓				
6	**6-pack**	21					✓		✓			✓	✓	✓			
		23	✓							✓			✓				
		24							✓	✓				✓	✓		
2	**Standard 2-pack**	25					✓	✓					✓	✓	✓		
		26,29	✓						✓				✓	✓	✓	✓	
		28,31								✓			✓	✓	✓		
1	**Standard 1-pack**	37	✓						✓	✓				✓	✓	✓	
	Chopper	39	✓				✓		✓			✓	✓	✓	✓		
1,2	**High Speed Module**	42	✓						✓				✓	✓	✓		
	High Power Module	33,34,38	✓						✓	✓	✓				✓	✓	✓
	PrimePACK™	35,36,40,41	✓						✓	✓					✓	✓	✓
4,12	**T/I-type NPC 3-level**	43,44	Reverse-Blocking IGBTs are integrated.				✓		✓	✓		✓	✓	✓	✓	✓	
6,7	**IPM**	45,46,48,50,53,57			✓		✓	✓	✓			✓	✓	✓	✓		
1	**Discrete IGBT**	60				✓	✓	✓	✓			✓	✓				
1	**Discrete RB-IGBT**	63				✓	✓						✓				
6	**6-pack for EV/HEV**	64	✓					✓(750V)							✓	✓	

Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

Part numbers

6MBI100XBA120-50 (example)

6	MB	I	100	X	BA	120	50
Number of IGBT Switches	IGBT Module	Internal Configuration	Rated Current	IGBT Device Technology	Package Type	Max. V_{CE}	RoHS Compliant
		I: Standard Modules	x 1 (A)	X: X series (7th Generation)	See the Products map	060: 600V	50 to 99 RoHS Compliant
		R: Power Integrated Modules	ex)100:100A	XR: X series (7th Generation)		065: 650V	
		P: Intelligent Power Modules		V: V series (6th Generation)		120: 1200V	
				U: U series (5th Generation)		170: 1700V	
						330: 3300V	

Letter symbols

Letter symbols

V_{CES} : Collector-to-emitter rated voltage (Gate-to-emitter short-circuited)
V_{GES} : Gate-to-emitter rated voltage (Collector-to-emitter short-circuited)
I_C : Rated collector current
P_{tot} : Maximum power dissipation
$V_{CE(sat)}$: Collector-to-emitter saturation voltage
V_{RRM} : Maximum repetitive reverse voltage
I_O : Output current of converter
V_{FM} : Maximum forward voltage drop of rectifier diode
I_{FSM} : Maximum surge forward current of rectifier diode

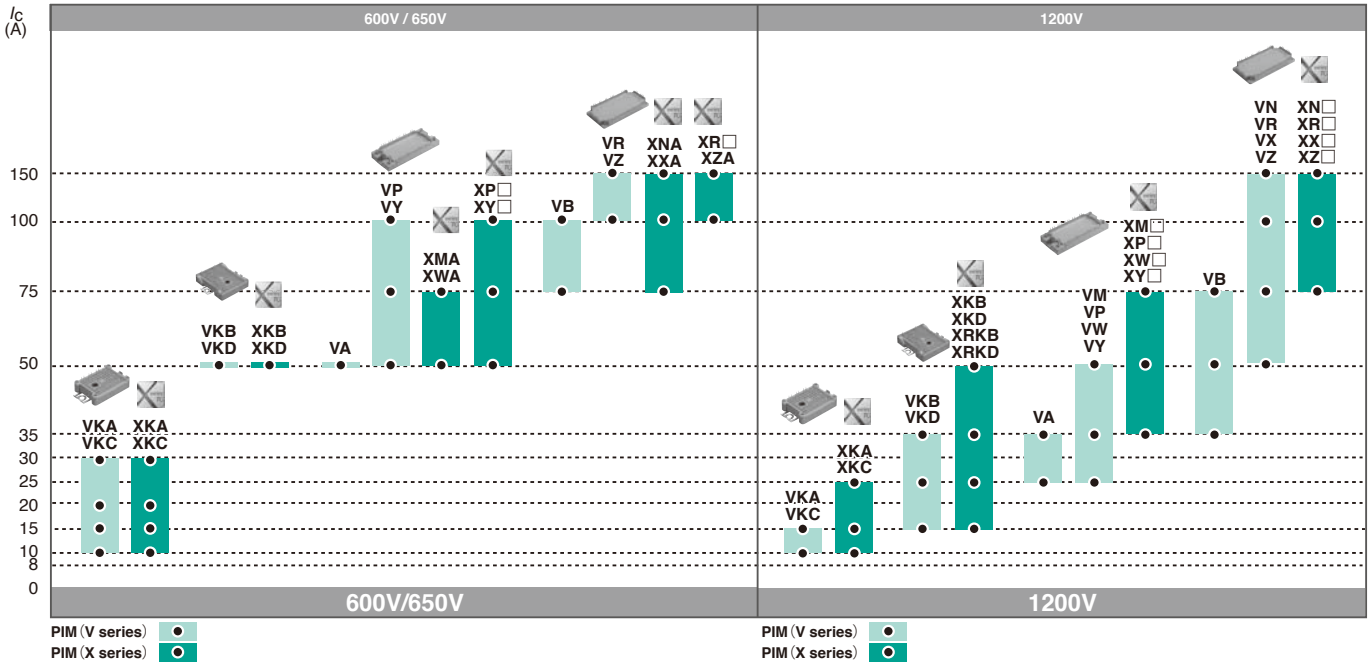
t_{on} : Turn-on time
t_{off} : Turn-off time
t_f : Fall time
$t_{d(on)}$: Turn-on delay time
$t_{d(off)}$: Turn-off delay time

Products Map

PIM (Power Integrated Modules)

7MBR	Rated Current *Ic*	IGBT series & Package type						
		V series		X series		Size	Page	
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VKC	VKA	XKC	XKA	33.8×62.8mm	12,13,14	
		VKD	VKB	XKD, XRKD	XKB, XRKB	56.7×62.8mm	12,13,14	
		VA, VM, VP	VW, VY	XM□, XP□	XW□, XY□	45×107.5mm	15,16,17,18,19	EconoPIM™
		VB, VN, VR	VX, VZ	XN□, XR□	XX□, XZ□	62×122mm	15,16,17,18,19	

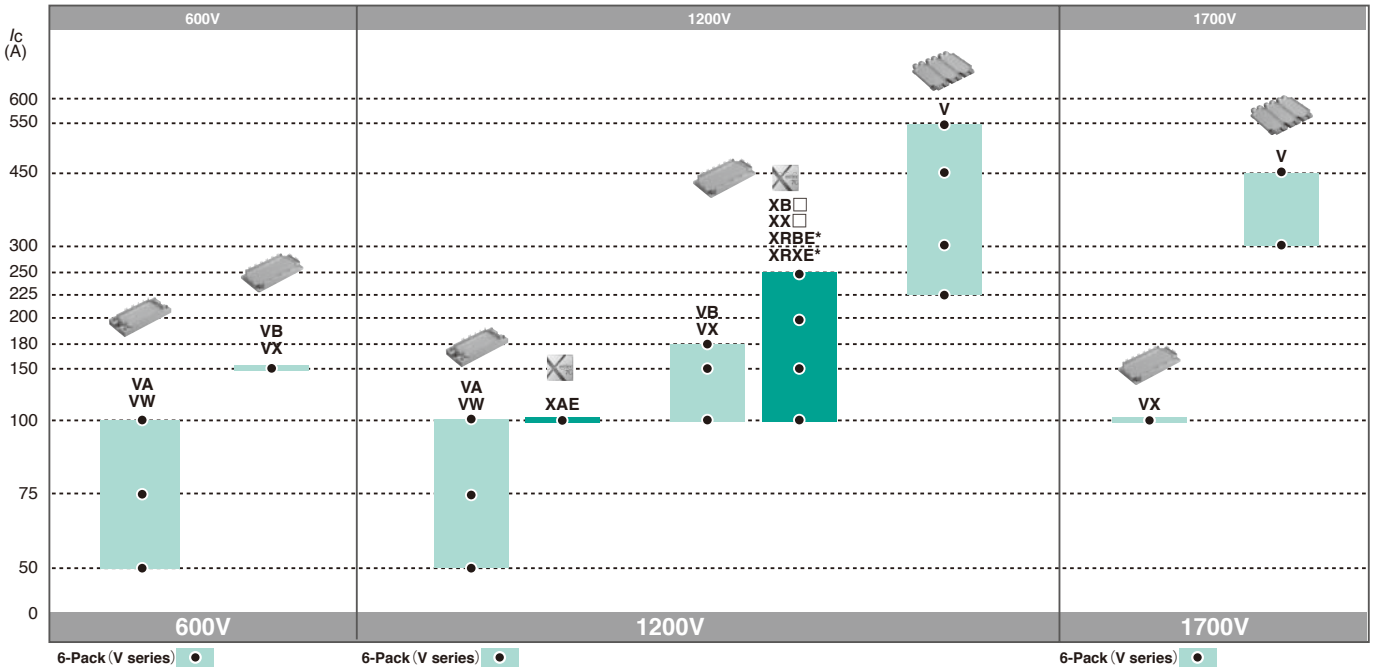
Note:EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.



6-Pack

6MBI	Rated Current *Ic*	IGBT series & Package type						
		V series		X series		Size	Page	
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA,	VW	XAE		45×107.5mm	21	EconoPACK™
		VB	VX	XB□ , XRBE	XX□, XRXE	62×122mm	21,23	
		V				150×162mm	24	EconoPACK™+

Note:EconoPACK™ and EconoPACK™+ are registered trademark of Infineon Technologies AG, Germany.

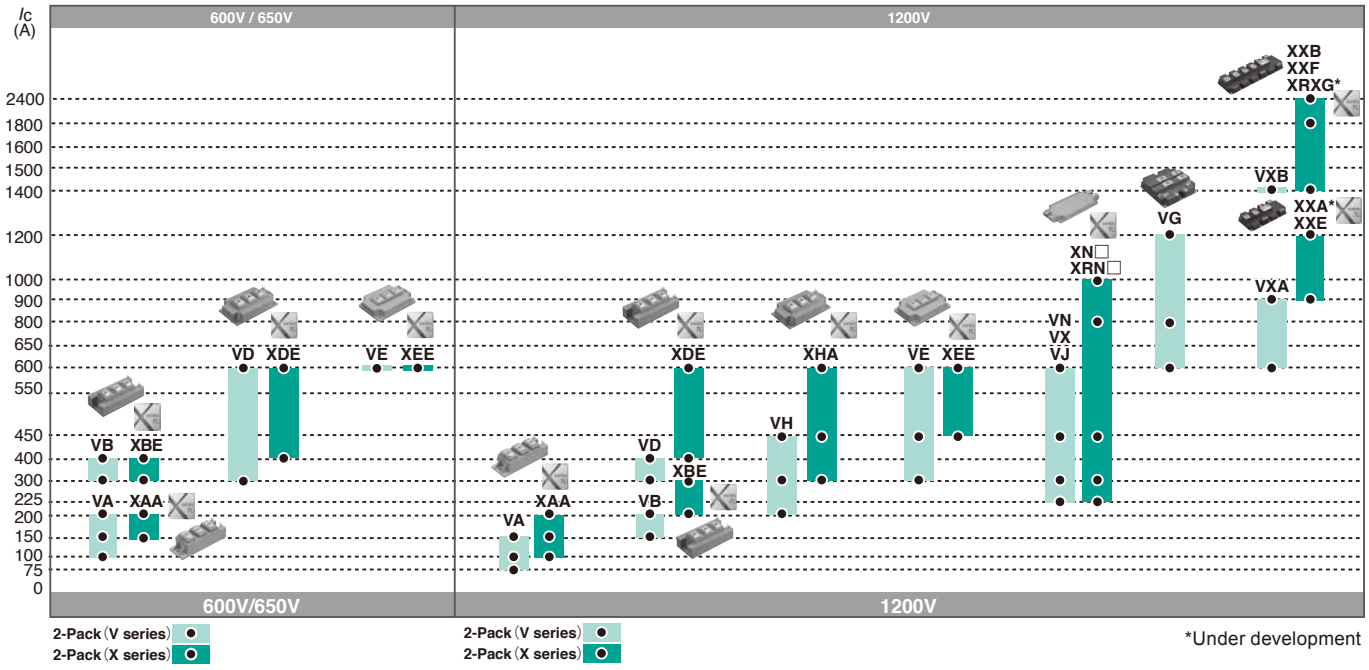


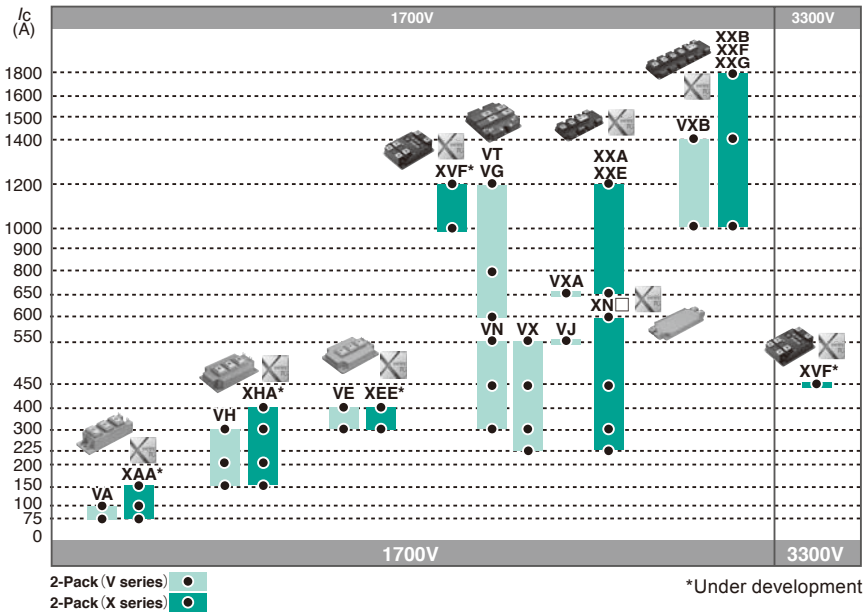
*Under development

2-Pack

2MBI	Rated Current Ic	IGBT series & Package type		Size	Page	
		V series	X series			
		VA	XAA	34×94mm	25,26,28	Standard Pack
		VB	XBE	45×92mm	25,26	
		VD	XDE	62×108mm	25,26	
		VE	XEE	80×110mm	25,26,28	
		VH	XHA	62×108mm	26,28	
		VJ, VN, VX	XN□, XRN□	62×150mm	29,31	
		-	XVF	100×140mm	33	HPnC
		VG, VT	-	140×130mm	34	High Power Module
		VXA	XXA, XXE	89×172mm	35,36	PrimePACK™
		VXB	XXB, XXF, XXG, XRXG	89×250mm	35,36	

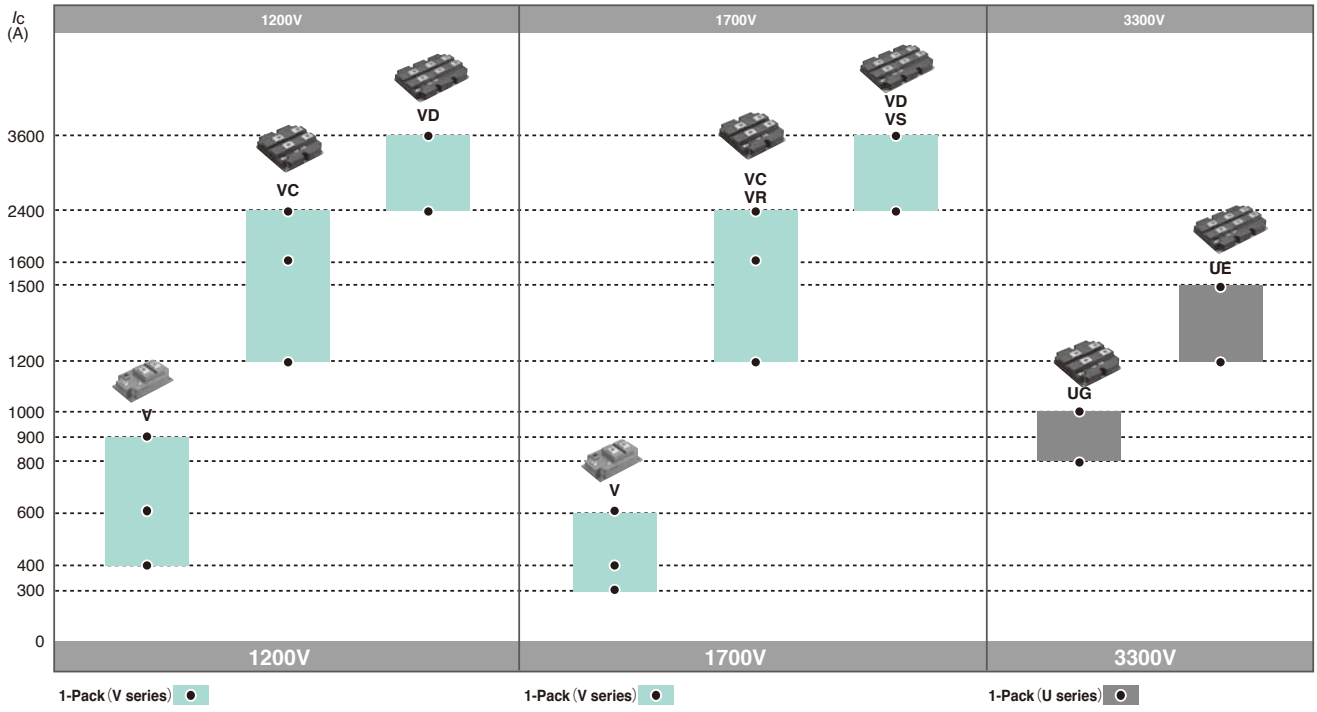
Note:PrimePACK™ is registered trademark of Infineon Technologies AG, Germany





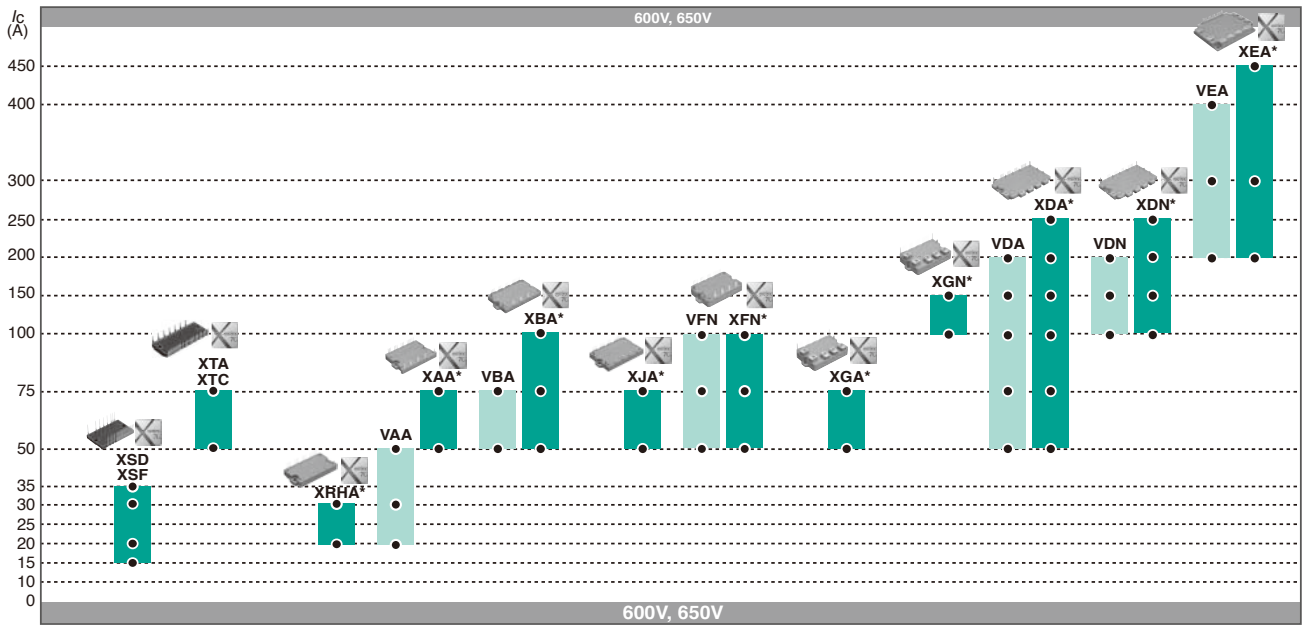
1-Pack

1MBI	Rated Current Ic	IGBT series & Package type			
		V/U series	Size	Page	
		V	62×108mm	37	Standard Pack
		VC, VR, UG	140×130mm	38	High Power Module
		VD, VS, UE	140×190mm	38	

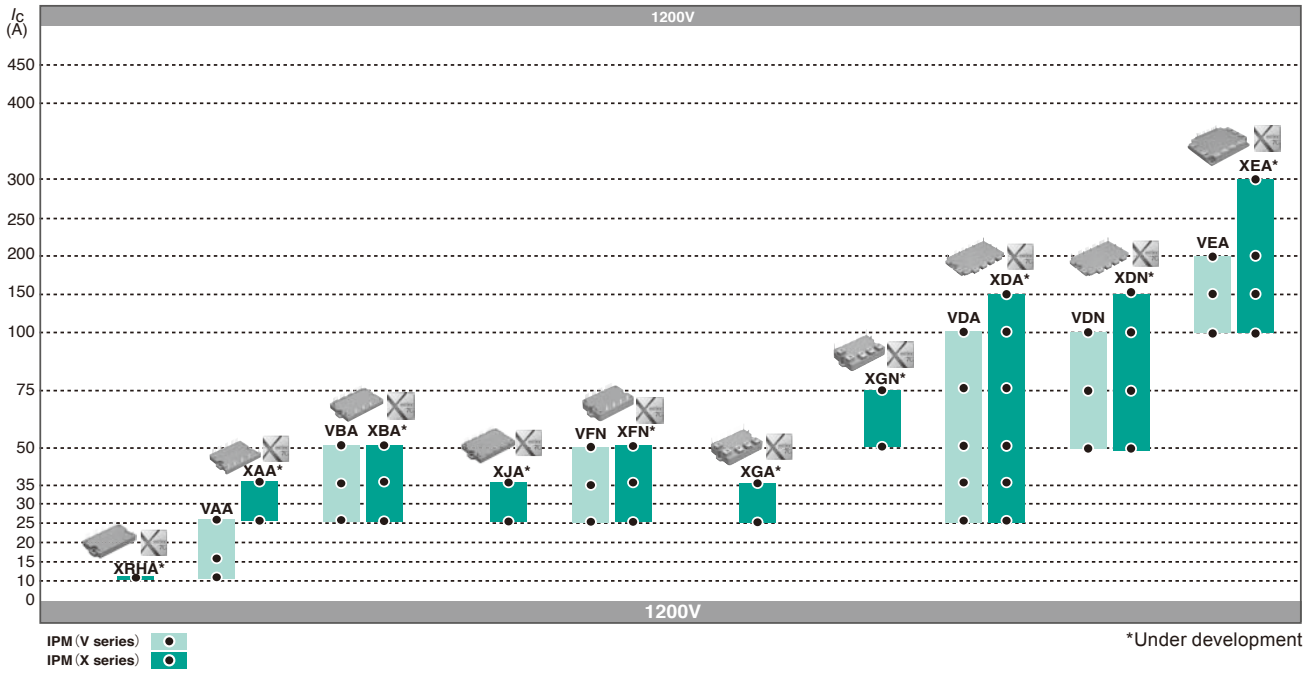


IPM (Intelligent Power Modules)

6/7MBP	Rated Current *Ic*	IGBT series & Package type			V series		X series		
		V series	X series	Size	7 in 1	6 in 1	7 in 1	6 in 1	Page
		–	XSD, XSF	26×43mm	–	–	–	✓	45
		–	XTA, XTC	79×31mm	–	–	–	✓	45
		–	XRHA	36×70mm	–	–	–	✓	46
		VAA	XAA	49.5×70mm	–	✓	–	✓	46
		VBA	XBA	50.2×87mm	–	✓	–	✓	48
		–	XJA	50.2×87mm	–	–	✓	–	48
		VFN	XFN	55×90mm	✓	✓	✓	✓	50
		–	XGA, XGN	55×90mm	–	–	–	✓	50
		VDA, VDN	XDA, XDN	84×128.5mm	✓	✓	✓	✓	53
		VEA	XEN	110×142mm	✓	✓	✓	✓	57



*Under development

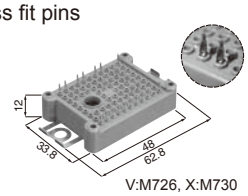


*Under development

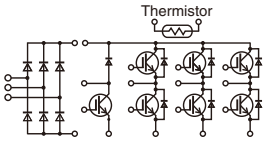
IGBT Module PIM <X series / V series>

Small PIM/Built-in converter and brake 650V, 600V class

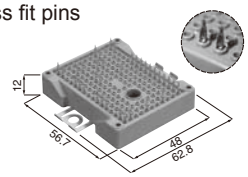
Press fit pins



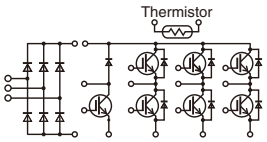
V:M726, X:M730



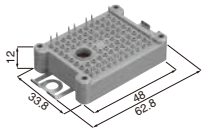
Press fit pins



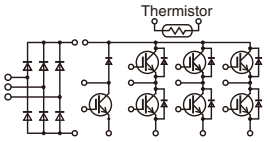
V:M727, X:M731



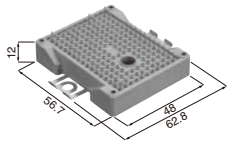
Solder pins



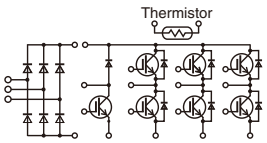
V:M728, X:M732



Solder pins



V:M729, X:M733



I_C	650V X series	600V V series
10A	**7MBR10XKA065-50**	**7MBR10VKA060-50**
15A	**7MBR15XKA065-50**	**7MBR15VKA060-50**
20A	**7MBR20XKA065-50**	**7MBR20VKA060-50**
30A	**7MBR30XKA065-50**	**7MBR30VKA060-50**
50A	**7MBR50XKB065-50**	**7MBR50VKB060-50**
10A	**7MBR10XKC065-50**	**7MBR10VKC060-50**
15A	**7MBR15XKC065-50**	**7MBR15VKC060-50**
20A	**7MBR20XKC065-50**	**7MBR20VKC060-50**
30A	**7MBR30XKC065-50**	**7MBR30VKC060-50**
50A	**7MBR50XKD065-50**	**7MBR50VKD060-50**

Dimension [mm]

X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR10XKA065-50	650	10	90	1.30	650	10	650	800	10	0.90	340	M730	25
7MBR15XKA065-50	650	15	110	1.30	650	15	650	800	15	0.95	340	M730	25
7MBR20XKA065-50	650	20	135	1.30	650	20	650	800	20	1.00	340	M730	25
7MBR30XKA065-50	650	30	180	1.30	650	30	650	800	30	1.05	340	M730	25
7MBR50XKB065-50	650	50	270	1.30	650	50	650	800	50	1.10	470	M731	45
7MBR10XKC065-50	650	10	90	1.30	650	10	650	800	10	0.90	340	M732	25
7MBR15XKC065-50	650	15	110	1.30	650	15	650	800	15	0.95	340	M732	25
7MBR20XKC065-50	650	20	135	1.30	650	20	650	800	20	1.00	340	M732	25
7MBR30XKC065-50	650	30	180	1.30	650	30	650	800	30	1.05	340	M732	25
7MBR50XKD065-50	650	50	270	1.30	650	50	650	800	50	1.10	470	M733	45

V series

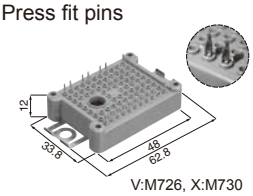
Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR10VKA060-50	600	10	70	1.70	600	10	600	800	10	0.95	360	M726	25
7MBR15VKA060-50	600	15	85	1.75	600	15	600	800	15	1.00	360	M726	25
7MBR20VKA060-50	600	20	100	1.70	600	20	600	800	20	1.05	360	M726	25
7MBR30VKA060-50	600	30	125	1.70	600	30	600	800	30	1.15	360	M726	25
7MBR50VKB060-50	600	50	180	1.60	600	50	600	800	50	1.00	580	M727	45
7MBR10VKC060-50	600	10	70	1.70	600	10	600	800	10	0.95	360	M728	25
7MBR15VKC060-50	600	15	85	1.75	600	15	600	800	15	1.00	360	M728	25
7MBR20VKC060-50	600	20	100	1.70	600	20	600	800	20	1.05	360	M728	25
7MBR30VKC060-50	600	30	125	1.70	600	30	600	800	30	1.15	360	M728	25
7MBR50VKD060-50	600	50	180	1.60	600	50	600	800	50	1.00	580	M729	45

$V_{CE(sat)}$, V_{FM} : at T_{vj}=25°C, Chip

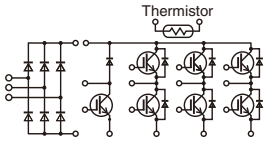
IGBT Module PIM ＜X series / V series＞

■ Small PIM/Built-in converter and brake 1200V class

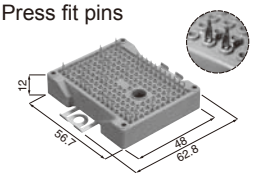
Press fit pins



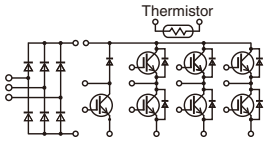
V:M726, X:M730



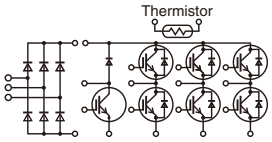
Press fit pins



V:M727, X:M731

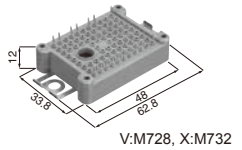


XKB, VKB

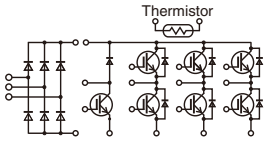


XRKB

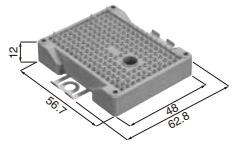
Solder pins



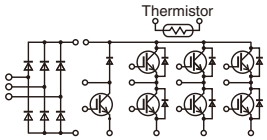
V:M728, X:M732



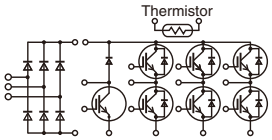
Solder pins



V:M729, X:M733



XKD, VKD



XRKD

I_C	1200V	
	X series	V series
10A	**7MBR10XKA120-50**	**7MBR10VKA120-50**
15A	**7MBR15XKA120-50**	**7MBR15VKA120-50**
25A	**7MBR25XKA120-50**	
15A	**7MBR15XKB120-50**	**7MBR15VKB120-50**
25A	**7MBR25XKB120-50**	**7MBR25VKB120-50**
35A	**7MBR35XKB120-50**	**7MBR35VKB120-50**
50A	**7MBR50XRKB120-50**	
10A	**7MBR10XKC120-50**	**7MBR10VKC120-50**
15A	**7MBR15XKC120-50**	**7MBR15VKC120-50**
25A	**7MBR25XKC120-50**	
15A	**7MBR15XKD120-50**	**7MBR15VKD120-50**
25A	**7MBR25XKD120-50**	**7MBR25VKD120-50**
35A	**7MBR35XKD120-50**	**7MBR35VKD120-50**
50A	**7MBR50XRKD120-50**	

Dimension [mm]

■ X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR10XKA120-50	1200	10	105	1.50	1200	10	1200	1600	10	0.95	300	M730	25
7MBR15XKA120-50	1200	15	135	1.50	1200	15	1200	1600	15	1.00	300	M730	25
7MBR25XKA120-50	1200	25	155	1.70	1200	25	1200	1600	25	1.05	300	M730	25
7MBR15XKB120-50	1200	15	135	1.50	1200	15	1200	1600	15	0.95	385	M731	45
7MBR25XKB120-50	1200	25	195	1.50	1200	25	1200	1600	25	1.00	385	M731	45
7MBR35XKB120-50	1200	35	255	1.50	1200	35	1200	1600	35	1.05	385	M731	45
● **7MBR50XRKB120-50**	1200	50	500	1.80	1200	35	1200	1600	35	1.05	385	M731	45
7MBR10XKC120-50	1200	10	105	1.50	1200	10	1200	1600	10	0.95	300	M732	25
7MBR15XKC120-50	1200	15	135	1.50	1200	15	1200	1600	15	1.00	300	M732	25
7MBR25XKC120-50	1200	25	155	1.70	1200	25	1200	1600	25	1.05	300	M732	25
7MBR15XKD120-50	1200	15	135	1.50	1200	15	1200	1600	15	0.95	385	M733	45
7MBR25XKD120-50	1200	25	195	1.50	1200	25	1200	1600	25	1.00	385	M733	45
7MBR35XKD120-50	1200	35	255	1.50	1200	35	1200	1600	35	1.05	385	M733	45
● **7MBR50XRKD120-50**	1200	50	500	1.80	1200	35	1200	1600	35	1.05	385	M733	45

● : New products

$V_{CE(sat)}$, V_{FM} : at T_{vj}=25℃, Chip

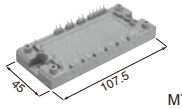
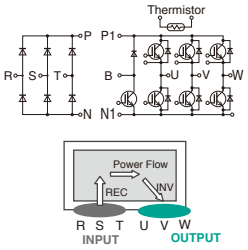
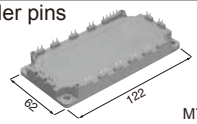
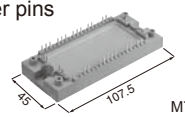
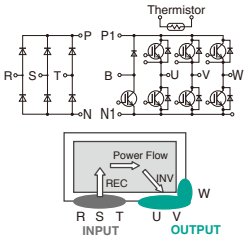
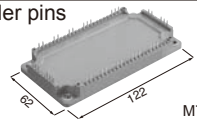
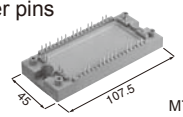
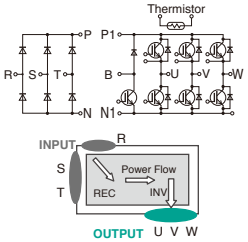
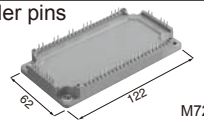
■ V series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR10VKA120-50	1200	10	110	1.85	1200	10	1200	1600	10	0.95	245	M726	25
7MBR15VKA120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M726	25
7MBR15VKB120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M727	45
7MBR25VKB120-50	1200	25	180	1.85	1200	25	1200	1600	25	1.00	370	M727	45
7MBR35VKB120-50	1200	35	215	1.85	1200	35	1200	1600	35	1.05	370	M727	45
7MBR10VKC120-50	1200	10	110	1.85	1200	10	1200	1600	10	0.95	245	M728	25
7MBR15VKC120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M728	25
7MBR15VKD120-50	1200	15	135	1.90	1200	15	1200	1600	15	1.00	245	M729	45
7MBR25VKD120-50	1200	25	180	1.85	1200	25	1200	1600	25	1.00	370	M729	45
7MBR35VKD120-50	1200	35	215	1.85	1200	35	1200	1600	35	1.05	370	M729	45

$V_{CE(sat)}$, V_{FM} : at T_{vj}=25℃, Chip

IGBT Module PIM ＜X series / V series＞

PIM/Built-in converter and brake EconoPIM™ 650V, 600V class

		I_C	650V X series	600V V series
Solder pins  M711		50A		**7MBR50VA060-50**
Solder pins  M712		75A		**7MBR75VB060-50**
		100A		**7MBR100VB060-50**
Solder pins  M719		50A	**7MBR50XMA065-50**	
		75A	**7MBR75XMA065-50**	
Solder pins  M720		75A	**7MBR75XNA065-50**	
		100A	**7MBR100XNA065-50**	
		150A	**7MBR150XNA065-50**	
Solder pins  M719		50A	**7MBR50XPA065-50**	**7MBR50VP060-50**
		75A	**7MBR75XPA065-50**	**7MBR75VP060-50**
		100A	**7MBR100XPE065-50**	**7MBR100VP060-50**
Solder pins  M720		100A	**7MBR100XRA065-50**	**7MBR100VR060-50**
		150A	**7MBR150XRA065-50**	**7MBR150VR060-50**
			7MBR150XRE065-50	

Dimension [mm]

■ X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR50XMA065-50	650	50	210	1.3	650	30	650	800	50	1.05	505	M719	200
7MBR75XMA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M719	200
7MBR75XNA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M720	310
7MBR100XNA065-50	650	100	330	1.3	650	50	650	800	100	1.1	745	M720	310
7MBR150XNA065-50	650	150	450	1.3	650	75	650	800	150	1.1	1260	M720	310
7MBR50XPA065-50	650	50	210	1.3	650	30	650	800	50	1.05	505	M719	200
7MBR75XPA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M719	200
7MBR100XPE065-50	650	100	480	1.3	650	50	650	800	100	1.1	745	M719	200
7MBR100XRA065-50	650	100	330	1.3	650	50	650	800	100	1.1	745	M720	310
7MBR150XRA065-50	650	150	450	1.3	650	75	650	800	150	1.1	1260	M720	310
7MBR150XRE065-50	650	150	700	1.3	650	75	650	800	150	1.1	1260	M720	310

■ V series

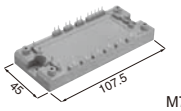
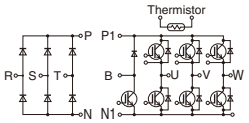
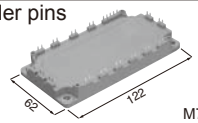
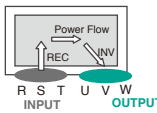
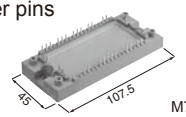
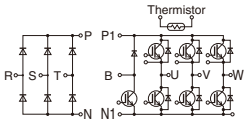
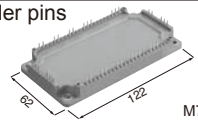
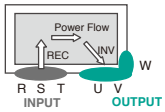
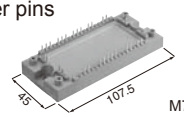
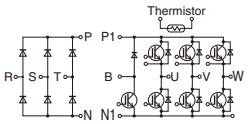
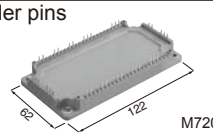
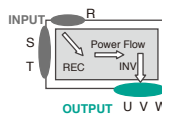
Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR50VA060-50	600	50	200	1.6	600	50	600	800	50	1.3	210	M711	180
7MBR75VB060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M712	300
7MBR100VB060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M712	300
7MBR50VP060-50	600	50	200	1.6	600	50	600	800	50	1.3	210	M719	200
7MBR75VP060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M719	200
7MBR100VP060-50	600	100	430	1.85	600	50	600	800	100	1.25	700	M719	200
7MBR100VR060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M720	310
7MBR150VR060-50	600	150	485	1.6	600	75	600	800	150	1.25	960	M720	310

Note: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

IGBT Module PIM ＜X series / V series＞

■ PIM/Built-in converter and brake EconoPIM™ 1200V class

		I_C	1200V	
			X series	V series
Solder pins  M711		25A		**7MBR25VA120-50**
		35A		**7MBR35VA120-50**
Solder pins  M712		35A		**7MBR35VB120-50**
		50A		**7MBR50VB120-50**
		75A		**7MBR75VB120-50**
Solder pins  M719		25A		**7MBR25VM120-50**
		35A	**7MBR35XMA120-50**	**7MBR35VM120-50**
		50A	**7MBR50XMA120-50**	**7MBR50VM120-50**
		75A	**7MBR75XME120-50**	
Solder pins  M720		50A		**7MBR50VN120-50**
		75A	**7MBR75XNA120-50**	**7MBR75VN120-50**
		100A	**7MBR100XNA120-50**	**7MBR100VN120-50**
		150A	**7MBR150XNE120-50**	**7MBR150VN120-50**
Solder pins  M719		25A		**7MBR25VP120-50**
		35A	**7MBR35XPA120-50**	**7MBR35VP120-50**
		50A	**7MBR50XPA120-50**	**7MBR50VP120-50**
			7MBR50XPE120-50	
		75A	**7MBR75XPE120-50**	
Solder pins  M720		50A		**7MBR50VR120-50**
		75A	**7MBR75XRA120-50**	**7MBR75VR120-50**
			7MBR75XRE120-50	
		100A	**7MBR100XRA120-50**	**7MBR100VR120-50**
			7MBR100XRE120-50	
		150A	**7MBR150XRE120-50**	**7MBR150VR120-50**

Dimension [mm]

■ X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
7MBR35XMA120-50	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M719	200
7MBR50XMA120-50	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M719	200
7MBR75XME120-50	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M719	200
7MBR75XNA120-50	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M720	310
7MBR100XNA120-50	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M720	310
7MBR150XNE120-50	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M720	310
7MBR35XPA120-50	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M719	200
7MBR50XPA120-50	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M719	200
7MBR50XPE120-50	1200	50	340	1.5	1200	35	1200	1600	50	1.05	520	M719	200
7MBR75XPE120-50	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M719	200
7MBR75XRA120-50	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M720	310
7MBR75XRE120-50	1200	75	480	1.5	1200	50	1200	1600	75	1.0	775	M720	310
7MBR100XRA120-50	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M720	310
7MBR100XRE120-50	1200	100	685	1.45	1200	75	1200	1600	100	1.05	775	M720	310
7MBR150XRE120-50	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M720	310

Note: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

■ V series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
7MBR25VA120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.42	155	M711	180
7MBR35VA120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M711	180
7MBR35VB120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M712	300
7MBR50VB120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M712	300
7MBR75VB120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M712	300
7MBR25VM120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M719	200
7MBR35VM120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M719	200
7MBR50VM120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M719	200
7MBR50VN120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M720	310
7MBR75VN120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M720	310
7MBR100VN120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M720	310
7MBR150VN120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M720	310
7MBR25VP120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M719	200
7MBR35VP120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M719	200
7MBR50VP120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M719	200
7MBR50VR120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M720	310
7MBR75VR120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M720	310
7MBR100VR120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M720	310
7MBR150VR120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M720	310

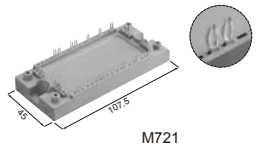
Note: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃ , Chip

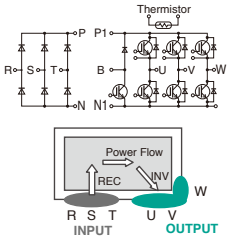
IGBT Module PIM ＜X series / V series＞

■ PIM/Built-in converter and brake EconoPIM™ 650V, 600V class

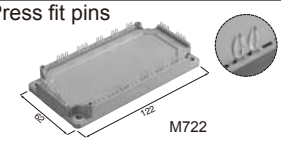
Press fit pins



M721

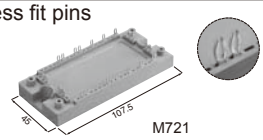


Press fit pins

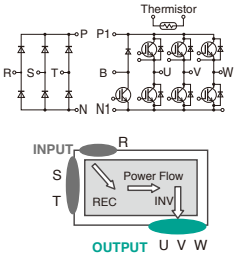


M722

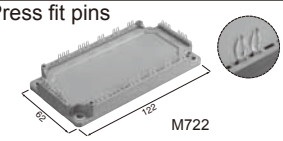
Press fit pins



M721



Press fit pins



M722

	650V	600V
I_C	X series	V series
50A	**7MBR50XWA065-50**	
75A	**7MBR75XWA065-50**	
75A	**7MBR75XXA065-50**	
100A	**7MBR100XXA065-50**	
150A	**7MBR150XXA065-50**	
50A	**7MBR50XYA065-50**	**7MBR50VY060-50**
75A	**7MBR75XYA065-50**	**7MBR75VY060-50**
100A	**7MBR100XYE065-50**	**7MBR100VY060-50**
100A	**7MBR100XZA065-50**	**7MBR100VZ060-50**
		7MBR100VZ060-80
150A	**7MBR150XZA065-50**	**7MBR150VZ060-50**
		7MBR150VZ060-80

Dimension [mm]

■ X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
7MBR50XWA065-50	650	50	210	1.3	650	30	650	800	50	1.05	505	M721	200
7MBR75XWA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M721	200
7MBR75XXA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M722	310
7MBR100XXA065-50	650	100	330	1.3	650	50	650	800	100	1.1	745	M722	310
7MBR150XXA065-50	650	150	450	1.3	650	75	650	800	150	1.1	1260	M722	310
7MBR50XYA065-50	650	50	210	1.3	650	30	650	800	50	1.05	505	M721	200
7MBR75XYA065-50	650	75	270	1.3	650	50	650	800	75	1.15	505	M721	200
7MBR100XYE065-50	650	100	480	1.3	650	50	650	800	100	1.1	745	M721	200
7MBR100XZA065-50	650	100	330	1.3	650	50	650	800	100	1.1	745	M722	310
7MBR150XZA065-50	650	150	450	1.3	650	75	650	800	150	1.1	1260	M722	310

■ V series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{RRM}	V_{RRM}	I_O Cont.	V_{FM} typ.	I_{FSM}		
	Volts	Amps.	Watts	Volts	Volts	Amps.	Volts	Volts	Amps.	Volts	Amps.		Grams
7MBR50VY060-50	600	50	215	1.6	600	50	600	800	50	1.3	210	M721	200
7MBR75VY060-50	600	75	300	1.6	600	50	600	800	75	1.25	500	M721	200
7MBR100VY060-50	600	100	430	1.85	600	50	600	800	100	1.25	700	M721	200
7MBR100VZ060-50	600	100	335	1.6	600	50	600	800	100	1.25	700	M722	310
7MBR100VZ060-80	600	100	335	1.6	600	50	600	800	100	1.25	700	M722	310
7MBR150VZ060-50	600	150	485	1.6	600	75	600	800	150	1.25	960	M722	310
7MBR150VZ060-80	600	150	485	1.6	600	75	600	800	150	1.25	960	M722	310

Note1: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

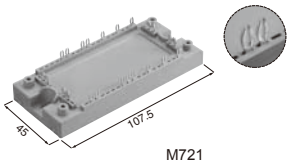
Note2: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25°C , Chip

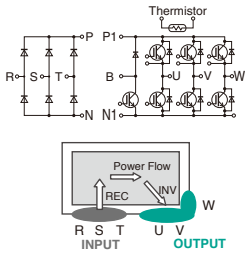
IGBT Module PIM < X series / V series >

■ PIM/Built-in converter and brake EconoPIM™ 1200V class

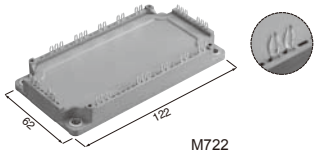
Press fit pins



M721

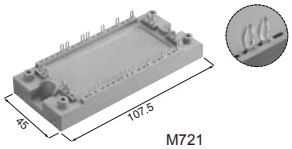


Press fit pins

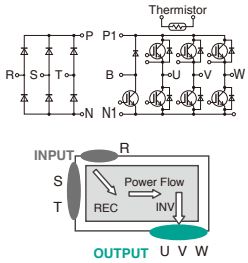


M722

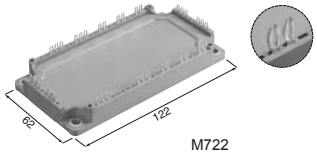
Press fit pins



M721



Press fit pins



M722

I_C	1200V X series	1200V V series
25A		7MBR25VW120-50
35A	7MBR35XWA120-50	7MBR35VW120-50
50A	7MBR50XWA120-50	7MBR50VW120-50
75A	7MBR75XWE120-50	
50A		7MBR50VX120-50
		7MBR50VX120-80
75A	7MBR75XXA120-50	7MBR75VX120-50
		7MBR75VX120-80
100A	7MBR100XXA120-50	7MBR100VX120-50
		7MBR100VX120-80
150A	7MBR150XXE120-50	7MBR150VX120-50
		7MBR150VX120-80
25A		7MBR25VY120-50
35A	7MBR35XYA120-50	7MBR35VY120-50
50A	7MBR50XYA120-50	7MBR50VY120-50
75A	7MBR75XYE120-50	
50A		7MBR50VZ120-50
		7MBR50VZ120-80
75A	7MBR75XZA120-50	7MBR75VZ120-50
		7MBR75VZ120-80
100A	7MBR100XZA120-50	7MBR100VZ120-50
		7MBR100VZ120-80
150A	7MBR150XZE120-50	7MBR150VZ120-50
		7MBR150VZ120-80

Dimension [mm]

■ X series

Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR35XWA120-50	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M721	200
7MBR50XWA120-50	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M721	200
7MBR75XWE120-50	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M721	200
7MBR75XXA120-50	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M722	310
7MBR100XXA120-50	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M722	310
7MBR150XXE120-50	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M722	310
7MBR35XYA120-50	1200	35	200	1.5	1200	25	1200	1600	35	1.05	385	M721	200
7MBR50XYA120-50	1200	50	250	1.5	1200	35	1200	1600	50	1.05	520	M721	200
7MBR75XYE120-50	1200	75	455	1.55	1200	35	1200	1600	75	1.15	520	M721	200
7MBR75XZA120-50	1200	75	335	1.5	1200	50	1200	1600	75	1.15	520	M722	310
7MBR100XZA120-50	1200	100	445	1.45	1200	75	1200	1600	100	1.05	775	M722	310
7MBR150XZE120-50	1200	150	880	1.5	1200	75	1200	1600	150	1.05	1400	M722	310

Note1: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃, Chip

■ V series

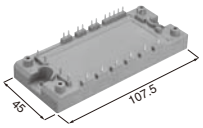
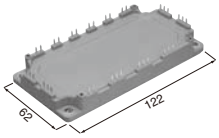
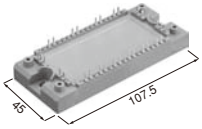
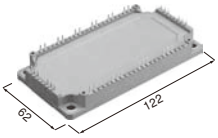
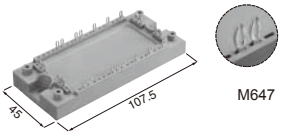
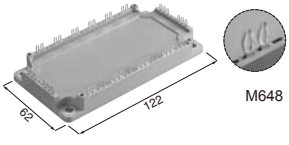
Device type	Inverter [IGBT]				Brake [IGBT+FWD]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
7MBR25VW120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.4	155	M721	200
7MBR35VW120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR50VW120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200
7MBR50VX120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR50VX120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR75VX120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR75VX120-80	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR100VX120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR100VX120-80	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR150VX120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR150VX120-80	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR25VY120-50	1200	25	170	1.85	1200	25	1200	1600	25	1.42	155	M721	200
7MBR35VY120-50	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M721	200
7MBR50VY120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M721	200
7MBR50VZ120-50	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR50VZ120-80	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M722	310
7MBR75VZ120-50	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR75VZ120-80	1200	75	385	1.85	1200	50	1200	1600	75	1.4	520	M722	310
7MBR100VZ120-50	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR100VZ120-80	1200	100	520	1.75	1200	75	1200	1600	100	1.5	520	M722	310
7MBR150VZ120-50	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310
7MBR150VZ120-80	1200	150	885	1.85	1200	100	1200	1600	150	1.4	780	M722	310

Note1: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$, V_{FM}: at T_{vj}=25℃, Chip

IGBT Module 6-Pack ＜X series / V series＞

■6-Pack EconoPACK™ 600V, 1200V class

			600V	1200V	
		*I*c	V series	X series	V series
Solder pins	 M636	50A	**6MBI50VA-060-50**		**6MBI50VA-120-50**
		75A	**6MBI75VA-060-50**		**6MBI75VA-120-50**
		100A	**6MBI100VA-060-50**		**6MBI100VA-120-50**
Solder pins	 M633	100A			**6MBI100VB-120-50**
		150A	**6MBI150VB-060-50**		**6MBI150VB-120-50**
		180A			**6MBI180VB-120-50**
					6MBI180VB-120-55
Solder pins	 M669	100A		**6MBI100XAE120-50**	
Solder pins	 M668	100A		**6MBI100XBA120-50**	
		150A		**6MBI150XBA120-50**	
		200A		**6MBI200XBA120-50**	
				6MBI200XBE120-50	
		250A		**6MBI250XRBE120-50**	
Press fit pins	 M647	50A	**6MBI50VW-060-50**		**6MBI50VW-120-50**
		75A	**6MBI75VW-060-50**		**6MBI75VW-120-50**
		100A	**6MBI100VW-060-50**		**6MBI100VW-120-50**
Press fit pins	 M648	100A		**6MBI100XXA120-50**	**6MBI100VX-120-50**
					6MBI100VX-120-80
		150A	**6MBI150VX-060-50**	**6MBI150XXA120-50**	**6MBI150VX-120-50**
			6MBI150VX-060-80		**6MBI150VX-120-80**
		180A			**6MBI180VX-120-50**
					6MBI180VX-120-80
					6MBI180VX-120-55
					6MBI180VX-120-85
		200A		**6MBI200XXA120-50**	
				6MBI200XXE120-50	
		250A		**6MBI250XRXE120-50**	

Thermistor
P
U V W
N
XBA, XBE
XRBE
XXA, XXE, VX
XRXE

Dimension [mm]

Note: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.

■ X series

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
6MBI100XAE120-50	1200	±20	100	685	1.45	100	0.21	0.29	0.1	M669	200
6MBI100XBA120-50	1200	±20	100	440	1.45	100	0.21	0.29	0.1	M668	310
6MBI150XBA120-50	1200	±20	150	625	1.40	150	0.31	0.35	0.15	M668	310
6MBI200XBA120-50	1200	±20	200	750	1.45	200	0.27	0.34	0.12	M668	310
6MBI200XBE120-50	1200	±20	200	1000	1.45	200	0.27	0.34	0.12	M668	310
○ **6MBI250XRBE120-50**	1200	±20	250	TBD	TBD	250	TBD	TBD	TBD	M668	310
6MBI100XXA120-50	1200	±20	100	440	1.45	100	0.21	0.29	0.1	M648	310
6MBI150XXA120-50	1200	±20	150	625	1.40	150	0.31	0.35	0.15	M648	310
6MBI200XXA120-50	1200	±20	200	750	1.45	200	0.27	0.34	0.12	M648	310
6MBI200XXE120-50	1200	±20	200	1000	1.45	200	0.27	0.34	0.12	M648	310
○ **6MBI250XRXE120-50**	1200	±20	250	TBD	TBD	250	TBD	TBD	TBD	M648	310

■ V series

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
6MBI50VA-060-50	600	± 20	50	200	1.6	50	0.36	0.52	0.03	M636	180
6MBI75VA-060-50	600	± 20	75	275	1.6	75	0.36	0.52	0.03	M636	180
6MBI100VA-060-50	600	± 20	100	335	1.6	100	0.36	0.52	0.03	M636	180
6MBI150VB-060-50	600	± 20	150	485	1.6	150	0.36	0.52	0.03	M633	300
6MBI50VW-060-50	600	± 20	50	215	1.6	50	0.36	0.52	0.03	M647	200
6MBI75VW-060-50	600	± 20	75	300	1.6	75	0.36	0.52	0.03	M647	200
6MBI100VW-060-50	600	± 20	100	335	1.6	100	0.36	0.52	0.03	M647	200
6MBI150VX-060-50	600	± 20	150	485	1.6	150	0.36	0.52	0.03	M648	300
6MBI150VX-060-80	600	± 20	150	485	1.6	150	0.36	0.52	0.03	M648	300
6MBI50VA-120-50	1200	± 20	50	280	1.85	50	0.39	0.53	0.06	M636	180
6MBI75VA-120-50	1200	± 20	75	385	1.85	75	0.39	0.53	0.06	M636	180
6MBI100VA-120-50	1200	± 20	100	520	1.75	100	0.39	0.53	0.06	M636	180
6MBI100VB-120-50	1200	± 20	100	520	1.75	100	0.39	0.53	0.06	M633	300
6MBI150VB-120-50	1200	± 20	150	770	1.75	150	0.39	0.53	0.06	M633	300
6MBI180VB-120-50	1200	± 20	150	835	1.85	200	0.39	0.53	0.06	M633	300
6MBI180VB-120-55	1200	± 20	150	1075	1.85	200	0.39	0.53	0.06	M633	300
6MBI50VW-120-50	1200	± 20	50	280	1.85	50	0.39	0.53	0.06	M647	200
6MBI75VW-120-50	1200	± 20	75	385	1.85	75	0.39	0.53	0.06	M647	200
6MBI100VW-120-50	1200	± 20	100	520	1.75	100	0.39	0.53	0.06	M647	200
6MBI100VX-120-50	1200	± 20	100	520	1.75	100	0.39	0.53	0.06	M648	300
6MBI100VX-120-80	1200	± 20	100	520	1.75	100	0.39	0.53	0.06	M648	300
6MBI150VX-120-50	1200	± 20	150	770	1.75	150	0.39	0.53	0.06	M648	300
6MBI150VX-120-80	1200	± 20	150	770	1.75	150	0.39	0.53	0.06	M648	300
6MBI180VX-120-50	1200	± 20	150	835	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-80	1200	± 20	150	835	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-55	1200	± 20	150	1075	1.85	200	0.39	0.53	0.06	M648	300
6MBI180VX-120-85	1200	± 20	150	1075	1.85	200	0.39	0.53	0.06	M648	300

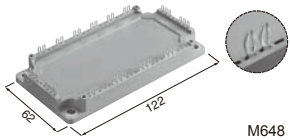
Note1: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
Note3: "-80","-85" : Pre-Applied Thermal-Interface-Material for "-50","-55"
○: Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

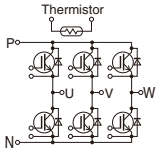
IGBT Module 6-Pack < V series >

6-Pack EconoPACK™ 1700V class

Press fit pins



M648



I_C	1700V
	V series
100A	**6MBI100VX-170-50**
	6MBI100VX-170-80

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
6MBI100VX-170-50	1700	±20	100	665	2.00	100	0.63	0.70	0.10	M648	300
6MBI100VX-170-80	1700	±20	100	665	2.00	100	0.63	0.70	0.10	M648	300

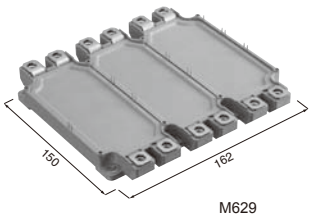
Note1: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material for "-50"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

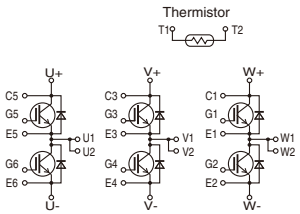
IGBT Module 6-Pack ＜V series＞

■ 6-Pack EconoPACK™+ 1200V, 1700V class

High power 6-pack



M629



I_C	1200V V series	1700V V series
225A	**6MBI225V-120-50**	
300A	**6MBI300V-120-50**	**6MBI300V-170-50**
	6MBI300V-120-80	
450A	**6MBI450V-120-50**	**6MBI450V-170-50**
		6MBI450V-170-80
550A	**6MBI550V-120-50**	

Dimension [mm]

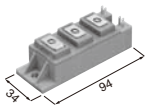
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
6MBI225V-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M629	950
6MBI300V-120-50	1200	±20	300	1600	1.75	300	0.55	1.05	0.11	M629	950
6MBI300V-120-80	1200	±20	300	1600	1.75	300	0.55	1.05	0.11	M629	950
6MBI450V-120-50	1200	±20	450	2250	1.75	450	0.55	1.05	0.11	M629	950
6MBI550V-120-50	1200	±20	550	2500	1.85	600	0.55	1.05	0.11	M629	950
6MBI300V-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M629	950
6MBI450V-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M629	950
6MBI450V-170-80	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M629	950

Note1: EconoPACK™ is registered trademarks of Infineon Technologies AG, Germany.
Note2: "-80" : Pre-Applied Thermal-Interface-Material

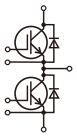
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

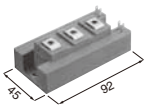
IGBT Module 2-Pack ＜X series / V series＞

■ Standard 2-Pack 650V, 600V class

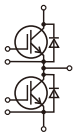


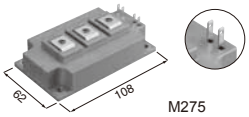
M263



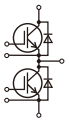


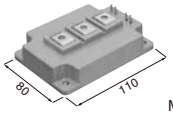
M274



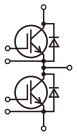


M275





M277



I_C	650V X series	600V V series
100A		**2MBI100VA-060-50**
150A	**2MBI150XAA065-50**	**2MBI150VA-060-50**
200A	**2MBI200XAA065-50**	**2MBI200VA-060-50**
300A	**2MBI300XBE065-50**	**2MBI300VB-060-50**
400A	**2MBI400XBE065-50**	**2MBI400VB-060-50**
400A	**2MBI400XDE065-50**	**2MBI400VD-060-50**
600A	**2MBI600XDE065-50**	**2MBI600VD-060-50**
600A	**2MBI600XEE065-50**	**2MBI600VE-060-50**
		2MBI600VE-060-80

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
● **2MBI150XAA065-50**	650	±20	150	435	1.30	150	0.39	0.38	0.11	M263	180
● **2MBI200XAA065-50**	650	±20	200	545	1.30	200	0.35	0.57	0.07	M263	180
2MBI300XBE065-50	650	±20	300	1160	1.30	300	0.37	0.35	0.07	M274	240
2MBI400XBE065-50	650	±20	400	1740	1.30	400	0.35	0.68	0.07	M274	240
2MBI400XDE065-50	650	±20	400	1945	1.30	400	0.48	0.59	0.07	M275	370
2MBI600XDE065-50	650	±20	600	2795	1.30	600	0.49	0.61	0.11	M275	370
2MBI600XEE065-50	650	±20	600	2795	1.30	600	0.41	0.53	0.11	M277	470

■ V series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μsec.	t_{off} typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
2MBI100VA-060-50	600	± 20	100	330	1.60	100	0.65	0.60	0.04	M263	180
2MBI150VA-060-50	600	± 20	150	480	1.60	150	0.65	0.60	0.04	M263	180
2MBI200VA-060-50	600	± 20	200	640	1.60	200	0.65	0.60	0.04	M263	180
2MBI300VB-060-50	600	± 20	300	1360	1.60	300	0.65	0.60	0.07	M274	240
2MBI400VB-060-50	600	± 20	400	1970	1.60	400	0.65	0.60	0.07	M274	240
2MBI400VD-060-50	600	± 20	400	1970	1.60	400	0.65	0.60	0.07	M275	370
2MBI600VD-060-50	600	± 20	600	2940	1.60	600	0.75	0.75	0.07	M275	370
2MBI600VE-060-50	600	± 20	600	2940	1.60	600	0.75	0.75	0.07	M277	470
2MBI600VE-060-80	600	± 20	600	2940	1.60	600	0.75	0.75	0.07	M277	470

Note：-80 : Pre-Applied Thermal-Interface-Material

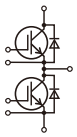
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

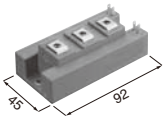
● : New products

IGBT Module 2-Pack ＜X series / V series＞

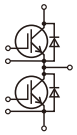
■ Standard 2-Pack 1200V class

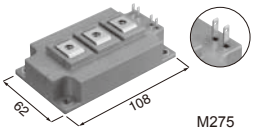
M263



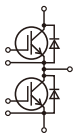


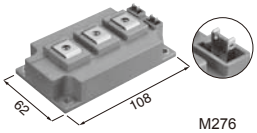
M274



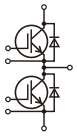


M275

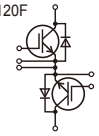


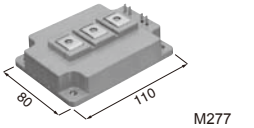


M276

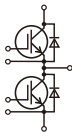


* 2MBI450VH-120F





M277



	1200V	
I_C	X series	V series
75A		**2MBI75VA-120-50**
100A	**2MBI100XAA120-50**	**2MBI100VA-120-50**
150A	**2MBI150XAA120-50**	**2MBI150VA-120-50**
200A	**2MBI200XAA120-50**	
150A		**2MBI150VB-120-50**
200A	**2MBI200XBE120-50**	**2MBI200VB-120-50**
300A	**2MBI300XBE120-50**	
300A		**2MBI300VD-120-50**
400A	**2MBI400XDE120-50**	**2MBI400VD-120-50**
600A	**2MBI600XDE120-50**	
200A		**2MBI200VH-120-50**
		2MBI200VH-120-80
300A	**2MBI300XHA120-50**	**2MBI300VH-120-50**
		2MBI300VH-120-80
450A	**2MBI450XHA120-50**	**2MBI450VH-120-50**
		2MBI450VH-120-80
		2MBI450VH-120F-50
		2MBI450VH-120F-80
600A	**2MBI600XHA120-50**	
300A		**2MBI300VE-120-50**
		2MBI300VE-120-80
450A	**2MBI450XEE120-50**	**2MBI450VE-120-50**
		2MBI450VE-120-80
600A	**2MBI600XEE120-50**	**2MBI600VE-120-50**
		2MBI600VE-120-80

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
● **2MBI100XAA120-50**	1200	±20	100	460	1.40	100	0.34	0.33	0.12	M263	180
● **2MBI150XAA120-50**	1200	±20	150	575	1.50	150	0.25	0.32	0.16	M263	180
● **2MBI200XAA120-50**	1200	±20	200	735	1.45	200	0.34	0.32	0.07	M263	180
2MBI200XBE120-50	1200	±20	200	1150	1.40	200	0.32	0.36	0.13	M274	240
2MBI300XBE120-50	1200	±20	300	1760	1.50	300	0.23	0.35	0.11	M274	240
2MBI400XDE120-50	1200	±20	400	2975	1.40	400	0.38	0.36	0.13	M275	370
2MBI600XDE120-50	1200	±20	600	3985	1.45	600	0.40	0.37	0.11	M275	370
2MBI300XHA120-50	1200	±20	300	1475	1.45	300	0.40	0.34	0.15	M276	370
2MBI450XHA120-50	1200	±20	450	1850	1.45	450	0.39	0.35	0.13	M276	370
2MBI600XHA120-50	1200	±20	600	2340	1.45	600	0.40	0.37	0.11	M276	370
2MBI450XEE120-50	1200	±20	450	2975	1.45	450	0.35	0.34	0.14	M277	470
2MBI600XEE120-50	1200	±20	600	3985	1.40	600	0.42	0.40	0.12	M277	470

● : New products

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

■ V series

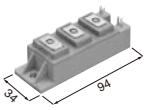
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
2MBI75VA-120-50	1200	±20	75	390	1.85	75	0.60	0.60	0.04	M263	180
2MBI100VA-120-50	1200	±20	100	555	1.85	100	0.60	0.60	0.04	M263	180
2MBI150VA-120-50	1200	±20	150	785	1.85	150	0.60	0.60	0.04	M263	180
2MBI150VB-120-50	1200	±20	150	1070	1.85	150	0.60	0.80	0.08	M274	240
2MBI200VB-120-50	1200	±20	200	1500	1.75	200	0.60	0.80	0.08	M274	240
2MBI300VD-120-50	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M275	370
2MBI400VD-120-50	1200	±20	400	3330	1.75	400	0.60	0.80	0.08	M275	370
2MBI200VH-120-50	1200	±20	200	1110	1.75	200	0.60	0.80	0.08	M276	370
2MBI200VH-120-80	1200	±20	200	1110	1.75	200	0.60	0.80	0.08	M276	370
2MBI300VH-120-50	1200	±20	300	1600	1.75	300	0.60	0.80	0.08	M276	370
2MBI300VH-120-80	1200	±20	300	1600	1.75	300	0.60	0.80	0.08	M276	370
2MBI450VH-120-50	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120-80	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120F-50	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI450VH-120F-80	1200	±20	450	2400	1.80	450	0.60	0.80	0.08	M276	370
2MBI300VE-120-50	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M277	470
2MBI300VE-120-80	1200	±20	300	2200	1.85	300	0.60	0.80	0.08	M277	470
2MBI450VE-120-50	1200	±20	450	3350	1.80	450	0.60	0.80	0.08	M277	470
2MBI450VE-120-80	1200	±20	450	3350	1.80	450	0.60	0.80	0.08	M277	470
2MBI600VE-120-50	1200	±20	600	4800	1.75	600	0.60	0.80	0.08	M277	470
2MBI600VE-120-80	1200	±20	600	4800	1.75	600	0.60	0.80	0.08	M277	470

Note : -80 : Pre-Applied Thermal-Interface-Material

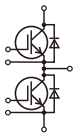
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

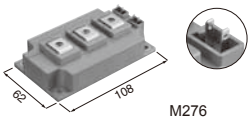
IGBT Module 2-Pack ＜X series / V series＞

■ Standard 2-Pack 1700V class

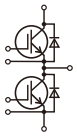


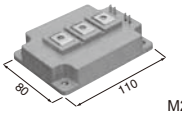
M263



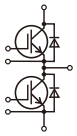


M276





M277



I_C	1700V X series	1700V V series
75A	**2MBI75XAA170-50**	**2MBI75VA-170-50**
100A	**2MBI100XAA170-50**	**2MBI100VA-170-50**
150A	**2MBI150XAA170-50**	
150A	**2MBI150XHA170-50**	**2MBI150VH-170-50**
		2MBI150VH-170-80
200A	**2MBI200XHA170-50**	**2MBI200VH-170-50**
		2MBI200VH-170-80
300A	**2MBI300XHA170-50**	**2MBI300VH-170-50**
		2MBI300VH-170-80
400A	**2MBI400XHA170-50**	
300A	**2MBI300XEE170-50**	**2MBI300VE-170-50**
		2MBI300VE-170-80
400A	**2MBI400XEE170-50**	**2MBI400VE-170-50**
		2MBI400VE-170-80

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
● **2MBI75XAA170-50**	1700	±20	75	460	1.60	75	0.45	0.85	0.45	M263	180
● **2MBI100XAA170-50**	1700	±20	100	560	1.65	100	0.41	0.42	0.47	M263	180
● **2MBI150XAA170-50**	1700	±20	150	730	1.60	150	0.43	0.43	0.44	M263	180
● **2MBI150XHA170-50**	1700	±20	150	925	1.60	150	0.37	0.43	0.50	M276	370
● **2MBI200XHA170-50**	1700	±20	200	1125	1.65	200	0.40	0.60	0.63	M276	370
● **2MBI300XHA170-50**	1700	±20	300	1685	1.60	300	0.44	0.62	0.60	M276	370
● **2MBI400XHA170-50**	1700	±20	400	2270	1.65	400	0.45	0.65	0.64	M276	370
● **2MBI300XEE170-50**	1700	±20	300	3025	1.60	300	0.44	0.60	0.54	M277	470
● **2MBI400XEE170-50**	1700	±20	400	3655	1.65	400	0.45	0.65	0.64	M277	470

■ V series

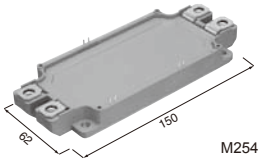
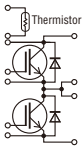
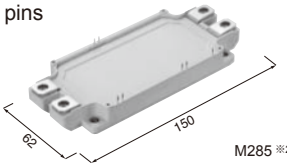
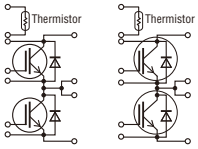
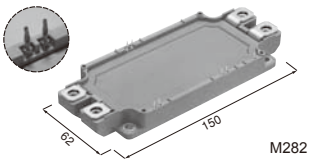
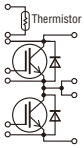
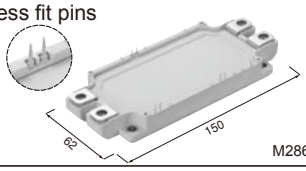
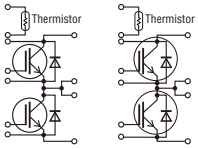
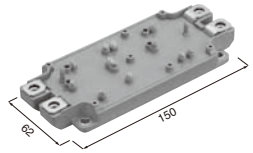
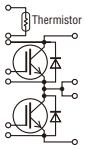
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μsec.	t_{off} typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
2MBI75VA-170-50	1700	± 20	75	555	2.00	75	1.25	1.30	0.15	M263	180
2MBI100VA-170-50	1700	± 20	100	665	2.00	100	1.25	1.30	0.15	M263	180
2MBI150VH-170-50	1700	± 20	150	1110	2.00	150	0.95	1.05	0.14	M276	370
2MBI150VH-170-80	1700	± 20	150	1110	2.00	150	0.95	1.05	0.14	M276	370
2MBI200VH-170-50	1700	± 20	200	1250	2.00	200	1.15	1.05	0.14	M276	370
2MBI200VH-170-80	1700	± 20	200	1250	2.00	200	1.15	1.05	0.14	M276	370
2MBI300VH-170-50	1700	± 20	300	1805	2.00	300	1.15	1.05	0.14	M276	370
2MBI300VH-170-80	1700	± 20	300	1805	2.00	300	1.15	1.05	0.14	M276	370
2MBI300VE-170-50	1700	± 20	300	2830	2.00	300	1.15	1.05	0.14	M277	470
2MBI300VE-170-80	1700	± 20	300	2830	2.00	300	1.15	1.05	0.14	M277	470
2MBI400VE-170-50	1700	± 20	400	3840	2.00	400	1.15	1.05	0.14	M277	470
2MBI400VE-170-80	1700	± 20	400	3840	2.00	400	1.15	1.05	0.14	M277	470

Note：-80 : Pre-Applied Thermal-Interface-Material
● : New products

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module 2-Pack ＜X series / V series＞

■ Standard 2-Pack 1200V class

		1200V		
	I_C	X series	V series	V series With SiN-substrate
Solder pins  M254 	225A	**2MBI225XNA120-50**	**2MBI225VN-120-50**	**2MBI225VN-120S-50**
			2MBI225VN-120-80	
	300A	**2MBI300XNA120-50**	**2MBI300VN-120-50**	**2MBI300VN-120S-50**
			2MBI300VN-120-80	**2MBI300VN-120S-80**
	450A	**2MBI450XNA120-50**	**2MBI450VN-120-50**	**2MBI450VN-120S-50**
			2MBI450VN-120-80	**2MBI450VN-120S-80**
	600A	**2MBI600XNG120-50**		**2MBI600VN-120-50**
				2MBI600VN-120-80
Solder pins  M285 ※2  XNE XRNE	600A	**2MBI600XNE120-50**		
	800A	**2MBI800XNE120-50**		
	1000A	**2MBI1000XRNE120-50**		
Press fit pins  M282 	225A	**2MBI225XNB120-50**	**2MBI225VX-120-50**	
			2MBI225VX-120-80	
	300A	**2MBI300XNB120-50**	**2MBI300VX-120-50**	
			2MBI300VX-120-80	
	450A	**2MBI450XNB120-50**	**2MBI450VX-120-50**	
			2MBI450VX-120-80	
	600A	**2MBI600XNH120-50**		**2MBI600VX-120-50**
				2MBI600VX-120-80
Press fit pins  M286 ※2  XNF XRNF	600A	**2MBI600XNF120-50**		
	800A	**2MBI800XNF120-50**		
	1000A	**2MBI1000XRNF120-50**		
Spring contacts  M260 	225A		**2MBI225VJ-120-50**	
			2MBI225VJ-120-80	
	300A		**2MBI300VJ-120-50**	
			2MBI300VJ-120-80	
	450A		**2MBI450VJ-120-50**	
			2MBI450VJ-120-80	
	600A			**2MBI600VJ-120-50**
				2MBI600VJ-120-80

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
2MBI225XNA120-50	1200	±20	225	1030	1.45	225	0.23	0.33	0.05	M254	350
2MBI300XNA120-50	1200	±20	300	1325	1.40	300	0.26	0.36	0.05	M254	350
2MBI450XNA120-50	1200	±20	450	1760	1.40	450	0.37	0.40	0.07	M254	350
2MBI600XNG120-50 ※1	1200	±20	600	3125	1.45	600	0.42	0.42	0.07	M254	350
2MBI600XNE120-50 ※1	1200	±20	600	3125	1.45	600	0.42	0.42	0.07	M285 ※2	350
2MBI800XNE120-50 ※1	1200	±20	800	4050	1.45	800	0.47	0.45	0.08	M285 ※2	350
● **2MBI1000XRNE120-50** ※1	1200	±20	1000	TBD	TBD	1000	TBD	TBD	TBD	M285 ※2	350
2MBI225XNB120-50	1200	±20	225	1030	1.45	225	0.23	0.33	0.05	M282	350
2MBI300XNB120-50	1200	±20	300	1325	1.40	300	0.26	0.36	0.05	M282	350
2MBI450XNB120-50	1200	±20	450	1760	1.40	450	0.37	0.40	0.07	M282	350
2MBI600XNH120-50 ※1	1200	±20	600	3125	1.45	600	0.42	0.42	0.07	M282	350
2MBI600XNF120-50 ※1	1200	±20	600	3125	1.45	600	0.42	0.42	0.07	M286 ※2	350
2MBI800XNF120-50 ※1	1200	±20	800	4050	1.45	800	0.47	0.45	0.08	M286 ※2	350
● **2MBI1000XRNF120-50** ※1	1200	±20	1000	TBD	TBD	1000	TBD	TBD	TBD	M286 ※2	350

*1: The products with 'XNE, XNF, XNG, XNH, XRNE, XRNF' : Low Thermal Impedance Version
*2: Low thermal impedance and high tracking capability type
●: New products

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

■ V series

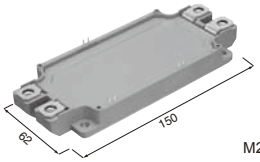
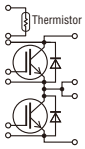
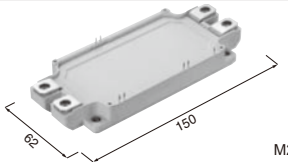
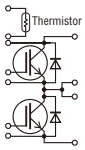
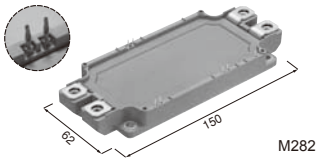
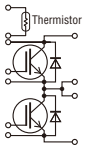
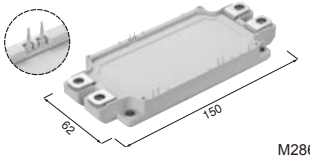
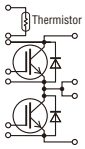
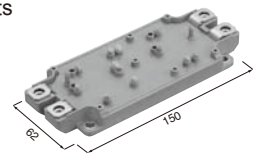
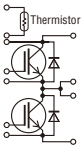
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
2MBI225VN-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M254	350
2MBI225VN-120-80	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M254	350
2MBI225VN-120S-50 ※3	1200	±20	225	1360	1.85	225	0.40	0.55	0.05	M254	350
2MBI300VN-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M254	350
2MBI300VN-120-80	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M254	350
2MBI300VN-120S-50 ※3	1200	±20	300	2000	1.75	300	0.45	0.65	0.06	M254	350
2MBI300VN-120S-80 ※3	1200	±20	300	2000	1.75	300	0.45	0.65	0.06	M254	350
2MBI450VN-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M254	350
2MBI450VN-120-80	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M254	350
2MBI450VN-120S-50 ※3	1200	±20	450	3000	1.75	450	0.47	0.70	0.07	M254	350
2MBI450VN-120S-80 ※3	1200	±20	450	3000	1.75	450	0.47	0.70	0.07	M254	350
2MBI600VN-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M254	350
2MBI600VN-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M254	350
2MBI225VX-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M282	350
2MBI225VX-120-80	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M282	350
2MBI300VX-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M282	350
2MBI300VX-120-80	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M282	350
2MBI450VX-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M282	350
2MBI450VX-120-80	1200	±20	450	1595	1.75	450	0.55	1.05	0.11	M282	350
2MBI600VX-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M282	350
2MBI600VX-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M282	350
2MBI225VJ-120-50	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M260	360
2MBI225VJ-120-80	1200	±20	225	1070	1.85	225	0.55	1.05	0.11	M260	360
2MBI300VJ-120-50	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M260	360
2MBI300VJ-120-80	1200	±20	300	1595	1.75	300	0.55	1.05	0.11	M260	360
2MBI450VJ-120-50	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M260	360
2MBI450VJ-120-80	1200	±20	450	2270	1.75	450	0.55	1.05	0.11	M260	360
2MBI600VJ-120-50	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M260	360
2MBI600VJ-120-80	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M260	360

*3: The products with 'S' : Low Thermal Impedance Version
Note: -80 : Pre-Applied Thermal-Interface-Material

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module 2-Pack ＜X series / V series＞

■ Standard 2-Pack 1700V class

		I_C	1700V		
			X series	V series	V series With SiN-substrate
Solder pins	 M254 	225A	**2MBI225XNA170-50**		
		300A	**2MBI300XNA170-50**	**2MBI300VN-170-50**	
				2MBI300VN-170-80	
		450A	**2MBI450XNA170-50**	**2MBI450VN-170-50**	
				2MBI450VN-170-80	
		550A			**2MBI550VN-170-50**
					2MBI550VN-170-80
		600A	**2MBI600XNG170-50**		
Solder pins	 M285 ※2 	600A	**2MBI600XNE170-50**		
Press fit pins	 M282 	225A	**2MBI225XNB170-50**	**2MBI225VX-170-50**	
				2MBI225VX-170-80	
		300A	**2MBI300XNB170-50**	**2MBI300VX-170-50**	
				2MBI300VX-170-80	
		450A	**2MBI450XNB170-50**	**2MBI450VX-170-50**	
				2MBI450VX-170-80	
		550A			**2MBI550VX-170-50**
					2MBI550VX-170-80
		600A	**2MBI600XNH170-50**		
Press fit pins	 M286 ※2 	600A	**2MBI600XNF170-50**		
Spring contacts	 M260 	550A			**2MBI550VJ-170-50**
					2MBI550VJ-170-80

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
● **2MBI225XNA170-50**	1700	±20	225	1470	1.60	225	0.35	0.46	0.13	M254	350
● **2MBI300XNA170-50**	1700	±20	300	1720	1.60	300	0.39	0.49	0.13	M254	350
● **2MBI450XNA170-50**	1700	±20	450	2340	1.60	450	0.41	0.52	0.14	M254	350
● **2MBI600XNG170-50** ※1	1700	±20	600	3845	1.70	600	0.49	0.58	0.15	M254	350
● **2MBI600XNE170-50** ※1	1700	±20	600	3845	1.70	600	0.49	0.58	0.15	M285 ※2	350
● **2MBI225XNB170-50**	1700	±20	225	1470	1.60	225	0.35	0.46	0.13	M282	350
● **2MBI300XNB170-50**	1700	±20	300	1720	1.60	300	0.39	0.49	0.13	M282	350
● **2MBI450XNB170-50**	1700	±20	450	2340	1.60	450	0.41	0.52	0.14	M282	350
● **2MBI600XNH170-50** ※1	1700	±20	600	3845	1.65	600	0.49	0.58	0.15	M282	350
● **2MBI600XNF170-50** ※1	1700	±20	600	3845	1.65	600	0.49	0.58	0.15	M286 ※2	350

*1: The products with 'XNE, XNF, XNG, XNH' : Low Thermal Impedance Version
*2: Low thermal impedance and high tracking capability type
●: New products

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

Power Devices (IGBT)

■ V series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μ sec.	t_{off} typ. μ sec.	t_f typ. μ sec.	Package	Net mass Grams
2MBI300VN-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M254	350
2MBI300VN-170-80	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M254	350
2MBI450VN-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M254	350
2MBI450VN-170-80	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M254	350
2MBI550VN-170-50 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M254	350
2MBI550VN-170-80 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M254	350
2MBI225VX-170-50	1700	±20	225	1500	2.00	225	0.90	1.05	0.08	M282	350
2MBI225VX-170-80	1700	±20	225	1500	2.00	225	0.90	1.05	0.08	M282	350
2MBI300VX-170-50	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M282	350
2MBI300VX-170-80	1700	±20	300	1665	2.00	300	0.90	1.30	0.10	M282	350
2MBI450VX-170-50	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M282	350
2MBI450VX-170-80	1700	±20	450	2500	2.00	450	0.90	1.30	0.10	M282	350
2MBI550VX-170-50 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M282	350
2MBI550VX-170-80 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M282	350
2MBI550VJ-170-50 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M260	360
2MBI550VJ-170-80 ※3	1700	±20	550	3750	2.15	550	1.00	1.30	0.10	M260	360

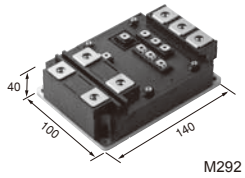
*3: 550A Low Thermal Impedance Version

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

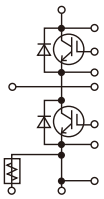
Note: -80 : Pre-Applied Thermal-Interface-Material

IGBT Module 2-Pack ＜X series＞

■ High Power Module HPnC 1700V, 3300V class



M292



I_C	1700V X series	3300V X series
450A		**2MBI450XVF330-50**
1000A	**2MBI1000XVF170-50**	
1200A	**2MBI1200XVF170-50**	

Dimension [mm]

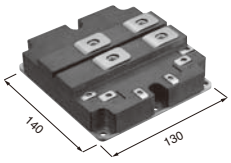
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
○ **2MBI1000XVF170-50**	1700	±20	1000	4340	1.7	1000	0.75	1.3	0.6	M292	790
○ **2MBI1200XVF170-50**	1700	±20	1200	TBD	1.7	1200	TBD	TBD	TBD	M292	790
○ **2MBI450XVF330-50**	3300	±20	450	TBD	TBD	450	TBD	TBD	TBD	M292	790

○ : Under development

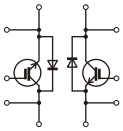
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module 2-Pack ＜V series＞

High Power Module 1200V, 1700V class



M256, M278



I_C	1200V V series Cu-baseplate	1700V V series Cu-baseplate	1700V V series AlSiC-baseplate
600A	**2MBI600VG-120P**	**2MBI600VG-170E**	**2MBI600VT-170E**
800A	**2MBI800VG-120P**	**2MBI800VG-170E**	**2MBI800VT-170E**
1200A	**2MBI1200VG-120P**	**2MBI1200VG-170E**	**2MBI1200VT-170E**

Dimension [mm]

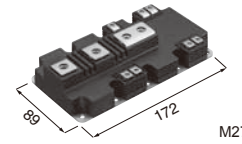
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μ sec.	t_{off} typ. μ sec.	t_f typ. μ sec.	Package	Net mass Grams
2MBI600VG-120P	1200	±20	600	3940	1.70	600	1.86	1.25	0.12	M256	1500
2MBI800VG-120P	1200	±20	800	5170	1.70	800	1.97	1.33	0.15	M256	1500
2MBI1200VG-120P	1200	±20	1200	6810	1.70	1200	2.55	1.67	0.16	M256	1500
2MBI600VG-170E	1700	±20	600	4410	2.00	600	2.28	2.07	0.58	M256	1500
2MBI800VG-170E	1700	±20	800	5760	2.00	800	2.41	2.13	0.55	M256	1500
2MBI1200VG-170E	1700	±20	1200	7500	2.00	1200	2.76	2.29	0.33	M256	1500
2MBI600VT-170E	1700	±20	600	4280	2.00	600	1.51	2.07	0.58	M278	900
2MBI800VT-170E	1700	±20	800	5370	2.00	800	2.00	2.13	0.55	M278	900
2MBI1200VT-170E	1700	±20	1200	7040	2.00	1200	2.14	2.29	0.33	M278	900

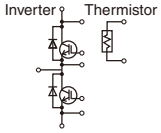
Note: M256: Cu-baseplate M278: AlSiC-baseplate

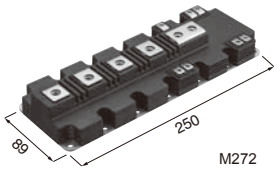
$V_{CE(sat)}$: at T_{vj}=25°C, Chip Switching time: at T_{vj}=125°C

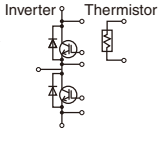
IGBT Module 2-Pack ＜X series / V series＞

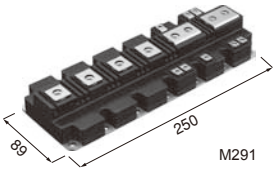
■ PrimePACK™ 1200V class

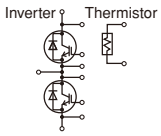












I_C	1200V X series	1200V V series Low switching loss	1200V V series Soft turn off
600A		**2MBI600VXA-120E-50**	
		2MBI600VXA-120E-80	
		2MBI600VXA-120E-54	
900A	**2MBI900XXA120P-50**	**2MBI900VXA-120E-50**	**2MBI900VXA-120P-50**
		2MBI900VXA-120E-80	**2MBI900VXA-120P-80**
		2MBI900VXA-120E-54	**2MBI900VXA-120P-54**
1200A	**2MBI1200XXE120P-50**		
1400A	**2MBI1400XXB120P-50**	**2MBI1400VXB-120E-50**	**2MBI1400VXB-120P-50**
		2MBI1400VXB-120E-80	**2MBI1400VXB-120P-80**
		2MBI1400VXB-120E-54	**2MBI1400VXB-120P-54**
1800A	**2MBI1800XXF120P-50**		
2400A	**2MBI2400XRXG120-50**		

Dimension [mm]

■ X series

Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time $t_{d(on)}$ typ. μsec.	$t_{d(off)}$ typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
○ **2MBI900XXA120P-50**	1200	±20	900	TBD	TBD	900	TBD	TBD	TBD	M271	850
● **2MBI1200XXE120P-50**	1200	±20	1200	7100	1.50	1200	1.10	0.90	0.16	M271	850
● **2MBI1400XXB120P-50**	1200	±20	1400	TBD	TBD	1400	TBD	TBD	TBD	M272	1250
● **2MBI1800XXF120P-50**	1200	±20	1800	10700	1.50	1800	1.10	0.90	0.16	M272	1250
○ **2MBI2400XRXG120-50**	1200	±20	2400	TBD	TBD	2400	TBD	TBD	TBD	M291	1350

■ V series

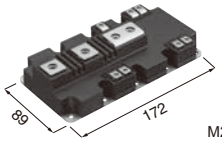
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μsec.	t_{off} typ. μsec.	t_f typ. μsec.	Package	Net mass Grams
2MBI600VXA-120E-50	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI600VXA-120E-80	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI600VXA-120E-54	1200	±20	600	3350	1.75	600	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-50	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-80	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120E-54	1200	±20	900	5100	1.75	900	1.00	1.20	0.15	M271	850
2MBI1400VXB-120E-50	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120E-80	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120E-54	1200	±20	1400	7650	1.75	1400	1.00	1.20	0.15	M272	1250
2MBI900VXA-120P-50	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120P-80	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI900VXA-120P-54	1200	±20	900	5100	1.65	900	1.00	1.20	0.15	M271	850
2MBI1400VXB-120P-50	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120P-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
2MBI1400VXB-120P-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250

Note 1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note 2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note 3: "-80": Pre-Applied Thermal-Interface-Material for "-54"
Note 4: The products with 'P' on this page are 'soft turn off' type.
●:New products ○:Under development

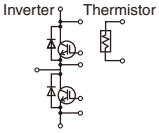
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

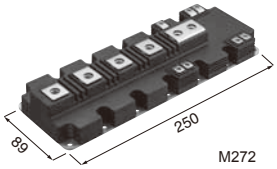
IGBT Module 2-Pack ＜X series / V series＞

■ PrimePACK™ 1700V class

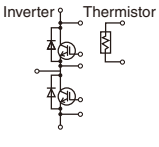


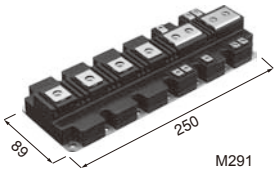
M271



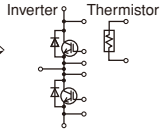


M272





M291



I_C	1700V		
	X series	V series	
	Low switching loss	Low switching loss	Soft turn off
650A	**2MBI650XXA170-50**	**2MBI650VXA-170E-50**	
		2MBI650VXA-170E-80	
		2MBI650VXA-170E-54	
		2MBI650VXA-170EA-50	
		2MBI650VXA-170EA-80	
		2MBI650VXA-170EA-54	
1200A	**2MBI1200XXE170-50**		
1000A	**2MBI1000XXB170-50**	**2MBI1000VXB-170E-50**	
		2MBI1000VXB-170E-80	
		2MBI1000VXB-170E-54	
		2MBI1000VXB-170EA-50	
		2MBI1000VXB-170EA-80	
		2MBI1000VXB-170EA-54	
1400A	**2MBI1400XXB170-50**	**2MBI1400VXB-170E-50**	**2MBI1400VXB-170P-50**
		2MBI1400VXB-170E-80	**2MBI1400VXB-170P-80**
		2MBI1400VXB-170E-54	**2MBI1400VXB-170P-54**
1800A	**2MBI1800XXF170-50**		
1800A	**2MBI1800XXG170-50**		

Dimension [mm]

■ X series

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
● **2MBI650XXA170-50**	1700	±20	650	TBD	TBD	650	TBD	TBD	TBD	M271	850
● **2MBI1200XXE170-50**	1700	±20	1200	8600	1.75	1200	1.10	1.05	0.20	M271	850
● **2MBI1000XXB170-50**	1700	±20	1000	TBD	TBD	1000	TBD	TBD	TBD	M272	1250
● **2MBI1400XXB170-50**	1700	±20	1400	TBD	TBD	1400	TBD	TBD	TBD	M272	1250
● **2MBI1800XXF170-50**	1700	±20	1800	13000	1.75	1800	1.10	1.05	0.20	M272	1250
● **2MBI1800XXG170-50**	1700	±20	1800	13000	1.75	1800	1.10	1.05	0.20	M291	1350

Note: PrimePACK ™ is registered trademark of Infineon Technologies AG, Germany.

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

●: New products

■ V series

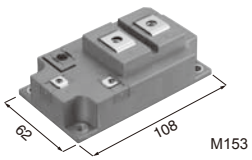
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
2MBI650VXA-170E-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170E-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170E-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
2MBI650VXA-170EA-50	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850
2MBI650VXA-170EA-80	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850
2MBI650VXA-170EA-54	1700	±20	650	4150	2.00	650	1.70	1.60	0.11	M271	850
2MBI1000VXB-170E-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170E-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170E-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
2MBI1000VXB-170EA-50	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1000VXB-170EA-80	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1000VXB-170EA-54	1700	±20	1000	6250	2.00	1000	1.70	1.60	0.11	M272	1250
2MBI1400VXB-170E-50	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170E-80	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170E-54	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
2MBI1400VXB-170P-50	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250
2MBI1400VXB-170P-80	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250
2MBI1400VXB-170P-54	1700	±20	1400	8820	1.90	1400	1.35	1.80	0.20	M272	1250

Note 1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note 2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note 3: The products with 'EA' on this page have optimized FWD for the application causing heavy load through FWD.
The optimized FWD reduces V_F and thermal resistance.
Note 4: "-80": Pre-Applied Thermal-Interface-Material for "-54"

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module 1-Pack ＜V series＞

■ Standard 1-Pack 1200V, 1700V class



I_C	1200V V series	1200V V series With AlN substrate	1700V V series
300A			**1MBI300V-170-50**
400A	**1MBI400V-120-50**	**1MBI400VF-120-50**	**1MBI400V-170-50**
600A	**1MBI600V-120-50**	**1MBI600VF-120-50**	**1MBI600V-170-50**
900A	**1MBI900V-120-50**		

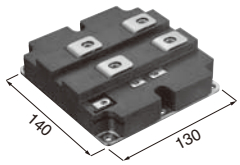
Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
1MBI400V-120-50	1200	±20	400	2410	1.75	400	0.60	1.10	0.14	M153	380
1MBI600V-120-50	1200	±20	600	3000	1.75	600	0.70	0.90	0.10	M153	380
1MBI900V-120-50	1200	±20	900	4280	1.90	900	0.70	0.85	0.10	M153	380
1MBI400VF-120-50	1200	±20	400	3330	1.75	400	0.60	1.10	0.14	M153	380
1MBI600VF-120-50	1200	±20	600	4680	1.75	600	0.70	0.90	0.10	M153	380
1MBI300V-170-50	1700	±20	300	1705	2.00	300	0.70	0.80	0.14	M153	380
1MBI400V-170-50	1700	±20	400	2500	2.00	400	0.70	0.80	0.14	M153	380
1MBI600V-170-50	1700	±20	600	3610	2.00	600	0.70	0.80	0.14	M153	380

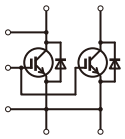
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

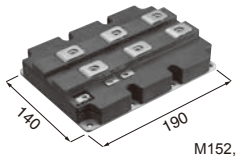
IGBT Module 1-Pack ＜V series / U series＞

■ High Power Module 1200V, 1700V, 3300V class

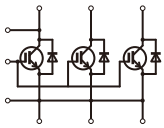


M151, M155





M152, M156



I_C	1200V V series Cu-baseplate	1700V V series Cu-baseplate	1700V V series AlSiC-baseplate	3300V U series AlSiC-baseplate
800A				**1MBI800UG-330**
1000A				**1MBI1000UG-330**
				1MBI1000UG-330B
1200A	**1MBI1200VC-120P**	**1MBI1200VC-170E**	**1MBI1200VR-170E**	
1600A	**1MBI1600VC-120P**	**1MBI1600VC-170E**	**1MBI1600VR-170E**	
2400A	**1MBI2400VC-120P**	**1MBI2400VC-170E**	**1MBI2400VR-170E**	
1200A				**1MBI1200UE-330**
1500A				**1MBI1500UE-330**
				1MBI1500UE-330B
2400A	**1MBI2400VD-120P**	**1MBI2400VD-170E**	**1MBI2400VS-170E**	
3600A	**1MBI3600VD-120P**	**1MBI3600VD-170E**	**1MBI3600VS-170E**	

Dimension [mm]

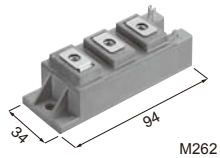
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. μ sec.	t_{off} typ. μ sec.	t_f typ. μ sec.	Package	Net mass Grams
1MBI1200VC-120P	1200	±20	1200	7890	1.70	1200	1.73	1.52	0.15	M151	1500
1MBI1600VC-120P	1200	±20	1600	10340	1.70	1600	2.22	1.47	0.19	M151	1500
1MBI2400VC-120P	1200	±20	2400	13630	1.70	2400	3.15	1.93	0.24	M151	1500
1MBI2400VD-120P	1200	±20	2400	15780	1.70	2400	2.38	1.64	0.21	M152	2300
1MBI3600VD-120P	1200	±20	3600	20540	1.70	3600	2.98	2.15	0.27	M152	2300
1MBI1200VC-170E	1700	±20	1200	8820	2.00	1200	2.18	2.20	0.45	M151	1500
1MBI1600VC-170E	1700	±20	1600	11700	2.00	1600	2.28	2.17	0.40	M151	1500
1MBI2400VC-170E	1700	±20	2400	15000	2.00	2400	2.63	2.41	0.38	M151	1500
1MBI2400VD-170E	1700	±20	2400	17640	2.00	2400	2.30	2.22	0.43	M152	2300
1MBI3600VD-170E	1700	±20	3600	22380	2.00	3600	2.27	2.67	0.31	M152	2300
1MBI1200VR-170E	1700	±20	1200	8570	2.00	1200	1.51	2.20	0.45	M155	900
1MBI1600VR-170E	1700	±20	1600	10710	2.00	1600	1.83	2.17	0.40	M155	900
1MBI2400VR-170E	1700	±20	2400	14010	2.00	2400	2.51	2.41	0.38	M155	900
1MBI2400VS-170E	1700	±20	2400	16120	2.00	2400	2.09	2.22	0.43	M156	1300
1MBI3600VS-170E	1700	±20	3600	21120	2.00	3600	2.70	2.66	0.32	M156	1300
1MBI800UG-330	3300	±20	800	9600	2.28	800	3.40	2.40	0.40	M155	900
1MBI1000UG-330	3300	±20	1000	10400	2.46	1000	2.50	2.00	0.50	M155	900
1MBI1000UG-330B	3300	±20	1000	10400	2.75	1000	3.10	2.35	0.45	M155	900
1MBI1200UE-330	3300	±20	1200	14700	2.28	1200	3.40	2.40	0.40	M156	1300
1MBI1500UE-330	3300	±20	1500	15600	2.46	1500	3.10	2.60	0.50	M156	1300
1MBI1500UE-330B	3300	±20	1500	15600	2.75	1500	3.10	2.35	0.45	M156	1300

Note1: M151, M152: Cu-baseplate M155, M156: AlSiC-baseplate
Note2: -330B type: Low switching losses

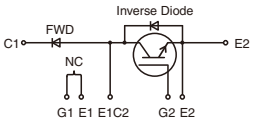
$V_{CE(sat)}$: at T_{vj}=25°C, Chip Switching time: at T_{vj}=125°C, at T_{vj}=150°C (3300V-1000A, 1500A only)

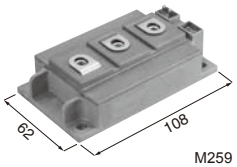
IGBT Module Chopper < V series / U series >

Chopper 600V, 1200V class

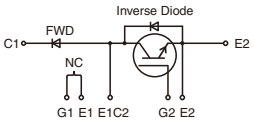


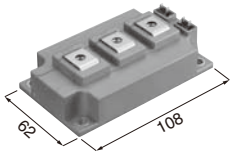
M262



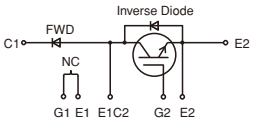


M259





M283



I_C	600V		1200V	
	U series	V series	U series	V series
50A			**1MBI50U4F-120L-50**	
75A			**1MBI75U4F-120L-50**	
100A			**1MBI100U4F-120L-50**	
150A				**1MBI150VA-120L-50**
200A				**1MBI200VA-120L-50**
200A			**1MBI200U4H-120L-50**	
300A	**1MBI300U2H-060L-50**			
400A		**1MBI400VH-060L-50**		

Dimension [mm]

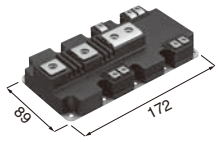
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
1MBI300U2H-060L-50	600	±20	300	1000	2.45	300	0.40	0.48	0.07	M259	360
1MBI400VH-060L-50	600	±20	400	1250	1.60	400	0.73	0.61	0.07	M283	370
1MBI50U4F-120L-50	1200	±20	50	400	2.15	50	0.32	0.41	0.07	M262	180
1MBI75U4F-120L-50	1200	±20	75	400	2.20	75	0.32	0.41	0.07	M262	180
1MBI100U4F-120L-50	1200	±20	100	540	2.20	100	0.32	0.41	0.07	M262	180
1MBI200U4H-120L-50	1200	±20	200	1040	2.25	200	0.32	0.41	0.07	M259	360
1MBI150VA-120L-50	1200	±20	150	785	1.85	150	0.60	0.60	0.04	M262	180
1MBI200VA-120L-50	1200	±20	200	880	1.80	200	0.60	0.60	0.04	M262	180

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

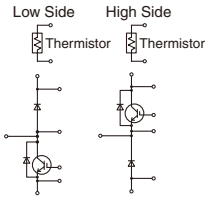
IGBT Module Chopper < V series >

PrimePACK™ 1200V, 1700V class

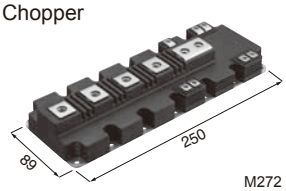
Chopper



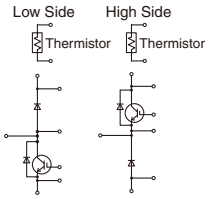
M271



Chopper



M272



	1200V		1700V	
	V series		V series	
I_C	Low side configuration	High side configuration	Low side configuration	High side configuration
650A			**1MBI650VXA-170EL-50**	**1MBI650VXA-170EH-50**
			1MBI650VXA-170EL-80	**1MBI650VXA-170EH-80**
			1MBI650VXA-170EL-54	**1MBI650VXA-170EH-54**
1000A			**1MBI1000VXB-170EL-50**	**1MBI1000VXB-170EH-50**
			1MBI1000VXB-170EL-80	**1MBI1000VXB-170EH-80**
			1MBI1000VXB-170EL-54	**1MBI1000VXB-170EH-54**
1400A	**1MBI1400VXB-120PL-54**	**1MBI1400VXB-120PH-54**	**1MBI1400VXB-170PL-50**	**1MBI1400VXB-170PH-50**
	1MBI1400VXB-120PL-80	**1MBI1400VXB-120PH-80**	**1MBI1400VXB-170PL-54**	**1MBI1400VXB-170PH-54**

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
1MBI1400VXB-120PL-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PL-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PH-54	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI1400VXB-120PH-80	1200	±20	1400	7650	1.65	1400	1.00	1.20	0.15	M272	1250
1MBI650VXA-170EL-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EL-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EL-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI1000VXB-170EL-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EL-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EL-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1400VXB-170PL-50	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
1MBI1400VXB-170PL-54	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
1MBI650VXA-170EH-50	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EH-80	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI650VXA-170EH-54	1700	±20	650	4150	2.00	650	1.25	1.55	0.15	M271	850
1MBI1000VXB-170EH-50	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EH-80	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1000VXB-170EH-54	1700	±20	1000	6250	2.00	1000	1.25	1.55	0.15	M272	1250
1MBI1400VXB-170PH-50	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250
1MBI1400VXB-170PH-54	1700	±20	1400	8820	2.15	1400	1.25	1.55	0.15	M272	1250

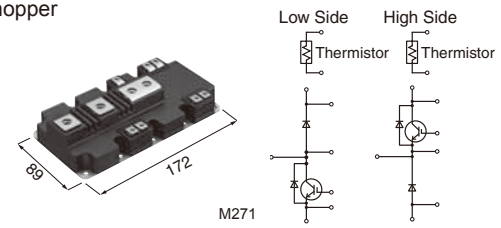
Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: "-80": Pre-Applied Thermal-Interface-Material for "-54"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module Chopper < V series >

PrimePACK™ 1200V class

Chopper



I_C	1200V V series	
	Boost (Low side) Chopper	Buck (High side) Chopper
900A	**1MBI900VXA-120PD-50**	**1MBI900VXA-120PC-50**
	1MBI900VXA-120PD-54	**1MBI900VXA-120PC-54**
	1MBI900VXA-120PD-80	**1MBI900VXA-120PC-80**

Dimension [mm]

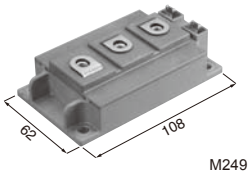
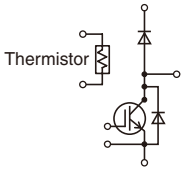
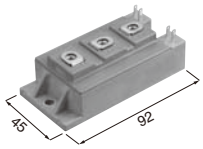
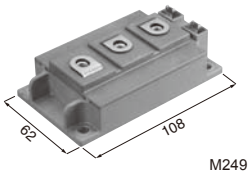
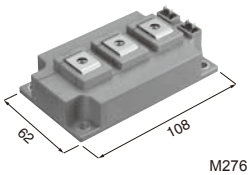
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
1MBI900VXA-120PC-50	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PC-54	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PC-80	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-50	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-54	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850
1MBI900VXA-120PD-80	1200	±20	900	5100	1.65	900	1.10	1.20	0.15	M271	850

Note1: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
Note2: The products with suffix '-54' on this page are labeled to specify the rank of $V_{CE(sat)}$ and V_F.
Note3: Antiparallel diode current rating is 120A. Application circuit is Boost/Buck chopper only.
Note4: "-80": Pre-Applied Thermal-Interface-Material for "-54"

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module High Speed

High Speed 1200V class

			1200V
		I_C	High Speed IGBT
Chopper	 M249 	200A	**1MBI200HH-120L-50**
		300A	**1MBI300HH-120L-50**
		400A	**1MBI400HH-120L-50**
2-pack	 M233 	100A	**2MBI100HB-120-50**
2-pack	 M249 	150A	**2MBI150HH-120-50**
		200A	**2MBI200HH-120-50**
2-pack	 M276 	100A	**2MBI100HJ-120-50**
		150A	**2MBI150HJ-120-50**
		200A	**2MBI200HJ-120-50**
		300A	**2MBI300HJ-120-50**

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time t_{on} typ.	t_{off} typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	μ sec.	μ sec.	μ sec.		Grams
1MBI200HH-120L-50	1200	±20	200	1390	3.10	200	0.2	0.3	0.05	M249	370
1MBI300HH-120L-50	1200	±20	300	2090	3.20	300	0.2	0.3	0.05	M249	370
1MBI400HH-120L-50	1200	±20	400	2500	3.10	400	0.2	0.4	0.05	M249	370
2MBI100HB-120-50	1200	±20	100	1040	3.10	100	-	0.30	0.05	M233	240
2MBI150HH-120-50	1200	±20	150	1390	3.20	150	-	0.30	0.05	M249	370
2MBI200HH-120-50	1200	±20	200	1790	3.10	200	-	0.30	0.05	M249	370
2MBI100HJ-120-50	1200	±20	100	655	3.20	100	0.25	0.30	0.05	M276	370
2MBI150HJ-120-50	1200	±20	150	925	3.20	150	0.25	0.30	0.05	M276	370
2MBI200HJ-120-50	1200	±20	200	1385	3.20	200	0.25	0.30	0.05	M276	370
2MBI300HJ-120-50	1200	±20	300	1950	3.20	300	0.25	0.30	0.05	M276	370

$V_{CE(sat)}$: at T_{vj}=25°C, Chip

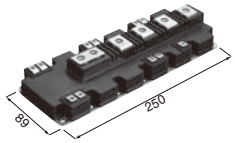
IGBT Module 3-level ＜V series＞

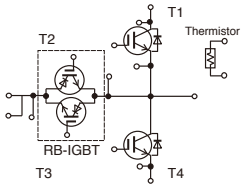
■ T/I-type NPC 3-level Circuits 1200V, 1700V class

■ Features

- Applicable to T/I-type NPC 3-level circuit, for high power conversion efficiency.
- There are 1-leg or 3-leg (3 phase) circuits in one package and it is easier to makes external wiring of module.
- Lower surge voltage by smaller internal package stray inductance.
- Lower power loss can be achieved by using RB-IGBT*1 as for T-type AC-SW device.
- Lowest power loss can be achieved by using 6th Gen. IGBT and FWD as for Main-SW device.

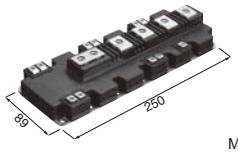
1-leg T-Type

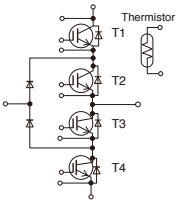




M404

1-leg I-Type





M404

I_C \ T1, T4 / T2, T3	1200V 600V	1200V 900V	1200V 1200V	1700V 1200V
450A		**4MBI450VB-120R1-50**		**4MBI450VB-170R2-50**
		4MBI450VB-120R1-60		**4MBI450VB-170R2-60**
600A				**4MBI600VB-170R2-50**
				4MBI600VB-170R2-60
650A		**4MBI650VB-120R1-50**		
		4MBI650VB-120R1-60		
900A	**4MBI900VB-120RA-50**	**4MBI900VB-120R1-50**		
	4MBI900VB-120RA-60	**4MBI900VB-120R1-60**		
600A			**4MBI600VC-120-50**	
			4MBI600VC-120-60	

Dimension [mm]

Device type	T1, T4 V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	T2, T3 V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Package	Net mass Grams
4MBI450VB-120R1-50	1200	450	2205	1.85	450	900	450	1980	2.30	450	M404	1300
4MBI450VB-120R1-60	1200	450	2205	1.85	450	900	450	1980	2.30	450	M404	1300
4MBI650VB-120R1-50	1200	650	3060	1.80	650	900	650	2660	2.25	650	M404	1300
4MBI650VB-120R1-60	1200	650	3060	1.80	650	900	650	2660	2.25	650	M404	1300
4MBI900VB-120R1-50	1200	900	3950	1.85	900	900	900	3675	2.30	900	M404	1300
4MBI900VB-120R1-60	1200	900	3950	1.85	900	900	900	3675	2.30	900	M404	1300
4MBI900VB-120RA-50	1200	900	3950	1.85	900	600	900	2660	2.45	900	M404	1300
4MBI900VB-120RA-60	1200	900	3950	1.85	900	600	900	2660	2.45	900	M404	1300
4MBI600VC-120-50	1200	600	2460	1.85	600	1200	600	2460	1.85	600	M404	1300
4MBI600VC-120-60	1200	600	2460	1.85	600	1200	600	2460	1.85	600	M404	1300
4MBI450VB-170R2-50	1700	450	2830	2.00	450	1200	450	2660	2.70	450	M404	1300
4MBI450VB-170R2-60	1700	450	2830	2.00	450	1200	450	2660	2.70	450	M404	1300
4MBI600VB-170R2-50	1700	600	3410	2.00	600	1200	600	3680	2.70	600	M404	1300
4MBI600VB-170R2-60	1700	600	3410	2.00	600	1200	600	3680	2.70	600	M404	1300

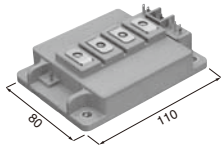
Note : The products with suffix '-60' on this page are labeled the characteristic data.
*1 : RB-IGBT Reverse-Blocking IGBT, which has reverse blocking capability (between emitter and collector)

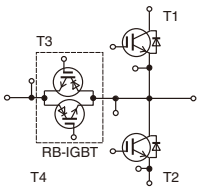
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module 3-level ＜V series＞

T type NPC 3-level Circuits 600V, 1200V, 1700V class

1-leg T-Type





M403

I_C \ T1, T2 / T3, T4	600V	1200V		1700V
	600V	600V	900V	1200V
220A				4MBI220VF-170R2-50
300A		4MBI300VG-120R-50	4MBI300VG-120R1-50	
340A		4MBI340VF-120R-50		
400A	4MBI400VG-060R-50	4MBI400VF-120R-50*1		
450A		4MBI450VF-120RD-50*2		

Dimension [mm]

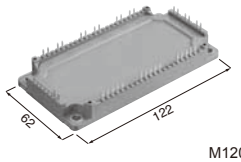
Device type	T1, T2					T3, T4					Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.		Grams
4MBI400VG-060R-50	600	400	1135	1.60	400	600	400	1560	2.45	400	M403	460
4MBI300VG-120R-50	1200	300	1250	1.85	300	600	300	1250	2.45	300	M403	460
4MBI300VG-120R1-50	1200	300	1500	1.85	300	900	300	1550	2.30	300	M403	460
4MBI340VF-120R-50	1200	340	1500	1.85	300	600	340	1500	2.45	300	M403	460
4MBI400VF-120R-50 ※1	1200	400	1835	2.00	400	600	450	2230	2.45	400	M403	460
○ **4MBI450VF-120RD-50** ※2	1200	250	1250	1.75	200	600	450	2230	2.45	400	M403	460
4MBI220VF-170R2-50	1700	220	1500	2.00	200	1200	220	1865	2.70	200	M403	460

○：Under development
Note : VF type is lower thermal impedance version.
*1：Particular for Inverter　　*2：Particular for Converter

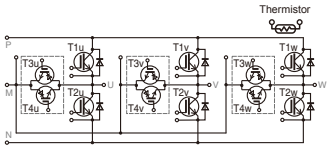
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

T type NPC 3-level Circuits 1200V class

3-leg Solder pins

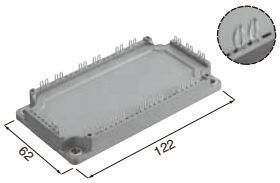


M1203

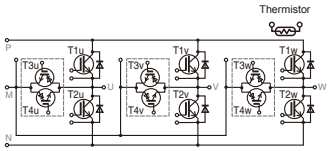


I_C \ T1, T2 / T3, T4	1200V 600V
50A	**12MBI50VN-120-50**
75A	**12MBI75VN-120-50**
100A	**12MBI100VN-120-50**

3-leg Press fit pins



M1202



50A	**12MBI50VX-120-50**
75A	**12MBI75VX-120-50**
100A	**12MBI100VX-120-50**

Dimension [mm]

Device type	T1, T2					T3, T4					Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.		Grams
12MBI50VN-120-50	1200	50	230	1.85	50	600	50	235	2.45	50	M1203	302
12MBI75VN-120-50	1200	75	320	1.85	75	600	75	305	2.45	75	M1203	302
12MBI100VN-120-50	1200	100	430	1.75	100	600	100	400	2.45	100	M1203	302
12MBI50VX-120-50	1200	50	230	1.85	50	600	50	235	2.45	50	M1202	302
12MBI75VX-120-50	1200	75	320	1.85	75	600	75	305	2.45	75	M1202	302
12MBI100VX-120-50	1200	100	430	1.75	100	600	100	400	2.45	100	M1202	302

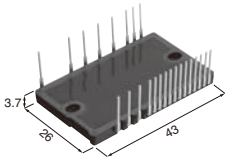
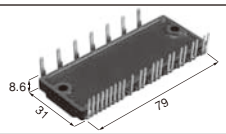
$V_{CE(sat)}$: at T_{vj}=25°C, Chip

IGBT Module IPM ＜X series＞

■ Small IPM（Intelligent Power Module）650, 600V class

Built-in protection functions

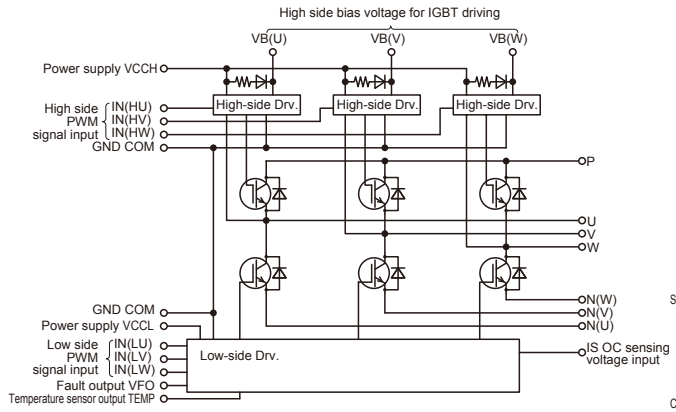
- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (External current detection and shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)

Small IPM with High Voltage Driver-IC without Brake-Chopper							I_C	600V / 650V X series
 P633A	✓		✓	✓	✓		15A	**6MBP15XSD060-50**
							20A	**6MBP20XSD060-50**
							30A	**6MBP30XSD060-50**
							35A	**6MBP35XSD060-50**
	✓	✓	✓	✓	✓		15A	**6MBP15XSF060-50**
							20A	**6MBP20XSF060-50**
							30A	**6MBP30XSF060-50**
							35A	**6MBP35XSF060-50**
 P642	✓		✓	✓	✓		50A	**6MBP50XTA065-50**
							75A	**6MBP75XTA065-50**
	✓	✓	✓	✓	✓		50A	**6MBP50XTC065-50**
							75A	**6MBP75XTC065-50**

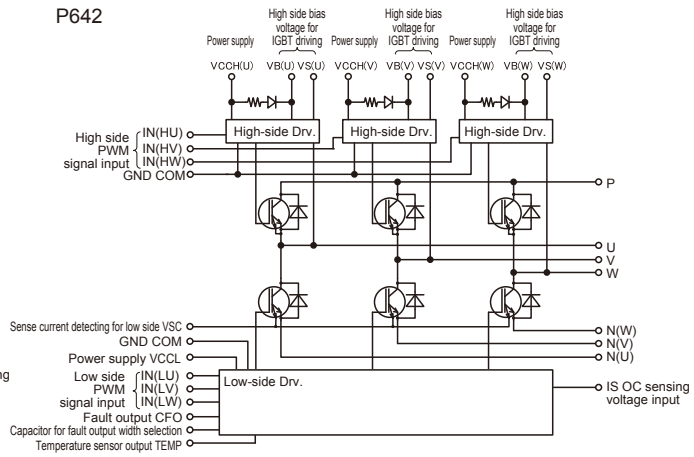
Dimension [mm]

●Block Diagram

P633A



P642



Device type	Inverter			Control			Protection function					Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CCL} V_{CCH} V_B typ.	Boot-strap Diode	Input signal Acive logic and Voltage level	UV V_{CCL} V_{CCH} V_B	OC *1	Vtemp *2	TOH *2	V_FO fault output		
	Volts	Amps.	Volts	Volts									Grams
6MBP15XSD060-50	600	15	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
6MBP20XSD060-50	600	20	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
6MBP30XSD060-50	600	30	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
6MBP35XSD060-50	600	35	1.40	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P633A	9.3
6MBP15XSF060-50	600	15	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
6MBP20XSF060-50	600	20	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
6MBP30XSF060-50	600	30	1.60	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
6MBP35XSF060-50	600	35	1.40	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P633A	9.3
● **6MBP50XTA065-50**	650	50	1.30	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P642	37
● **6MBP75XTA065-50**	650	75	1.35	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	-	N-side(UV,OC)	P642	37
● **6MBP50XTC065-50**	650	50	1.30	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P642	37
● **6MBP75XTC065-50**	650	75	1.35	15	Built-in	High(3.3/5V)	P&N-side	N-side	N-side	N-side(143±7℃)	N-side(UV,OC,TOH)	P642	37

*1：External current ditection　　*2：Temperature detection in LVIC

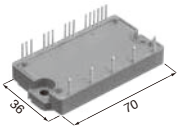
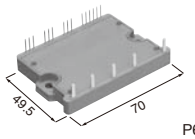
●：New products

IGBT Module IPM ＜X series / V series＞

■ IPM（Intelligent Power Module）650V, 600V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

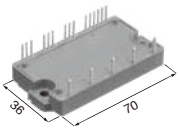
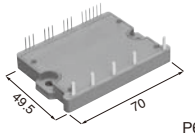
							650V		600V	
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P639	✓	✓	✓	✓		20A	**6MBP20XRHA065-50**			
						30A	**6MBP30XRHA065-50**			
 P629	✓	✓	✓	✓		20A			**6MBP20VAA060-50**	
						30A			**6MBP30VAA060-50**	
						50A	**6MBP50XAA065-50**		**6MBP50VAA060-50**	
						75A	**6MBP75XAA065-50**			

Dimension [mm]

■ IPM（Intelligent Power Module）1200V class

Built-in protection functions

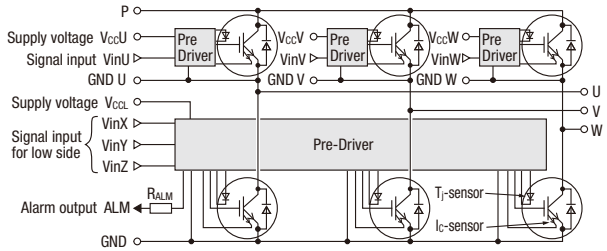
P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

							1200V			
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P639	✓	✓	✓	✓		10A	**6MBP10XRHA120-50**			
 P629	✓	✓	✓	✓		10A			**6MBP10VAA120-50**	
						15A			**6MBP15VAA120-50**	
						25A	**6MBP25XAA120-50**		**6MBP25VAA120-50**	
						35A	**6MBP35XAA120-50**			

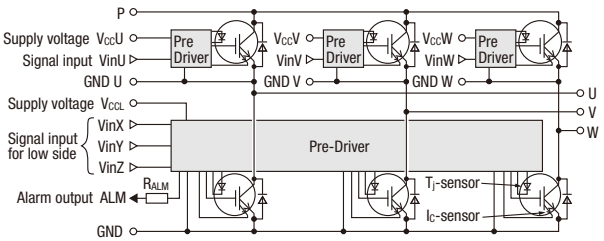
Dimension [mm]

●Block Diagram

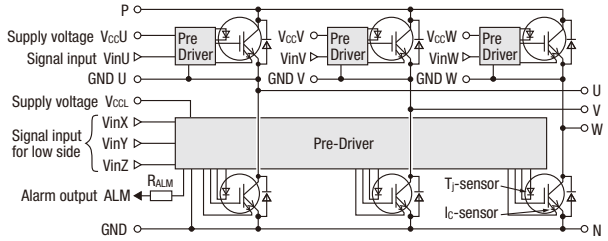
・6MBP□XRHA□-50



・6MBP□XAA□-50



・6MBP□VAA□-50



■ X series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
○ **6MBP20XRHA065-50**	650	20	1.4	-	-	15	30	12.5	-	175	2	4	8	P639	55
○ **6MBP30XRHA065-50**	650	30	1.4	-	-	15	45	12.5	-	175	2	4	8	P639	55
○ **6MBP50XAA065-50**	650	50	1.15	-	-	15	75	12.5	-	175	2	4	8	P629	80
○ **6MBP75XAA065-50**	650	75	1.15	-	-	15	113	12.5	-	175	2	4	8	P629	80
○ **6MBP10XRHA120-50**	1200	10	2.05	-	-	15	15	12.5	-	175	2	4	8	P639	55
○ **6MBP25XAA120-50**	1200	25	1.45			15	38	12.5	-	175	2	4	8	P629	80
○ **6MBP35XAA120-50**	1200	35	1.45	-	-	15	53	12.5	-	175	2	4	8	P629	80

Note : T_{jw} is the warning temperature for IGBT chip overheating.
○ : Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

■ V series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
6MBP20VAA060-50	600	20	1.4	-	-	15	30	12.5	-	150	2	4	8	P629	80
6MBP30VAA060-50	600	30	1.4	-	-	15	45	12.5	-	150	2	4	8	P629	80
6MBP50VAA060-50	600	50	1.4	-	-	15	75	12.5	-	150	2	4	8	P629	80
6MBP10VAA120-50	1200	10	1.7	-	-	15	15	12.5	-	150	2	4	8	P629	80
6MBP15VAA120-50	1200	15	1.7	-	-	15	23	12.5	-	150	2	4	8	P629	80
6MBP25VAA120-50	1200	25	1.7	-	-	15	38	12.5	-	150	2	4	8	P629	80

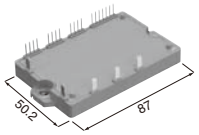
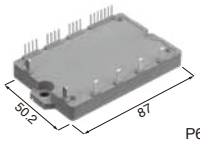
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module IPM ＜X series / V series＞

■ IPM（Intelligent Power Module）650V, 600V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

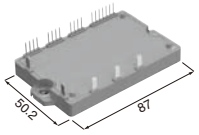
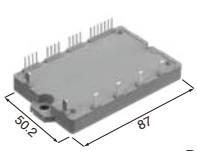
							650V		600V	
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P626	✓	✓	✓	✓	✓	50A	**6MBP50XBA065-50**		**6MBP50VBA060-50**	
						75A	**6MBP75XBA065-50**		**6MBP75VBA060-50**	
						100A	**6MBP100XBA065-50**			
 P644	✓	✓	✓	✓	✓	50A		**7MBP50XJA065-50**		
						75A		**7MBP75XJA065-50**		

Dimension [mm]

■ IPM（Intelligent Power Module）1200V class

Built-in protection functions

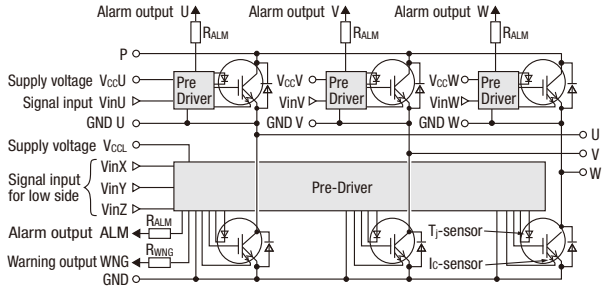
P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

							1200V			
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P626	✓	✓	✓	✓	✓	25A	**6MBP25XBA120-50**		**6MBP25VBA120-50**	
						35A	**6MBP35XBA120-50**		**6MBP35VBA120-50**	
						50A	**6MBP50XBA120-50**		**6MBP50VBA120-50**	
 P644	✓	✓	✓	✓	✓	25A		**7MBP25XJA120-50**		
						35A		**7MBP35XJA120-50**		

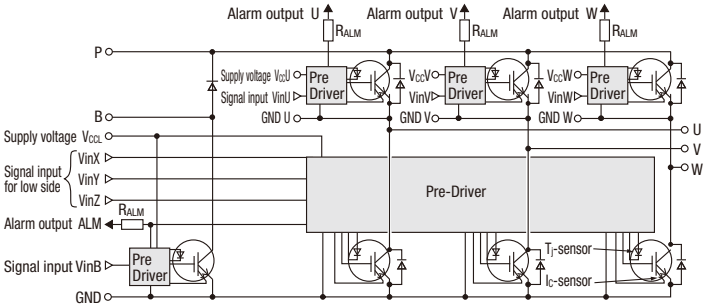
Dimension [mm]

●Block Diagram

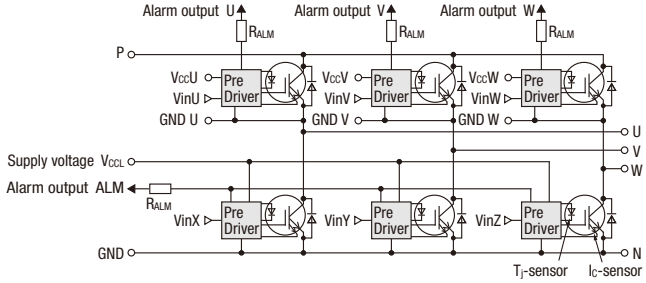
・6MBP□XBA□-50



・7MBP□XJA□-50



・6MBP□VBA□-50



■ X series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
○ **6MBP50XBA065-50**	650	50	1.15	-	-	15	75	12.5	150	175	2	4	8	P626	100
○ **6MBP75XBA065-50**	650	75	1.15	-	-	15	113	12.5	150	175	2	4	8	P626	100
○ **6MBP100XBA065-50**	650	100	1.15	-	-	15	150	12.5	150	175	2	4	8	P626	100
○ **7MBP50XJA065-50**	650	50	1.15	650	30	15	75	12.5	-	175	2	4	8	P644	100
○ **7MBP75XJA065-50**	650	75	1.15	650	50	15	113	12.5	-	175	2	4	8	P644	100
○ **6MBP25XBA120-50**	1200	25	1.45	-	-	15	38	12.5	150	175	2	4	8	P626	100
○ **6MBP35XBA120-50**	1200	35	1.45	-	-	15	53	12.5	150	175	2	4	8	P626	100
○ **6MBP50XBA120-50**	1200	50	1.45	-	-	15	75	12.5	150	175	2	4	8	P626	100
○ **7MBP25XJA120-50**	1200	25	1.45	1200	15	15	38	12.5	-	175	2	4	8	P644	100
○ **7MBP35XJA120-50**	1200	35	1.45	1200	25	15	53	12.5	-	175	2	4	8	P644	100

Note : T_{jw} is the warning temperature for IGBT chip overheating.
○ : Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

■ V series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
6MBP50VBA060-50	600	50	1.4	-	-	15	75	12.5	-	150	2	4	8	P626	100
6MBP75VBA060-50	600	75	1.4	-	-	15	113	12.5	-	150	2	4	8	P626	100
6MBP25VBA120-50	1200	25	1.7	-	-	15	38	12.5	-	150	2	4	8	P626	100
6MBP35VBA120-50	1200	35	1.7	-	-	15	53	12.5	-	150	2	4	8	P626	100
6MBP50VBA120-50	1200	50	1.7	-	-	15	75	12.5	-	150	2	4	8	P626	100

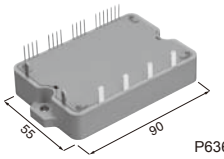
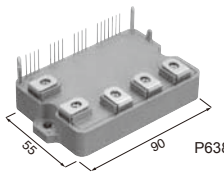
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module IPM ＜X series / V series＞

■ IPM（Intelligent Power Module）650V, 600V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

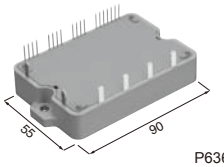
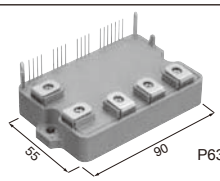
							650V		600V	
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P636	✓	✓	✓	✓	✓	50A	**6MBP50XFN065-50**	**7MBP50XFN065-50**	**6MBP50VFN060-50**	**7MBP50VFN060-50**
						75A	**6MBP75XFN065-50**	**7MBP75XFN065-50**	**6MBP75VFN060-50**	**7MBP75VFN060-50**
						100A	**6MBP100XFN065-50**	**7MBP100XFN065-50**	**6MBP100VFN060-50**	**7MBP100VFN060-50**
 P638	✓	✓	✓	✓	✓	50A	**6MBP50XGA065-50**			
						75A	**6MBP75XGA065-50**			
						100A	**6MBP100XGN065-50**			
						150A	**6MBP150XGN065-50**			

Dimension [mm]

■ IPM（Intelligent Power Module）1200V class

Built-in protection functions

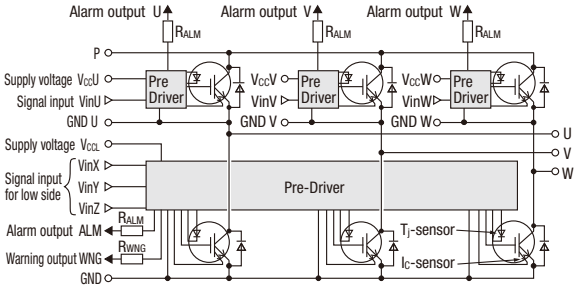
P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

							1200V			
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
 P636	✓	✓	✓	✓	✓	25A	**6MBP25XFN120-50**	**7MBP25XFN120-50**	**6MBP25VFN120-50**	**7MBP25VFN120-50**
						35A	**6MBP35XFN120-50**	**7MBP35XFN120-50**	**6MBP35VFN120-50**	**7MBP35VFN120-50**
						50A	**6MBP50XFN120-50**	**7MBP50XFN120-50**	**6MBP50VFN120-50**	**7MBP50VFN120-50**
 P638	✓	✓	✓	✓	✓	25A	**6MBP25XGA120-50**			
						35A	**6MBP35XGA120-50**			
						50A	**6MBP50XGN120-50**			
						75A	**6MBP75XGN120-50**			

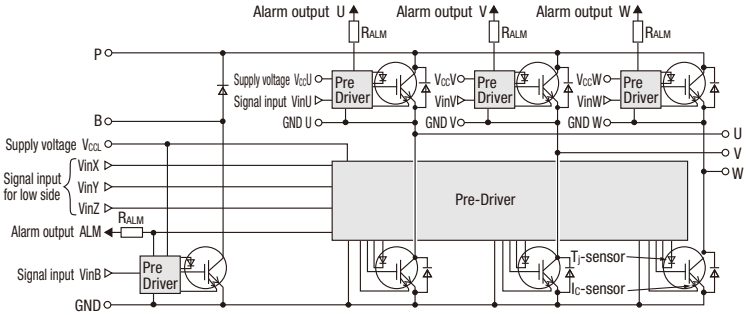
Dimension [mm]

●Block Diagram

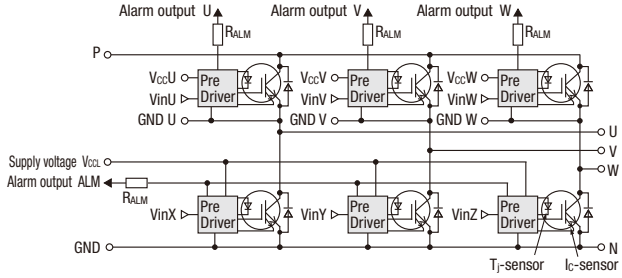
・6MBP□XGA□-50
・6MBP□XGN□-50
・6MBP□XFN□-50



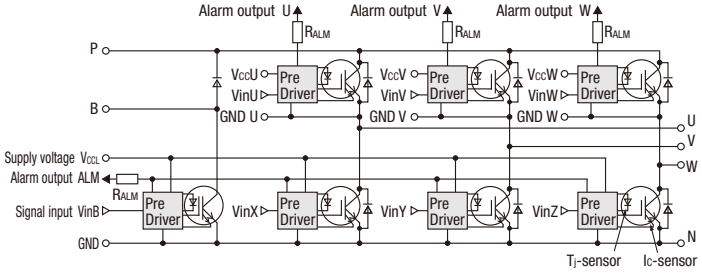
・7MBP□XFN□-50



・6MBP□VFN□-50



・7MBP□VFN□-50



■ X series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
○ **6MBP50XFN065-50**	650	50	1.15	-	-	15	75	12.5	150	175	2	4	8	P636	190
○ **6MBP75XFN065-50**	650	75	1.15	-	-	15	113	12.5	150	175	2	4	8	P636	190
○ **6MBP100XFN065-50**	650	100	1.15	-	-	15	150	12.5	150	175	2	4	8	P636	190
○ **7MBP50XFN065-50**	650	50	1.15	650	30	15	75	12.5	-	175	2	4	8	P636	190
○ **7MBP75XFN065-50**	650	75	1.15	650	50	15	113	12.5	-	175	2	4	8	P636	190
○ **7MBP100XFN065-50**	650	100	1.15	650	50	15	150	12.5	-	175	2	4	8	P636	190
○ **6MBP50XGA065-50**	650	50	1.15	-	-	15	75	12.5	150	175	2	4	8	P638	200
○ **6MBP75XGA065-50**	650	75	1.15	-	-	15	113	12.5	150	175	2	4	8	P638	200
○ **6MBP100XGN065-50**	650	100	1.15	-	-	15	150	12.5	150	175	2	4	8	P638	200
○ **6MBP150XGN065-50**	650	150	1.15	-	-	15	225	12.5	150	175	2	4	8	P638	200
○ **6MBP25XFN120-50**	1200	25	1.45	-	-	15	38	12.5	150	175	2	4	8	P636	190
○ **6MBP35XFN120-50**	1200	35	1.45	-	-	15	53	12.5	150	175	2	4	8	P636	190
○ **6MBP50XFN120-50**	1200	50	1.45	-	-	15	75	12.5	150	175	2	4	8	P636	190
○ **7MBP25XFN120-50**	1200	25	1.45	1200	15	15	38	12.5	-	175	2	4	8	P636	190
○ **7MBP35XFN120-50**	1200	35	1.45	1200	25	15	53	12.5	-	175	2	4	8	P636	190
○ **7MBP50XFN120-50**	1200	50	1.45	1200	25	15	75	12.5	-	175	2	4	8	P636	190
○ **6MBP25XGA120-50**	1200	25	1.45	-	-	15	38	12.5	150	175	2	4	8	P638	200
○ **6MBP35XGA120-50**	1200	35	1.45	-	-	15	53	12.5	150	175	2	4	8	P638	200
○ **6MBP50XGN120-50**	1200	50	1.45	-	-	15	75	12.5	150	175	2	4	8	P638	200
○ **6MBP75XGN120-50**	1200	75	1.45	-	-	15	113	12.5	150	175	2	4	8	P638	200

Note : T_{jw} is the warning temperature for IGBT chip overheating.
○ : Under development

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

■ V series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
6MBP50VFN060-50	600	50	1.25	-	-	15	100	12.5	-	150	2	4	8	P636	190
6MBP75VFN060-50	600	75	1.25	-	-	15	150	12.5	-	150	2	4	8	P636	190
6MBP100VFN060-50	600	100	1.25	-	-	15	200	12.5	-	150	2	4	8	P636	190
7MBP50VFN060-50	600	50	1.25	600	30	15	100	12.5	-	150	2	4	8	P636	190
7MBP75VFN060-50	600	75	1.25	600	50	15	150	12.5	-	150	2	4	8	P636	190
7MBP100VFN060-50	600	100	1.25	600	50	15	200	12.5	-	150	2	4	8	P636	190
6MBP25VFN120-50	1200	25	1.7	-	-	15	50	12.5	-	150	2	4	8	P636	190
6MBP35VFN120-50	1200	35	1.7	-	-	15	70	12.5	-	150	2	4	8	P636	190
6MBP50VFN120-50	1200	50	1.7	-	-	15	100	12.5	-	150	2	4	8	P636	190
7MBP25VFN120-50	1200	25	1.7	1200	15	15	50	12.5	-	150	2	4	8	P636	190
7MBP35VFN120-50	1200	35	1.7	1200	25	15	70	12.5	-	150	2	4	8	P636	190
7MBP50VFN120-50	1200	50	1.7	1200	25	15	100	12.5	-	150	2	4	8	P636	190

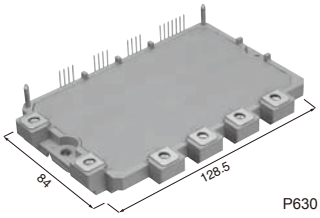
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module IPM ＜X series / V series＞

■ IPM（Intelligent Power Module）650V, 600V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)



P630

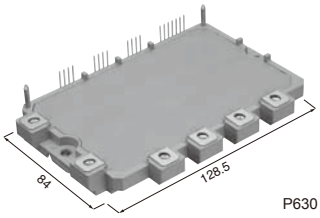
		650V		600V	
		X series		V series	
	*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
✓ ✓ ✓ ✓ ✓	50A	**6MBP50XDA065-50**	**7MBP50XDA065-50**	**6MBP50VDA060-50**	**7MBP50VDA060-50**
	75A	**6MBP75XDA065-50**	**7MBP75XDA065-50**	**6MBP75VDA060-50**	**7MBP75VDA060-50**
	100A	**6MBP100XDA065-50**	**7MBP100XDA065-50**	**6MBP100VDA060-50**	**7MBP100VDA060-50**
		6MBP100XDN065-50	**7MBP100XDN065-50**	**6MBP100VDN060-50**	**7MBP100VDN060-50**
	150A	**6MBP150XDA065-50**	**7MBP150XDA065-50**	**6MBP150VDA060-50**	**7MBP150VDA060-50**
		6MBP150XDN065-50	**7MBP150XDN065-50**	**6MBP150VDN060-50**	**7MBP150VDN060-50**
	200A	**6MBP200XDA065-50**	**7MBP200XDA065-50**	**6MBP200VDA060-50**	**7MBP200VDA060-50**
		6MBP200XDN065-50	**7MBP200XDN065-50**	**6MBP200VDN060-50**	**7MBP200VDN060-50**
	250A	**6MBP250XDA065-50**	**7MBP250XDA065-50**		
		6MBP250XDN065-50	**7MBP250XDN065-50**		

Dimension [mm]

■ IPM（Intelligent Power Module）1200V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)



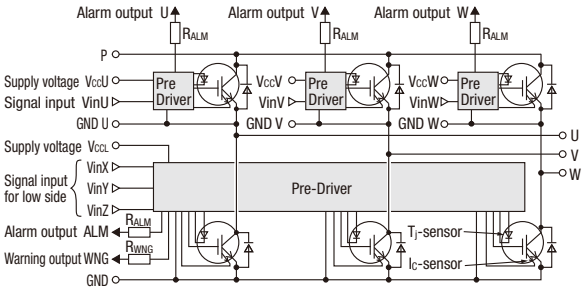
P630

		1200V			
		X series		V series	
	*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
✓ ✓ ✓ ✓ ✓	25A	**6MBP25XDA120-50**	**7MBP25XDA120-50**	**6MBP25VDA120-50**	**7MBP25VDA120-50**
	35A	**6MBP35XDA120-50**	**7MBP35XDA120-50**	**6MBP35VDA120-50**	**7MBP35VDA120-50**
	50A	**6MBP50XDA120-50**	**7MBP50XDA120-50**	**6MBP50VDA120-50**	**7MBP50VDA120-50**
		6MBP50XDN120-50	**7MBP50XDN120-50**	**6MBP50VDN120-50**	**7MBP50VDN120-50**
	75A	**6MBP75XDA120-50**	**7MBP75XDA120-50**	**6MBP75VDA120-50**	**7MBP75VDA120-50**
		6MBP75XDN120-50	**7MBP75XDN120-50**	**6MBP75VDN120-50**	**7MBP75VDN120-50**
	100A	**6MBP100XDA120-50**	**7MBP100XDA120-50**	**6MBP100VDA120-50**	**7MBP100VDA120-50**
		6MBP100XDN120-50	**7MBP100XDN120-50**	**6MBP100VDN120-50**	**7MBP100VDN120-50**
	150A	**6MBP150XDA120-50**	**7MBP150XDA120-50**		
		6MBP150XDN120-50	**7MBP150XDN120-50**		

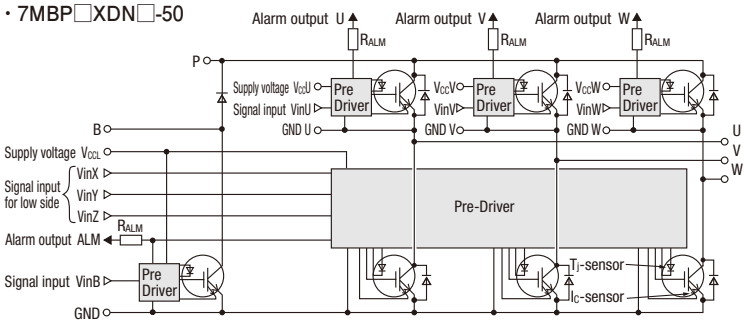
Dimension [mm]

●Block Diagram

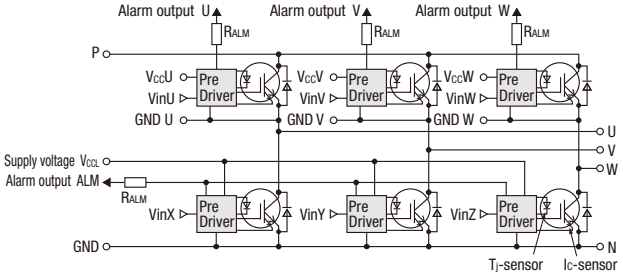
・6MBP□XDA□-50
・6MBP□XDN□-50



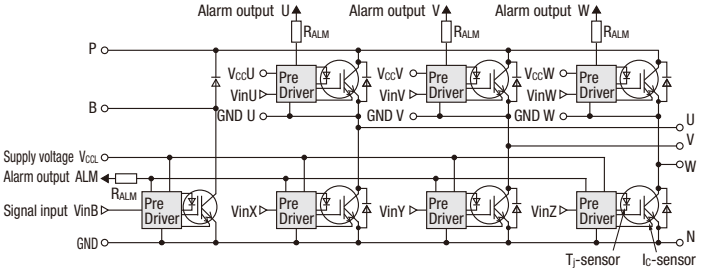
・7MBP□XDA□-50
・7MBP□XDN□-50



・6MBP□VDA□-50
・6MBP□VDN□-50



・7MBP□VDA□-50
・7MBP□VDN□-50



■ X series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
○ **6MBP50XDA065-50**	650	50	1.15	-	-	15	75	12.5	150	175	2	4	8	P630	290
○ **6MBP75XDA065-50**	650	75	1.15	-	-	15	113	12.5	150	175	2	4	8	P630	290
○ **6MBP100XDA065-50**	650	100	1.15	-	-	15	150	12.5	150	175	2	4	8	P630	290
○ **6MBP100XDN065-50**	650	100	1.15	-	-	15	150	12.5	150	175	2	4	8	P630	290
○ **6MBP150XDA065-50**	650	150	1.15	-	-	15	225	12.5	150	175	2	4	8	P630	290
○ **6MBP150XDN065-50**	650	150	1.15	-	-	15	225	12.5	150	175	2	4	8	P630	290
○ **6MBP200XDA065-50**	650	200	1.15	-	-	15	300	12.5	150	175	2	4	8	P630	290
○ **6MBP200XDN065-50**	650	200	1.15	-	-	15	300	12.5	150	175	2	4	8	P630	290
○ **6MBP250XDA065-50**	650	250	1.15	-	-	15	375	12.5	150	175	2	4	8	P630	290
○ **6MBP250XDN065-50**	650	250	1.15	-	-	15	375	12.5	150	175	2	4	8	P630	290
○ **7MBP50XDA065-50**	650	50	1.15	650	30	15	75	12.5	-	175	2	4	8	P630	290
○ **7MBP75XDA065-50**	650	75	1.15	650	50	15	113	12.5	-	175	2	4	8	P630	290
○ **7MBP100XDA065-50**	650	100	1.15	650	50	15	150	12.5	-	175	2	4	8	P630	290
○ **7MBP100XDN065-50**	650	100	1.15	650	50	15	150	12.5	-	175	2	4	8	P630	290
○ **7MBP150XDA065-50**	650	150	1.15	650	75	15	225	12.5	-	175	2	4	8	P630	290
○ **7MBP150XDN065-50**	650	150	1.15	650	75	15	225	12.5	-	175	2	4	8	P630	290
○ **7MBP200XDA065-50**	650	200	1.15	650	100	15	300	12.5	-	175	2	4	8	P630	290
○ **7MBP200XDN065-50**	650	200	1.15	650	100	15	300	12.5	-	175	2	4	8	P630	290
○ **7MBP250XDA065-50**	650	250	1.15	650	125	15	375	12.5	-	175	2	4	8	P630	290
○ **7MBP250XDN065-50**	650	250	1.15	650	125	15	375	12.5	-	175	2	4	8	P630	290
○ **6MBP25XDA120-50**	1200	25	1.45	-	-	15	38	12.5	150	175	2	4	8	P630	290
○ **6MBP35XDA120-50**	1200	35	1.45	-	-	15	53	12.5	150	175	2	4	8	P630	290
○ **6MBP50XDA120-50**	1200	50	1.45	-	-	15	75	12.5	150	175	2	4	8	P630	290
○ **6MBP50XDN120-50**	1200	50	1.45	-	-	15	75	12.5	150	175	2	4	8	P630	290
○ **6MBP75XDA120-50**	1200	75	1.45	-	-	15	113	12.5	150	175	2	4	8	P630	290
○ **6MBP75XDN120-50**	1200	75	1.45	-	-	15	113	12.5	150	175	2	4	8	P630	290
○ **6MBP100XDA120-50**	1200	100	1.45	-	-	15	150	12.5	150	175	2	4	8	P630	290
○ **6MBP100XDN120-50**	1200	100	1.45	-	-	15	150	12.5	150	175	2	4	8	P630	290
○ **6MBP150XDA120-50**	1200	150	1.45	-	-	15	225	12.5	150	175	2	4	8	P630	290
○ **6MBP150XDN120-50**	1200	150	1.45	-	-	15	225	12.5	150	175	2	4	8	P630	290
○ **7MBP25XDA120-50**	1200	25	1.45	1200	15	15	38	12.5	-	175	2	4	8	P630	290
○ **7MBP35XDA120-50**	1200	35	1.45	1200	15	15	53	12.5	-	175	2	4	8	P630	290
○ **7MBP50XDA120-50**	1200	50	1.45	1200	25	15	75	12.5	-	175	2	4	8	P630	290
○ **7MBP50XDN120-50**	1200	50	1.45	1200	25	15	75	12.5	-	175	2	4	8	P630	290
○ **7MBP75XDA120-50**	1200	75	1.45	1200	35	15	113	12.5	-	175	2	4	8	P630	290
○ **7MBP75XDN120-50**	1200	75	1.45	1200	35	15	113	12.5	-	175	2	4	8	P630	290
○ **7MBP100XDA120-50**	1200	100	1.45	1200	50	15	150	12.5	-	175	2	4	8	P630	290
○ **7MBP100XDN120-50**	1200	100	1.45	1200	50	15	150	12.5	-	175	2	4	8	P630	290
○ **7MBP150XDA120-50**	1200	150	1.45	1200	75	15	225	12.5	-	175	2	4	8	P630	290
○ **7MBP150XDN120-50**	1200	150	1.45	1200	75	15	225	12.5	-	175	2	4	8	P630	290

Note1：The products with "XDN" on this page have high heat dissipation characteristics.

Note2：T_{jw} is the warning temperature for IGBT chip overheating.

○：Under development

$V_{CE(sat)}$：at T_{vj}=25℃, Chip

■ V series

Device type	Inverter			Brake		Control								Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	Alarm signal hold time OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
6MBP50VDA060-50	600	50	1.4	-	-	15	75	12.5	-	150	2	4	8	P630	290
6MBP75VDA060-50	600	75	1.4	-	-	15	113	12.5	-	150	2	4	8	P630	290
6MBP100VDA060-50	600	100	1.4	-	-	15	150	12.5	-	150	2	4	8	P630	290
6MBP100VDN060-50	600	100	1.4	-	-	15	150	12.5	-	150	2	4	8	P630	290
6MBP150VDA060-50	600	150	1.4	-	-	15	225	12.5	-	150	2	4	8	P630	290
6MBP150VDN060-50	600	150	1.4	-	-	15	225	12.5	-	150	2	4	8	P630	290
6MBP200VDA060-50	600	200	1.4	-	-	15	300	12.5	-	150	2	4	8	P630	290
6MBP200VDN060-50	600	200	1.4	-	-	15	300	12.5	-	150	2	4	8	P630	290
7MBP50VDA060-50	600	50	1.4	600	30	15	75	12.5	-	150	2	4	8	P630	290
7MBP75VDA060-50	600	75	1.4	600	50	15	113	12.5	-	150	2	4	8	P630	290
7MBP100VDA060-50	600	100	1.4	600	50	15	150	12.5	-	150	2	4	8	P630	290
7MBP100VDN060-50	600	100	1.4	600	50	15	150	12.5	-	150	2	4	8	P630	290
7MBP150VDA060-50	600	150	1.4	600	75	15	225	12.5	-	150	2	4	8	P630	290
7MBP150VDN060-50	600	150	1.4	600	75	15	225	12.5	-	150	2	4	8	P630	290
7MBP200VDA060-50	600	200	1.4	600	100	15	300	12.5	-	150	2	4	8	P630	290
7MBP200VDN060-50	600	200	1.4	600	100	15	300	12.5	-	150	2	4	8	P630	290
6MBP25VDA120-50	1200	25	1.7	-	-	15	38	12.5	-	150	2	4	8	P630	290
6MBP35VDA120-50	1200	35	1.7	-	-	15	53	12.5	-	150	2	4	8	P630	290
6MBP50VDA120-50	1200	50	1.7	-	-	15	75	12.5	-	150	2	4	8	P630	290
6MBP50VDN120-50	1200	50	1.7	-	-	15	75	12.5	-	150	2	4	8	P630	290
6MBP75VDA120-50	1200	75	1.7	-	-	15	113	12.5	-	150	2	4	8	P630	290
6MBP75VDN120-50	1200	75	1.7	-	-	15	113	12.5	-	150	2	4	8	P630	290
6MBP100VDA120-50	1200	100	1.7	-	-	15	150	12.5	-	150	2	4	8	P630	290
6MBP100VDN120-50	1200	100	1.7	-	-	15	150	12.5	-	150	2	4	8	P630	290
7MBP25VDA120-50	1200	25	1.7	1200	15	15	38	12.5	-	150	2	4	8	P630	290
7MBP35VDA120-50	1200	35	1.7	1200	15	15	53	12.5	-	150	2	4	8	P630	290
7MBP50VDA120-50	1200	50	1.7	1200	25	15	75	12.5	-	150	2	4	8	P630	290
7MBP50VDN120-50	1200	50	1.7	1200	25	15	75	12.5	-	150	2	4	8	P630	290
7MBP75VDA120-50	1200	75	1.7	1200	35	15	113	12.5	-	150	2	4	8	P630	290
7MBP75VDN120-50	1200	75	1.7	1200	35	15	113	12.5	-	150	2	4	8	P630	290
7MBP100VDA120-50	1200	100	1.7	1200	50	15	150	12.5	-	150	2	4	8	P630	290
7MBP100VDN120-50	1200	100	1.7	1200	50	15	150	12.5	-	150	2	4	8	P630	290

Note：The products with "XDN" on this page have high heat dissipation characteristics.

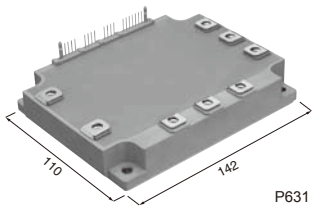
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

IGBT Module IPM ＜X series / V series＞

■ IPM（Intelligent Power Module）650V, 600V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)



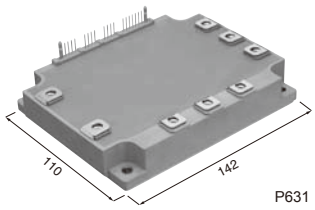
							650V		600V	
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
						200A	**6MBP200XEN065-50**	**7MBP200XEN065-50**	**6MBP200VEA060-50**	**7MBP200VEA060-50**
						300A	**6MBP300XEN065-50**	**7MBP300XEN065-50**	**6MBP300VEA060-50**	**7MBP300VEA060-50**
						400A			**6MBP400VEA060-50**	**7MBP400VEA060-50**
						450A	**6MBP450XEN065-50**	**7MBP450XEN065-50**		
✓	✓	✓	✓	✓						

Dimension [mm]

■ IPM（Intelligent Power Module）1200V class

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)

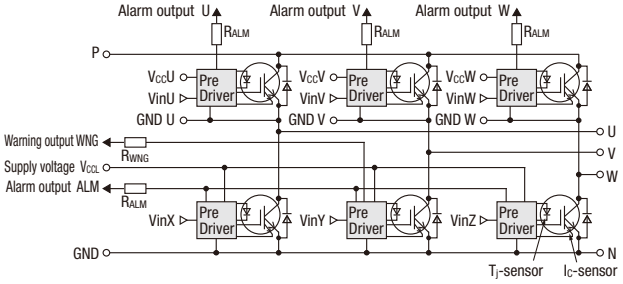


							1200V			
							X series		V series	
						*I*c	Without Brake-Chopper	With Brake-Chopper	Without Brake-Chopper	With Brake-Chopper
						100A	**6MBP100XEN120-50**	**7MBP100XEN120-50**	**6MBP100VEA120-50**	**7MBP100VEA120-50**
						150A	**6MBP150XEN120-50**	**7MBP150XEN120-50**	**6MBP150VEA120-50**	**7MBP150VEA120-50**
						200A	**6MBP200XEN120-50**	**7MBP200XEN120-50**	**6MBP200VEA120-50**	**7MBP200VEA120-50**
						300A	**6MBP300XEN120-50**	**7MBP300XEN120-50**		
✓	✓	✓	✓	✓						

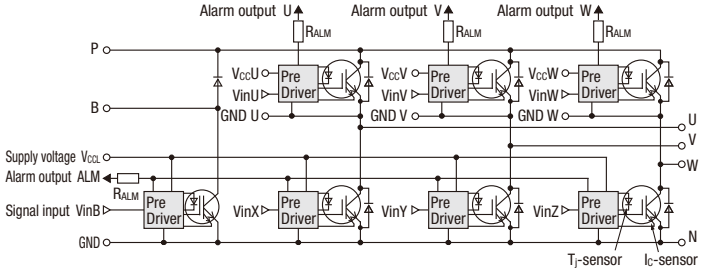
Dimension [mm]

●Block Diagram

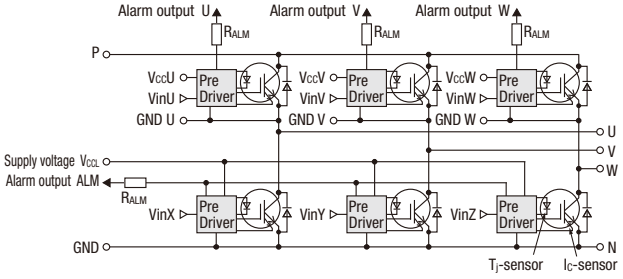
・6MBP□XEN□-50



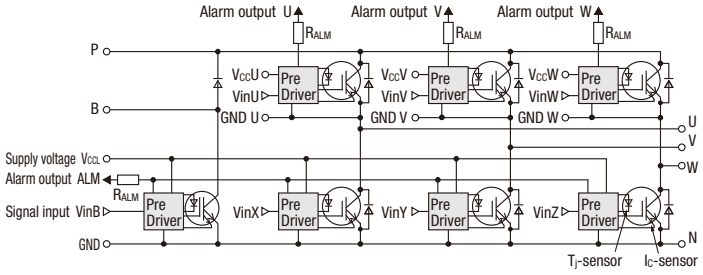
・7MBP□XEN□-50



・6MBP□VEA□-50



・7MBP□VEA□-50



■ X series

Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
○ **6MBP200XEN065-50**	650	200	TBD	-	-	15	300	12.5	150	175	2	4	8	P631	940
○ **6MBP300XEN065-50**	650	300	TBD	-	-	15	450	12.5	150	175	2	4	8	P631	940
○ **6MBP450XEN065-50**	650	450	TBD	-	-	15	675	12.5	150	175	2	4	8	P631	940
○ **7MBP200XEN065-50**	650	200	TBD	650	100	15	300	12.5	-	175	2	4	8	P631	940
○ **7MBP300XEN065-50**	650	300	TBD	650	150	15	450	12.5	-	175	2	4	8	P631	940
○ **7MBP450XEN065-50**	650	450	TBD	650	225	15	675	12.5	-	175	2	4	8	P631	940
○ **6MBP100XEN120-50**	1200	100	TBD	-	-	15	150	12.5	150	175	2	4	8	P631	940
○ **6MBP150XEN120-50**	1200	150	TBD	-	-	15	225	12.5	150	175	2	4	8	P631	940
○ **6MBP200XEN120-50**	1200	200	TBD	-	-	15	300	12.5	150	175	2	4	8	P631	940
○ **6MBP300XEN120-50**	1200	300	TBD	-	-	15	450	12.5	150	175	2	4	8	P631	940
○ **7MBP100XEN120-50**	1200	100	TBD	1200	50	15	150	12.5	-	175	2	4	8	P631	940
○ **7MBP150XEN120-50**	1200	150	TBD	1200	75	15	225	12.5	-	175	2	4	8	P631	940
○ **7MBP200XEN120-50**	1200	200	TBD	1200	100	15	300	12.5	-	175	2	4	8	P631	940
○ **7MBP300XEN120-50**	1200	300	TBD	1200	150	15	450	12.5	-	175	2	4	8	P631	940

Note : T_{jw} is the warning temperature for IGBT chip overheating.
○ : Under development

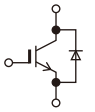
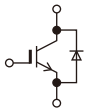
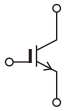
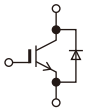
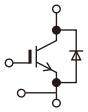
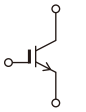
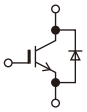
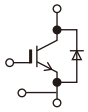
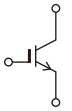
$V_{CE(sat)}$: at T_{vj}=25℃, Chip

■ V series

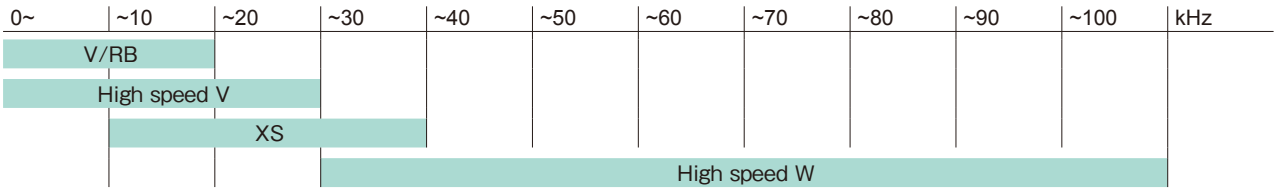
Device type	Inverter			Brake		Control					Alarm signal hold time			Package	Net mass
	V_{CES}	I_C Cont.	$V_{CE(sat)}$ typ.	V_{CES}	I_C Cont.	V_{CC} typ.	I_{OC}[INV] min.	V_{UV} max.	T_{jw} min.	T_{jOH} min.	OC typ.	UV typ.	T_{jOH} typ.		
	Volts	Amps.	Volts	Volts	Amps.	(V)	(A)	(V)	(℃)	(℃)	ms	ms	ms		Grams
6MBP200VEA060-50	600	200	1.25	-	-	15	300	12.5	-	150	2	4	8	P631	940
6MBP300VEA060-50	600	300	1.25	-	-	15	450	12.5	-	150	2	4	8	P631	940
6MBP400VEA060-50	600	400	1.25	-	-	15	600	12.5	-	150	2	4	8	P631	940
7MBP200VEA060-50	600	200	1.25	600	100	15	300	12.5	-	150	2	4	8	P631	940
7MBP300VEA060-50	600	300	1.25	600	150	15	450	12.5	-	150	2	4	8	P631	940
7MBP400VEA060-50	600	400	1.25	600	200	15	600	12.5	-	150	2	4	8	P631	940
6MBP100VEA120-50	1200	100	1.7	-	-	15	150	12.5	-	150	2	4	8	P631	940
6MBP150VEA120-50	1200	150	1.7	-	-	15	225	12.5	-	150	2	4	8	P631	940
6MBP200VEA120-50	1200	200	1.7	-	-	15	300	12.5	-	150	2	4	8	P631	940
7MBP100VEA120-50	1200	100	1.7	1200	50	15	150	12.5	-	150	2	4	8	P631	940
7MBP150VEA120-50	1200	150	1.7	1200	75	15	225	12.5	-	150	2	4	8	P631	940
7MBP200VEA120-50	1200	200	1.7	1200	100	15	300	12.5	-	150	2	4	8	P631	940

$V_{CE(sat)}$: at T_{vj}=25℃, Chip

Discrete IGBT

Package	V_{CES} (V)	I_C (A)	Trench-FS									RB-IGBT
			V series	High-Speed V series		High-Speed W series			XS series			
												
 TO-247-P TO-247-P2	600/650	30	FGW30N60VD					FGW30N65W			FGW30XS65	
									FGW30XS65C			
		35		FGW35N60HD	FGW35N60H							
				FGW35N60HC								
		40				FGW40N65WD		FGW40N65W			FGW40XS65	
						FGW40N65WE			FGW40XS65C			
		50	FGW50N60VD	FGW50N60HD	FGW50N60H	FGW50N65WD		FGW50N65W	FGW50XS65D		FGW50XS65	
				FGW50N60HC		FGW50N65WE			FGW50XS65C			
		60				FGW60N65WD		FGW60N65W				
						FGW60N65WE						
		75		FGW75N60HD	FGW75N60H			FGW75N65W	FGW75XS65D		FGW75XS65	
				FGW75N60HC		FGW75N65WE			FGW75XS65C			
		85										FGW85N60RB
	1200	15	FGW15N120VD	FGW15N120HD	FGW15N120H							
		25	FGW25N120VD			FGW25N120WD		FGW25N120W				
						FGW25N120WE						
		30		FGW30N120HD	FGW30N120H							
		40	FGW40N120VD	FGW40N120HD	FGW40N120H	FGW40N120WD		FGW40N120W	FGW40XS120C		FGW40XS120	
						FGW40N120WE						
		75							FGW75XS120C		FGW75XS120	
 TO-247-4-P2	650	50					FGZ50N65WD					
							FGZ50N65WE					
		75										
							FGZ75N65WE			FGZ75XS65C		
	1200	40										
							FGZ40N120WE					

■ Recommended operating frequency



■ Part numbers

FGW40XS65C (example) : XS series

F	G		W		40	XS		65		C	
Company	Device code		Package code		Current	Series		Voltage		Diode Type	
Fuji	G	IGBT	W	TO-247-P TO-247-P2	×1	XS	XS series	65	650V	C	w/ Diode (Full rated)
			Z	TO-247-4-P2						D	w/ Diode
										Blank	w/o Diode

FGW40N65WD (example) : Except for XS series

F	G		W		40	N		65		W		D	
Company	Device code		Package code		Current	Polarity		Voltage		Series		Diode Type	
Fuji	G	IGBT	W	TO-247-P TO-247-P2	×1	N	N-ch	60	600V	W	High Speed W series	C,E	w/ Diode (Full rated)
								65	650V	H	High Speed V series		
			Z	TO-247-4-P2				120	1200V	V	V series	D	w/ Diode
										RB	RB-IGBT	Blank	w/o Diode

Discrete IGBT XS series 650V,1200V class

Features

- IGBT in Trench-gate structure and Field-stop technology
- Low $V_{CE(sat)}$ and low switching Loss

IGBT in field-stop technology and trench-gate structure with Ultra fast FWD
650V,1200V class

Device type	Maximum Ratings				$V_{CE(sat)}$ typ.	E_{on} E_{off} (R_g=10Ω) typ.		Q_G typ.	V_F typ.	I_F Tc=100°C	Q_{rr} typ.	Package	Net mass
	V_{CES} (V)	I_C Tc=100°C (A)	I_{CP} (A)	P_D IGBT (W)	(V)	(mJ)	(mJ)	(nC)	(V)	(A)	(μC)		Grams
● FGW30XS65	650	30	120	174	1.35	0.27	0.21	130	-	-	-	TO-247-P/TO-247-P2	6.0
● FGW30XS65C	650	30	120	174	1.35	0.27	0.21	130	1.70	30	0.74	TO-247-P/TO-247-P2	6.0
● FGW40XS65	650	40	160	234	1.35	0.40	0.30	160	-	-	-	TO-247-P/TO-247-P2	6.0
● FGW40XS65C	650	40	160	234	1.35	0.40	0.30	160	1.70	40	0.90	TO-247-P/TO-247-P2	6.0
● FGW50XS65	650	50	200	290	1.35	0.60	0.38	210	-	-	-	TO-247-P/TO-247-P2	6.0
● FGW50XS65D	650	50	200	290	1.35	0.54	0.38	210	1.70	30	-	TO-247-P/TO-247-P2	6.0
● FGW50XS65C	650	50	200	290	1.35	0.60	0.38	210	1.70	50	0.80	TO-247-P/TO-247-P2	6.0
● FGW75XS65	650	75	300	437	1.35	1.30	0.94	300	-	-	-	TO-247-P/TO-247-P2	6.0
● FGW75XS65D	650	50	200	290	1.35	1.00	0.94	300	1.70	30	0.50	TO-247-P/TO-247-P2	6.0
● FGW75XS65C	650	75	300	437	1.35	1.30	0.94	300	1.70	75	1.10	TO-247-P/TO-247-P2	6.0
● FGZ75XS65C	650	75	300	437	1.35	0.50	0.74	300	1.70	75	0.56	TO-247-4-P2	6.0
● FGW40XS120C	1200	40	160	351	1.60	1.40	1.70	250	2.90	40	1.10	TO-247-P	6.0
● FGW40XS120	1200	40	160	351	1.60	1.40	1.70	250	-	-	-	TO-247-P	6.0
○ FGW75XS120C	1200	75	300	649	1.60	TBD	TBD	TBD	2.90	75	TBD	TO-247-P	6.0
○ FGW75XS120	1200	75	300	649	1.60	TBD	TBD	TBD	-	-	-	TO-247-P	6.0

● : New products ○ : Under development

Discrete IGBT High Speed W series 650V,1200V class

Features

- IGBT in Trench-gate structure and Field-stop technology
- Low $V_{CE(sat)}$ and low switching Loss
- High switching frequency (to 100kHz)

IGBT in field-stop technology and trench-gate structure with Ultra fast FWD
650V,1200V class

Device type	Maximum Ratings				$V_{CE(sat)}$ typ.	E_{on} E_{off} (R_g=10Ω) typ.		Q_G typ.	V_F typ.	I_F Tc=100°C	Q_{rr} typ.	Package	Net mass
	V_{CES} (V)	I_C Tc=100°C (A)	I_{CP} (A)	P_D IGBT (W)	(V)	(mJ)	(mJ)	(nC)	(V)	(A)	(μC)		Grams
FGW30N65W	650	30	120	180	1.8	0.12	0.15	128	-	-	-	TO-247-P/TO-247-P2	6.0
FGW40N65W	650	40	160	260	1.8	0.29	0.29	180	-	-	-	TO-247-P/TO-247-P2	6.0
FGW40N65WD	650	40	160	260	1.8	0.29	0.29	180	2.5	20	0.26	TO-247-P/TO-247-P2	6.0
FGW40N65WE	650	40	160	260	1.8	0.29	0.29	180	2.5	40	0.29	TO-247-P/TO-247-P2	6.0
FGW50N65W	650	50	200	330	1.8	0.42	0.46	215	-	-	-	TO-247-P/TO-247-P2	6.0
FGW50N65WD	650	50	200	330	1.8	0.42	0.46	215	2.5	25	0.32	TO-247-P/TO-247-P2	6.0
FGW50N65WE	650	50	200	330	1.8	0.42	0.46	215	2.5	50	0.35	TO-247-P/TO-247-P2	6.0
FGZ50N65WD	650	50	200	330	1.8	0.12	0.40	215	2.5	25	0.32	TO-247-4-P2	6.0
FGZ50N65WE	650	50	200	330	1.8	0.12	0.40	215	2.5	50	0.35	TO-247-4-P2	6.0
FGW60N65W	650	60	240	405	1.8	0.6	0.67	250	-	-	-	TO-247-P/TO-247-P2	6.0
FGW60N65WD	650	60	240	405	1.8	0.6	0.67	250	2.5	30	0.3	TO-247-P/TO-247-P2	6.0
FGW60N65WE	650	60	240	405	1.8	0.6	0.67	250	2.5	60	0.33	TO-247-P/TO-247-P2	6.0
FGW75N65W	650	75	300	520	1.8	0.95	1.2	300	-	-	-	TO-247-P/TO-247-P2	6.0
FGW75N65WE	650	75	300	520	1.8	0.95	1.2	300	2.5	75	0.41	TO-247-P/TO-247-P2	6.0
FGZ75N65WE	650	75	300	520	1.8	0.37	0.68	300	2.5	75	0.41	TO-247-4-P2	6.0
FGW25N120W	1200	25	100	270	2.0	0.9	1.3	80	-	-	-	TO-247-P/TO-247-P2	6.0
FGW25N120WD	1200	25	100	270	2.0	0.9	1.3	80	2.2	12	0.6	TO-247-P2	6.0
FGW25N120WE	1200	25	100	270	2.0	0.9	1.3	80	2.2	25	0.6	TO-247-P2	6.0
FGW40N120W	1200	40	160	430	2.0	2.8	1.6	120	-	-	-	TO-247-P/TO-247-P2	6.0
FGW40N120WD	1200	40	160	430	2.0	2.8	1.6	120	2.2	20	0.95	TO-247-P2	6.0
FGW40N120WE	1200	40	160	430	2.0	2.8	1.6	120	2.4	40	2.2	TO-247-P2	6.0
FGZ40N120WE	1200	40	160	430	2.0	1.1	1.4	120	2.4	40	2.2	TO-247-4-P2	6.0

Discrete IGBT V/High Speed V series 600V, 1200V class

Features

- IGBT in Trench-gate structure and Field-stop technology
- Low $V_{CE(sat)}$ and low switching Loss (High Speed V series)
- Short circuit withstand time; t_{sc}=10μs (V series)

IGBT in field-stop technology and trench-gate structure with Ultra fast FWD
600V class

Device type	Maximum Ratings				$V_{CE(sat)}$ typ.	E_{on} E_{off} (R_g=10Ω) typ.		Q_G typ.	V_F typ.		Q_{rr} typ.	Package	Net mass
	V_{CES} (V)	I_C T_C=100°C (A)	I_{CP} (A)	P_D IGBT (W)	(V)	(mJ)	(mJ)	(nC)	(V)	I_F T_C=100°C (A)	(μC)		Grams
FGW30N60VD	600	30	60	230	1.6	1.2	0.7	225	1.5	25	0.7	TO-247-P/TO-247-P2	6.0
FGW35N60H	600	35	105	230	1.5	0.9	0.85	210	-	-	-	TO-247-P/TO-247-P2	6.0
FGW35N60HD	600	35	105	230	1.5	0.9	0.85	210	2.0	15	0.06	TO-247-P/TO-247-P2	6.0
FGW35N60HC	600	35	105	230	1.5	0.95	0.85	210	2.35	35	0.13	TO-247-P/TO-247-P2	6.0
FGW50N60H	600	50	150	360	1.5	1.4	1.7	305	-	-	-	TO-247-P/TO-247-P2	6.0
FGW50N60HD	600	50	150	360	1.5	1.4	1.7	305	2.0	25	0.08	TO-247-P/TO-247-P2	6.0
FGW50N60HC	600	50	150	360	1.5	1.5	1.7	305	2.3	50	0.07	TO-247-P/TO-247-P2	6.0
FGW50N60VD	600	50	100	360	1.6	2.4	1.4	360	1.5	35	0.75	TO-247-P/TO-247-P2	6.0
FGW75N60H	600	75	225	500	1.5	3.0	4.2	460	-	-	0.12	TO-247-P/TO-247-P2	6.0
FGW75N60HD	600	75	225	500	1.5	3.0	4.2	460	2.0	35	0.13	TO-247-P/TO-247-P2	6.0
FGW75N60HC	600	75	225	500	1.5	3.8	4.2	460	2.3	75	0.3	TO-247-P/TO-247-P2	6.0

1200V class

Device type	Maximum Ratings				$V_{CE(sat)}$ typ.	E_{on} E_{off} (R_g=10Ω) typ.		Q_G typ.	V_F typ.		Q_{rr} typ.	Package	Net mass
	V_{CES} (V)	I_C T_C=100°C (A)	I_{CP} (A)	P_D IGBT (W)	(V)	(mJ)	(mJ)	(nC)	(V)	I_F T_C=100°C (A)	(μC)		Grams
FGW15N120H	1200	15	45	155	1.8	0.6	0.8	140	-	-	-	TO-247-P/TO-247-P2	6.0
FGW15N120HD	1200	15	45	155	1.8	0.6	0.8	140	2.2	12	0.6	TO-247-P2	6.0
FGW15N120VD	1200	15	30	155	1.85	1.1	0.8	150	1.7	15	0.85	TO-247-P/TO-247-P2	6.0
FGW25N120VD	1200	25	50	260	1.85	2.2	1.4	235	1.7	25	1.2	TO-247-P/TO-247-P2	6.0
FGW30N120H	1200	30	90	260	1.8	1.6	1.5	230	-	-	-	TO-247-P/TO-247-P2	6.0
FGW30N120HD	1200	30	90	260	1.8	1.6	1.5	230	2.2	20	0.95	TO-247-P2	6.0
FGW40N120H	1200	40	120	340	1.8	2.8	1.8	300	-	-	-	TO-247-P/TO-247-P2	6.0
FGW40N120HD	1200	40	120	340	1.8	2.8	1.8	300	2.2	30	1.35	TO-247-P2	6.0
FGW40N120VD	1200	40	80	340	1.85	4.3	2.2	320	1.7	30	1.45	TO-247-P/TO-247-P2	6.0

Discrete RB-IGBT

Features

- Reverse blocking character is realized for 1 chip by Fuji's original technology.
- High efficiency by applying to T-type 3 level inverter circuit.

Characteristics

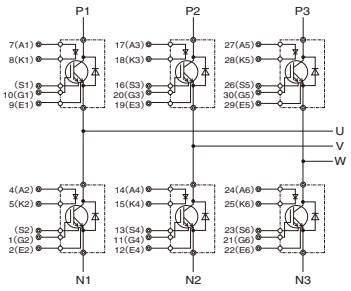
Device type	Maximum Ratings					$V_{CE(sat)}$ (V_{GE}=15V) typ.	E_{on} E_{off} (R_g=10Ω) typ.		Q_G typ.	t_{rr} typ.	Package	Net mass
	V_{CES} (V)	I_C T_C=100°C (A)	I_{CP} (A)	t_{sc} (μs)	P_D IGBT (W)	(V)	(mJ)	(mJ)	(nC)	(n sec)		Grams
FGW85N60RB	600	85	170	10	600	2.45	4.7	2.4	300	165	TO-247-P2	6.0

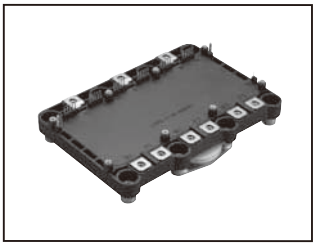
IGBT Module for Electric Vehicle and Hybrid Electric Vehicle

IGBT Module for Electric Vehicle and Hybrid Electric Vehicle

Features

- 7th Generation “RC-IGBT” 750V-IGBT
- Direct liquid Cooling AL Water jacket
- High power density, small and light weight package
- High reliability：T_{vjmax} 175℃ guaranteed
- RoHS compliant





Characteristics

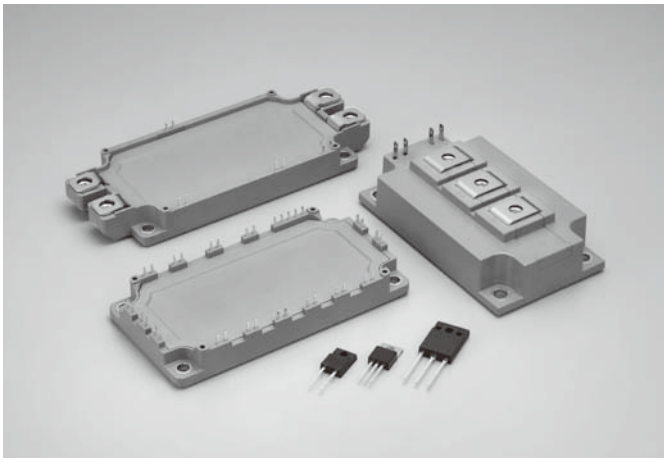
$V_{CE\ (sat)}$: at T_{vj}=25°C, Chip

Device type	V_{CES} (V)	$I_{C(Cont)}$ (A)	$I_{C(Peak)}$ (A)	$V_{CE(sat)}$ typ. (V)	V_F typ. (V)	Package	Net mass Grams
6MBI800XV-075V-01	750	570	1600	1.45 (I_C=800A)	1.50 (I_F=800A)	M653	560

2 SiC Devices

SiC Devices

SiC devices have excellent characteristics that realize high blocking voltage, low power dissipation, high-frequency operation and high-temperature operation.
Power semiconductors that make use of SiC achieve significant reduction in energy consumption, and can be used to develop smaller and lighter products.



IGBT Hybrid Modules with SiC-SBD X series / V series

■ Features

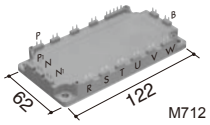
- High performance chips
  - · X series / V series IGBT for low loss operation
  - · SiC-SBD for low loss operation
- The same package lineup as the conventional Si-IGBT modules

■Part numbers

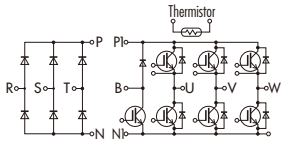
2MSI300VAH-120C-53 (example)

2	MS	I	300	V	A	H	120	C	53
Number of IGBT Switches	Chip : Si-IGBT+SiC-SBD	Internal Configuration	Rated Current	IGBT Device Technology	SBD Dvice	Package Type	Max V_{CE}	SiC-SBD for converter	RoHS Compliant
	MS Si-IGBT+SiC-SBD	I: Standard Modules	× 1	V: V series (6th Generation)	A: 1st gen.		060: 600V	C: Large current	None, 01 to 49 Non RoHS Compliant
	S SiC-SBD	R: Power Integrated Modules		X: X series (7th Generation)			120: 1200V		50 to 99 RoHS Compliant
				VW: VW series (6th Gen High speed)			170: 1700V		
							330: 3300V		

■ PIM/Built-in converter and brake EconoPIM™ 600, 1200V class



M712



I_C	600V	1200V
	IGBT Hybrid Modules with SiC-SBD V series	
35A		**7MBR35VB120S-50**
50A	**7MBR50VB060S-50**	**7MBR50VB120S-50**
75A	**7MBR75VB060S-50**	
100A	**7MBR100VB060S-50**	

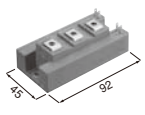
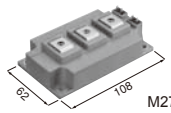
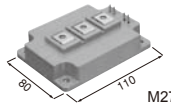
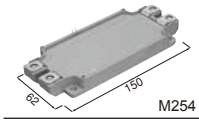
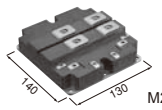
Dimension [mm]

Device type	Inverter [IGBT]				Brake [IGBT+FED]			Converter [Diode]				Package	Net mass
	V_{CES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ typ. Volts	V_{CES} Volts	I_C Cont. Amps.	V_{RRM} Volts	V_{RRM} Volts	I_O Cont. Amps.	V_{FM} typ. Volts	I_{FSM} Amps.		Grams
● **7MBR50VB060S-50**	600	50	215	1.6	600	50	600	800	50	1.3	210	M712	330
● **7MBR75VB060S-50**	600	75	300	1.6	600	50	600	800	75	1.25	500	M712	330
● **7MBR100VB060S-50**	600	100	335	1.6	600	50	600	800	100	1.25	700	M712	330
● **7MBR35VB120S-50**	1200	35	210	1.85	1200	25	1200	1600	35	1.35	260	M712	330
● **7MBR50VB120S-50**	1200	50	280	1.85	1200	35	1200	1600	50	1.35	360	M712	330

● : New Products

Note: EconoPIM™ is registered trademarks of Infineon Technologies AG, Germany.

■ Standard 2-pack 1200, 1700V class

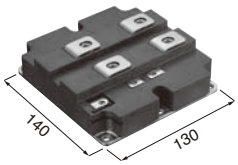
	I_C	1200V IGBT Hybrid Modules with SiC-SBD V series	1700V IGBT Hybrid Modules with SiC-SBD V series	1200V IGBT Hybrid Modules with SiC-SBD VW series
 M274	200A	**2MSI200VAB-120-53**		
 M276	200A			**2MSI200VWAH-120-53**
	300A	**2MSI300VAH-120C-53**		**2MSI300VWAH-120-53**
 M277	400A		**2MSI400VAE-170-53**	
 M254	300A	**2MSI300VAN-120-53**		**2MSI300VWAN-120-53**
	450A	**2MSI450VAN-120-53**		
	550A		**2MSI550VAN-170-53**	
	600A	**2MSI600VAN-120-53**		
 M278	1200A		**2MSI1200VAT-170EC**	

Dimension [mm]

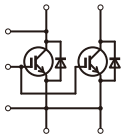
Device type	V_{CES} Volts	V_{GES} Volts	I_C Cont. Amps.	P_{tot} Watts	$V_{CE(sat)}$ (V_{GE}=15V) typ. Volts	I_C Amps.	Switching time t_{on} typ. µsec.	t_{off} typ. µsec.	t_f typ. µsec.	Package	Net mass Grams
● **2MSI200VAB-120-53**	1200	±20	200	1500	1.75	200	0.64	0.70	0.07	M274	240
● **2MSI300VAH-120C-53**	1200	±20	300	1600	1.75	300	0.82	0.84	0.09	M276	370
● **2MSI300VAN-120-53**	1200	±20	300	1595	1.75	300	0.49	0.72	0.12	M254	300
● **2MSI450VAN-120-53**	1200	±20	450	2270	1.75	450	0.36	0.72	0.07	M254	300
● **2MSI600VAN-120-53**	1200	±20	600	3750	1.85	600	0.55	1.05	0.11	M254	300
○ **2MSI200VWAH-120-53**	1200	±20	200	1500	2.45	200	0.21	0.30	0.06	M276	370
○ **2MSI300VWAH-120-53**	1200	±20	300	1600	2.50	300	0.33	0.32	0.06	M276	370
○ **2MSI300VWAN-120-53**	1200	±20	300	1600	2.60	300	0.30	0.40	0.11	M254	300
○ **2MSI550VAN-170-53**	1700	±20	550	3750	2.15	550	0.69	1.18	0.10	M254	300
● **2MSI400VAE-170-53**	1700	±20	400	4540	2.00	400	1.05	1.95	0.09	M277	470
○ **2MSI1200VAT-170EC**	1700	±20	1200	7040	2.00	1200	1.77	1.59	0.16	M278	900

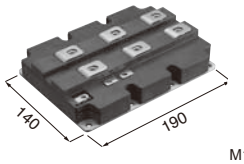
● : New Products ○ : Under development

■ Standard 1-pack 3300V class

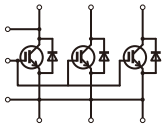


M155





M156



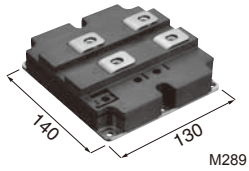
I_C	3300V IGBT Hybrid Modules with SiC-SBD X series
1200A	**1MSI1200XAGF330-03**
1800A	**1MSI1800XAEF330-03**

Dimension [mm]

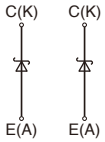
Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	$V_{CE(sat)}$ (V_{GE}=15V) typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	µsec.	µsec.	µsec.		Grams
○ **1MSI1200XAGF330-03**	3300	±20	1200	12500	2	1200	1.6	1.65	1.25	M155	900
○ **1MSI1800XAEF330-03**	3300	±20	1800	18650	2	1800	1.6	1.8	1.3	M156	1300

○ : Under development

■ Standard 2-pack 3300V class



M289



I_C	3300V SiC-SBD series
900A	**2SI900AGF330-03**

Dimension [mm]

Device type	V_{CES}	V_{GES}	I_C Cont.	P_{tot}	V_F typ.	I_C	Switching time $t_{d(on)}$ typ.	$t_{d(off)}$ typ.	t_f typ.	Package	Net mass
	Volts	Volts	Amps.	Watts	Volts	Amps.	(μs)	(μs)	(μs)		Grams
○ **2SI900AGF330-03**	3300	-	900	-	2.05	900	-	-	-	M289	900

○ : Under development

SiC Schottky-Barrier Diodes (SBD)

Features

- High speed switching
  - High-frequency operation,miniaturization,weight saving
- Low-V_F
- Low-I_R
  - T_{vj}=175°C Guaranteed, High-temperature operation, Low-Loss, High efficiency
- High avalanche capability

Part numbers

FDCP10S65A(example)

F	DC		P		10	S		65		A	
Company code	Device code		Package code		Current	Polarity		Voltage		Application	
Fuji	DC	SiCSBD	A	TO-220F	× 1	S, T	Single	65	650V	A	For Automotive
			C	T-Pack(S)		C	Cathode Common	120	1200V		
			P	TO-220							
			Y	TO-247							
			W	TO-247-2L-P2							

SiC-SBD Series

SiC-SBD Series			TO-220-2	TO-220	TO-220F-2	TO-220F	TO-247-2L-P2	TO-247	T-Pack(S)
Chip	V_{RRM} (V)	I_F (A)							
Single	650	10	✓		✓			✓	✓
		25	✓		✓			✓	✓
	1200	18			✓		✓	✓	
Dual	650	20		✓		✓		✓	✓
		50						✓	
	1200	36						✓	

Device type	Maximaum rating V_{RRM} Volts	I_F Amps.	I_{FSM} *1 Amps.	Thermal rating T_{vj} max.(°C)	Characteristics (T_a=25°C) V_F max. Volts	I_{RRM} *2 max. μA	Package	Net mass Grams
FDCP10S65	650	10	50	175	1.8	10	TO-220-2	2.0
FDCP20C65	650	20	50	175	1.8	10	TO-220	2.0
FDCP25S65	650	25	100	175	1.6	10	TO-220-2	2.0
FDCA10S65	650	10	50	175	1.8	10	TO-220F-2	1.7
FDCA20C65	650	20	50	175	1.8	10	TO-220F	1.7
FDCA25S65	650	25	100	175	1.6	10	TO-220F-2	1.7
FDCY10S65	650	10	50	175	1.8	10	TO-247	6.4
FDCY20C65	650	20	50	175	1.8	10	TO-247	6.4
FDCY25S65	650	25	100	175	1.6	10	TO-247	6.4
FDCY50C65	650	50	100	175	1.6	10	TO-247	6.4
FDCC10S65	650	10	50	175	1.8	10	T-Pack(S)	1.6
FDCC20C65	650	20	50	175	1.8	10	T-Pack(S)	1.6
FDCC25S65	650	25	100	175	1.6	10	T-Pack(S)	1.6
FDCA18S120	1200	18	90	175	1.7	10	TO-220F-2	1.7
FDCY18S120	1200	18	90	175	1.7	10	TO-247	6.4
FDCW18T120	1200	18	90	175	1.7	10	TO-247-2L-P2	6.0
FDCY36C120	1200	36	90	175	1.7	10	TO-247	6.4

*1: Half sine wave t_p=10ms
*2: V_R=V_{RRM}

■ Automotive SiC Schottky-Barrier Diodes

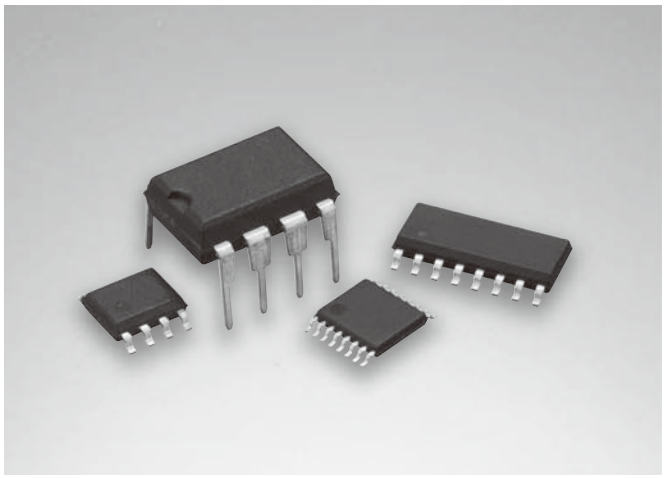
SiC-SBD Series			TO-220-2	TO-220	TO-247	T-Pack(S)
						
Chip	V_{RRM} (V)	I_F (A)				
Single	650	10	✓		✓	✓
		25	✓		✓	✓
	1200	18			✓	
Dual	650	20		✓	✓	✓
		50			✓	
	1200	36			✓	

Device type	Maximaum rating			Thermal rating	Characteristics (T_a=25°C)		Package	Net mass
	V_{RRM} Volts	I_F Amps.	I_{FSM} *1 Amps.	T_{vj} and T_{stg} °C	V_F max. Volts	I_{RRM} *2 max. µA		Grams
FDCP10S65A	650	10	50	-55 to +175	1.8	5	TO-220-2	2.0
FDCY10S65A	650	10	50	-55 to +175	1.8	5	TO-247	6.4
FDCC10S65A	650	10	50	-55 to +175	1.8	5	T-Pack(S)	1.6
FDCP20C65A	650	20	100	-55 to +175	1.8	5	TO-220	2.0
FDCY20C65A	650	20	100	-55 to +175	1.8	5	TO-247	6.4
FDCC20C65A	650	20	100	-55 to +175	1.8	5	T-pack(S)	1.6
FDCP25S65A	650	25	100	-55 to +175	1.7	10	TO-220-2	2.0
FDCY25S65A	650	25	100	-55 to +175	1.7	10	TO-247	6.4
FDCC25S65A	650	25	100	-55 to +175	1.7	10	T-pack(S)	1.6
FDCY50C65A	650	50	200	-55 to +175	1.7	10	TO-247	6.4
FDCY18S120A	1200	18	90	-55 to +175	1.8	10	TO-247	6.4
FDCY36C120A	1200	36	180	-55 to +175	1.8	10	TO-247	6.4

*1: Half sine wave t_p=10ms
*2: V_R=V_{RRM}

Integrated Circuits

Fuji Electric offers a lineup of AC/DC and DC/DC power supply control ICs that support a variety of power circuits. These highly efficient, low-noise products with low standby power consumption are compatible with environmental regulations. Furthermore, many protection functions are built into the ICs themselves, allowing for smaller power circuits.



Features of Power Supply control ICs

Green Mode PWM-ICs

■ Features

- Built-in 500/650V withstand voltage start up circuit
- Green mode functions (Intermittent Switching/Linerary reduced switching frequency)
- Protect functions (Over voltage/Brown out/2 stage Over power)
- Low EMI noise

Green Mode Quasi-resonant ICs

■ Features

- Built-in 500V withstand voltage start up circuit
- Green mode functions (Intermittent Switching/Linerary reduced switching frequency)
- Protect functions (Over voltage/Over load etc.)

Power Factor Correction ICs

■ Features

- Wide electric power range(From 75W to 1kW)
- Power factor ≧ 0.99
- Protect functions (FB Pin open short/Over voltage etc.)
- Improved power efficiency at light load by frequency reduction

Current Resonant ICs

■ Features

- Built-in High side driver
- Preventing capacitive region operation, Self-adjusting dead time function
- Protect functions (Over current/Over voltage/Over load/Over heat/Brown out)
- Green mode function (Intermittent switching)
- Realize 1 convertor circuit structure at world wide input power

High and Low side driver IC

■ Features

- High robustness of negative transient voltage on VS pin
- Wide range supply voltage up to 30V (FA5650/5651)
- 3.3V logic compatible
- Built-in under voltage lockout
- Allowable offset supply voltage transient dVs/dt up to 50kV/us
- High speed response: Turn on/off delay time 125ns (Typ) (FA5650/5651)

■ Part numbers

FA8A00N (example)

F		A		8		A	00	N	
Company Symbol		Control System		Series		Generation	Number	Package code	
F	Fuji	A	Analog	1	CRMPFC	A	Two-digit integer	N	SOP
				6	LLC	B		P	DIP
				8	PWM	C			
						…			

FA5590N (example)

F		A		55		90	N	
Company Symbol		Control System		Series		Generation	Package code	
F	Fuji	A	Analog	3X	AC/DC DC/DC	Two-digit integer	M/N	SOP
				5X	AC/DC		P	DIP
				7X	DC/DC		V	TSSOP
				13X	AC/DC			

AC/DC Power Supply control ICs

● Green mode PWM-ICs (Current mode)

Type Name	Duty	Input voltage	Frequency		Current sense	Over load protection	Over power protection	Over voltage protection	Built-in start up circuit	Green mode function	X-Cap discharge function
			65kHz	100kHz							
With Brown out function											
FA8A00N	83%	12 - 24V	✓		Positive	Auto-Recovery	2Stage (OPP ratio 1:1.4)	Latch	500V	Linearly frequency reduction Intermittent opration	✓
FA8A40N				✓							
FA8A01N			✓			Timer-latch					
FA8A41N				✓							
FA8B16N			✓			Auto-Recovery	2Stage (OPP ratio 1:1.5)				
FA8A27N		10 - 28V	✓			Timer-latch	2Stage (OPP ratio 1:1.8)				
FA8A37N											
FA8A39N											
FA8A83N		10 - 24V	✓			Timer-latch	1Stage		650V		
FA8A86N				✓		Auto-Recovery		—			
Without Brown out function											
FA5680N	85%	11 - 24V	✓		Negative	Auto-Recovery	1Stage	Latch	750V	Linearly frequency reduction Intermittent opration	✓
FA5681N			✓			Timer-latch					
FA8A60N	83%	10 - 24V	✓		Positive	Auto-Recovery			500V		
FA8A64N				✓							
FA8A61N			✓			Timer-latch					
FA8A65N				✓							
FA8A70N			✓			Auto-Recovery					
FA8A74N				✓							
FA8A71N			✓			Timer-latch					
FA8A75N				✓							
FA8A12N			✓			Auto-Recovery	2Stage				
FA8A80N			✓			Auto-Recovery	1Stage		650V		
FA8A84N				✓							
FA8A81N			✓			Timer-latch					
FA8A85N				✓							
FA8A90N			✓			Auto-Recovery					
FA8A94N				✓							
FA8A91N			✓			Timer-latch					✓
FA8A87N			✓								
FA8A95N				✓							

PKG：SOP-8

● Green mode PWM-ICs with Brown Out function

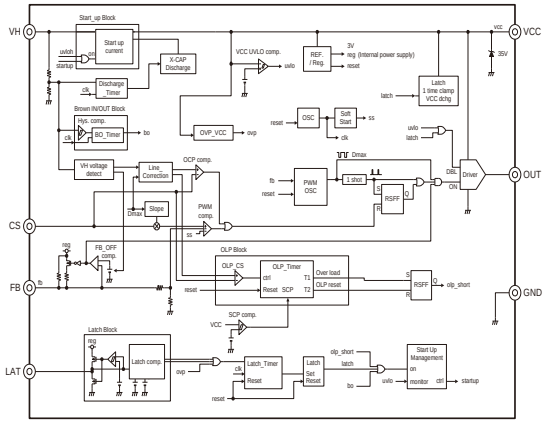
Green Mode PWM IC										
BrownOut function	With									
Current senes	Positive									
Over power protection	2 Stage OPP ratio 1:1.4				2 Stage OPP ratio 1:1.8			2 Stage OPP ratio 1:1.5	1 Stage	
Frequency (kHz)	65		100		65			65	65	100
Over load protecition	Auto-recovery	Timer-latch	Auto-recovery	Timer-latch	Timer-latch			Auto-recovery	Timer-latch	Auto-recovery
OLP Delay time (ms)	70	70	70	70	860	1600	2400	890	200	200
X-Cap discharge	With	With	With	With	With	With	With	With	With	Without
Product type	FA8A00N	FA8A01N	FA8A40N	FA8A41N	FA8A27N	FA8A37N	FA8A39N	FA8B16N	FA8A83N	FA8A86N

● Green mode PWM-ICs without Brown Out function

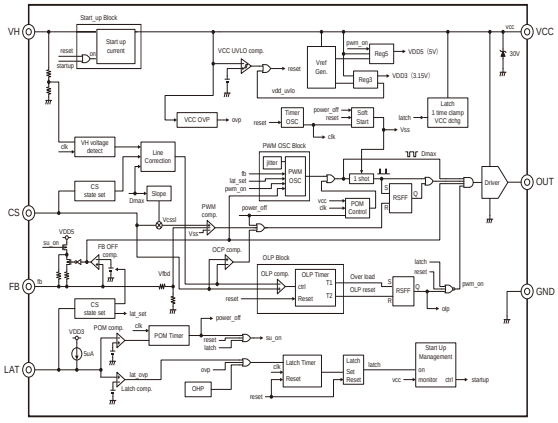
Green Mode PWM IC											
BrownOut function	Without										
Over power protection	1 Stage										2 Stage
Current senes	Negative		Positive								Positive
Over load protecition	Auto-recovery	Timer-latch	Auto-recovery			Timer-latch					Auto-recovery
Frequency (kHz)	65	65	65	100		65		100			65
X-Cap discharge			With	With		With		With		With	With
OCP OLP correction			With					With			
Product type 500V			FA8A60N	FA8A70N	FA8A64N	FA8A74N	FA8A61N	FA8A71N		FA8A65N	FA8A75N	FA8A12N
Product type 650V			FA8A80N	FA8A90N	FA8A84N	FA8A94N	FA8A81N	FA8A91N	FA8A87N	FA8A85N	FA8A95N	
Product type 750V	FA5680N	FA5681N										

● Block diagram (Main model)

FA8A00N（With Brown out）



FA8A61N（Without Brown out）

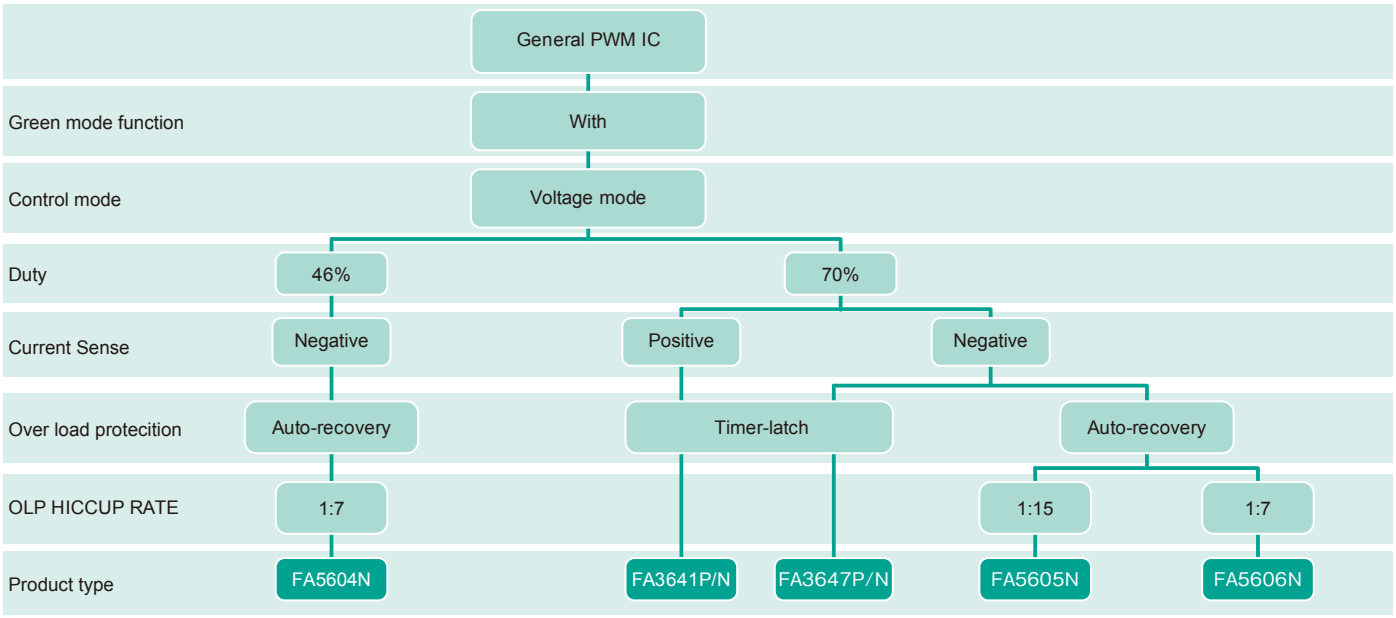


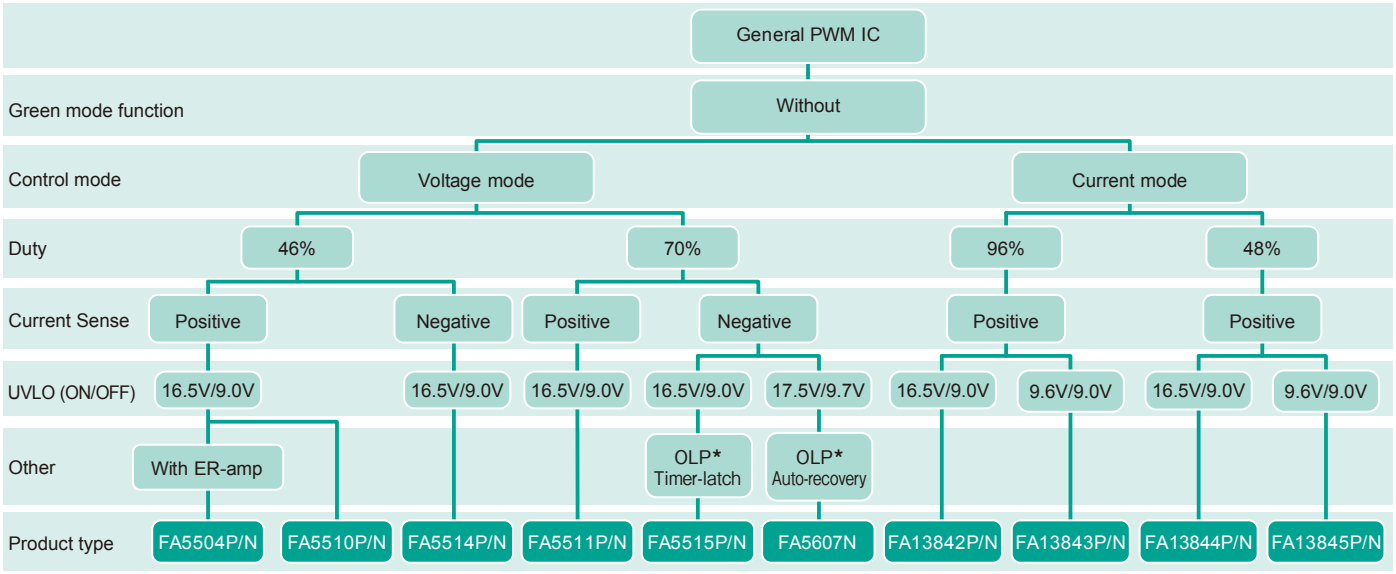
● General PWM-ICs

Type Name	Control mode	Duty	Input voltage	Current sense	Over load protection	Over voltage protection	Under-voltage lockout (ON/OFF)	Remarks
With Green mode function								
FA3641P/N	Voltage mode	70%	10 - 28V	Positive	Timer-latch	Latch	16.5V/9.0V	Frequency reduction at light load
FA3647P/N				Negative				Frequency reduction at light load
FA5604N		46%	10 - 30V	Negative	Auto-Recovery		17.5V/9.7V	Overcurrent limit correction function Frequency reduction start/stop FB voltage under light load 1.8V/1.95V
FA5605N		70%						
FA5606N								Overcurrent limit correction function Frequency reduction start/stop FB voltage under light load 1.55V/1.65V
Without Green mode function								
FA13842P/N	Current mode	96%	10 - 25V	Positive	–	–	16.5V/9.0V	
FA13843P/N							9.6V/9.0V	
FA13844P/N		48%					16.5V/9.0V	
FA13845P/N							9.6V/9.0V	
FA5504P/N	Voltage mode	46%	10 - 28V	Negative	Timer-latch	Latch	16.5V/9.0V	With error amplifier
FA5510P/N								
FA5511P/N		70%						
FA5514P/N		46%						
FA5515P/N		70%						
FA5607N			10 - 30V		Auto-Recovery		17.5V/9.7V	Overcurrent limit correction function

PKG: "P":DIP-8, "N":SOP-8
Frequency: Adjustable

● General PWM-ICs

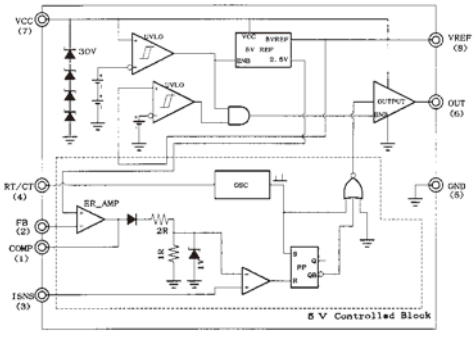




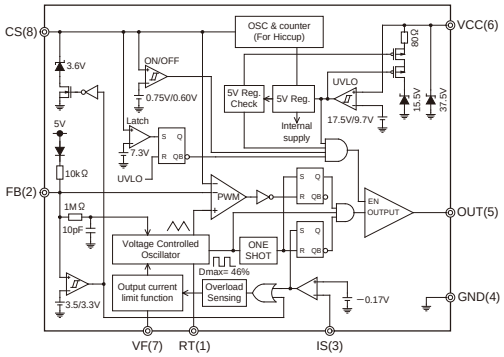
*OLP：Over Load Protection

● Block diagram (Main model)

FA13842P/N



FA5604N

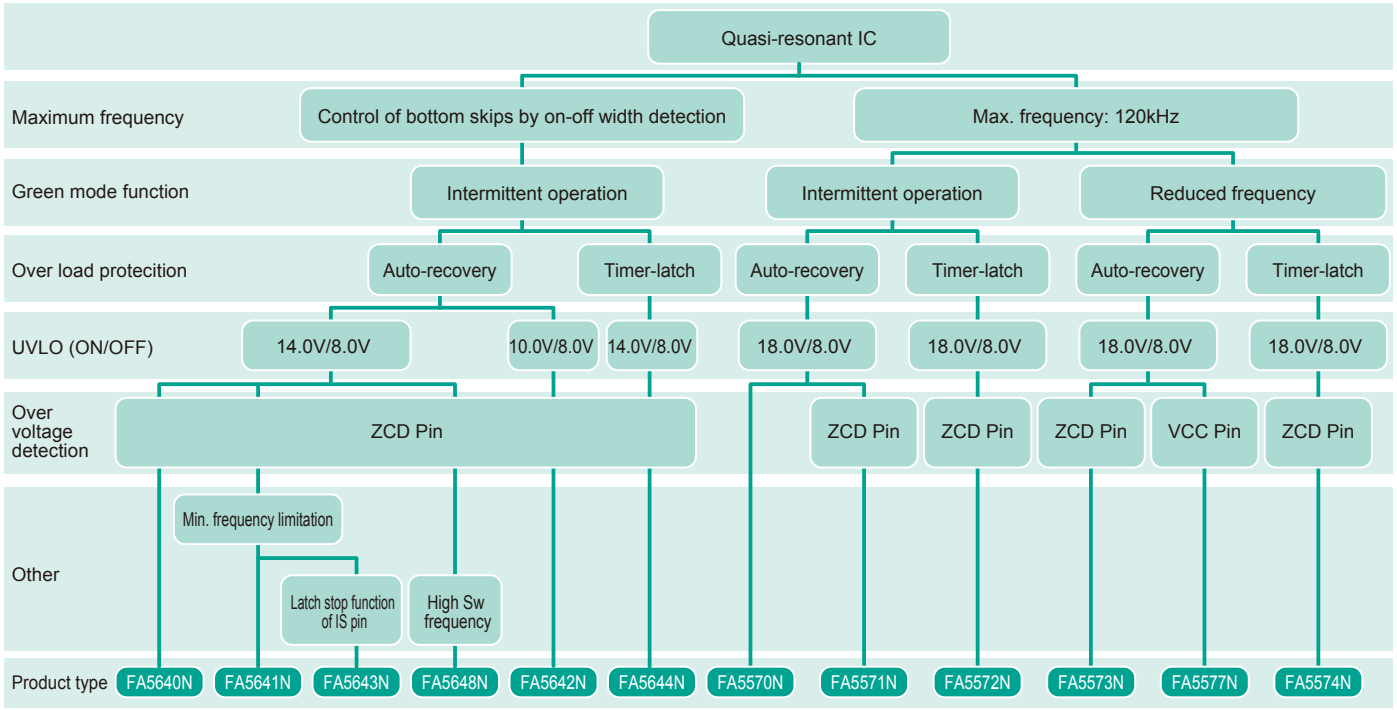


● Green mode Quasi-resonant ICs（Current mode）

Type Name	Input voltage	Maximum frequency	Over load protection	Over voltage sense	Built-in start up circuit	Green mode function	Under-voltage lockout (ON/OFF)	Remarks
FA5570N	10 - 28V	Max. frequency limitation 120kHz	Auto-Recovery	–	500V	Intermittent operation	18V/8V	
FA5571N				ZCD Pin				Over voltage protection Latch
FA5572N			Timer-latch					
FA5573N			Auto-Recovery			Linearly frequency reduction		
FA5574N			Timer-latch					
FA5577N			Auto-Recovery	VCC Pin				
FA5640N	11 - 26V	Bottom skip control by on-off width detection	Auto-Recovery	ZCD Pin		Intermittent operation	14V/8V	
FA5641N								Min. frequency limitation
FA5642N							10V/8V	
FA5643N							14V/8V	Min. frequency limitation Latch stop function (IS pin)
FA5644N			Timer-latch					
FA5648N			Auto-Recovery					For High SW frequency

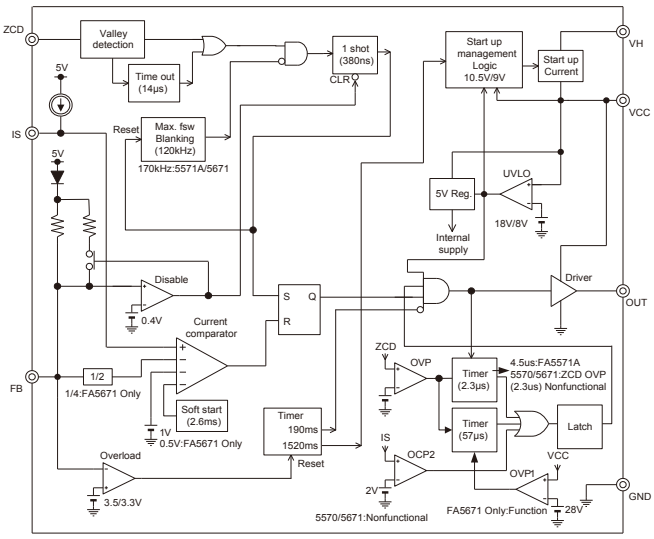
PKG: SOP-8

● Green mode Quasi-resonant ICs

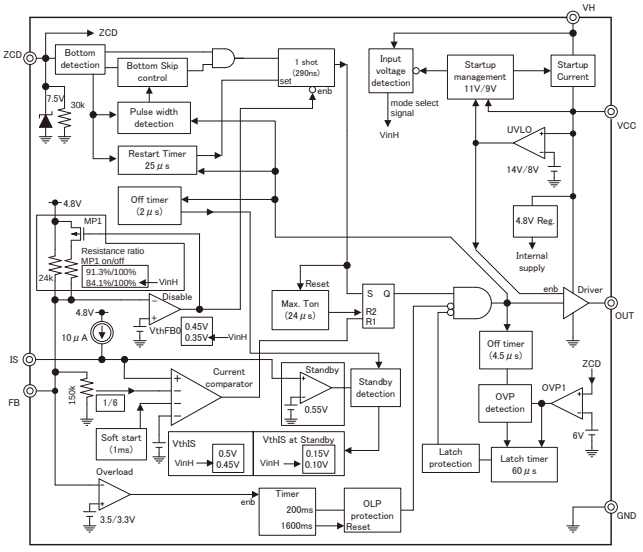


● Block diagram (Main model)

FA5570N



FA5640N

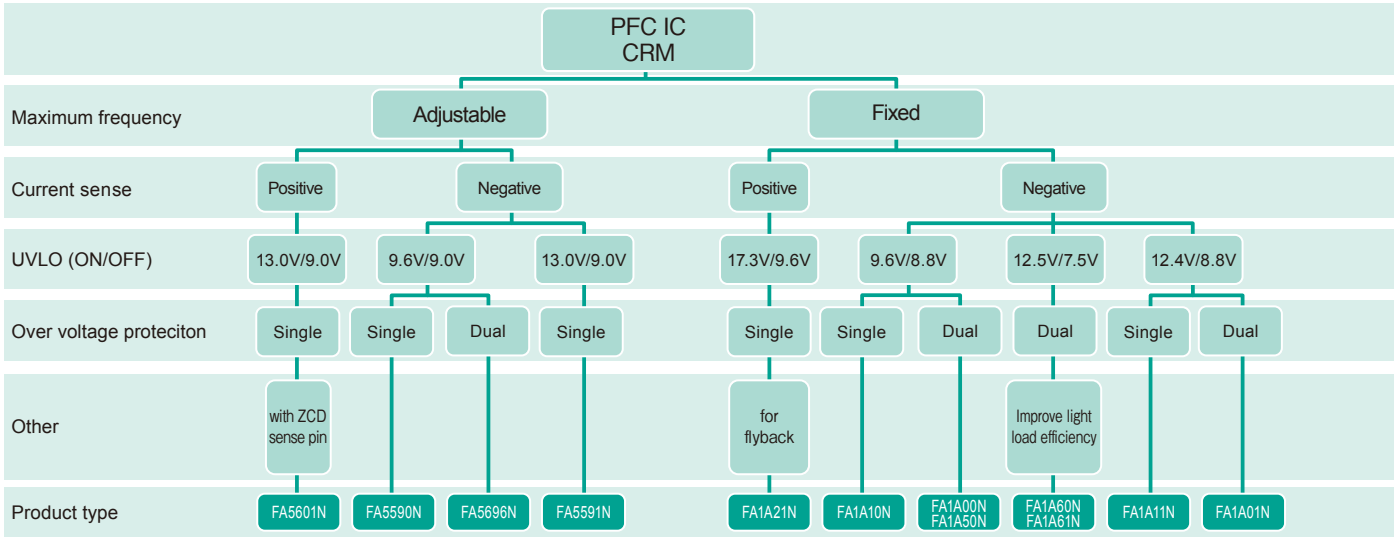


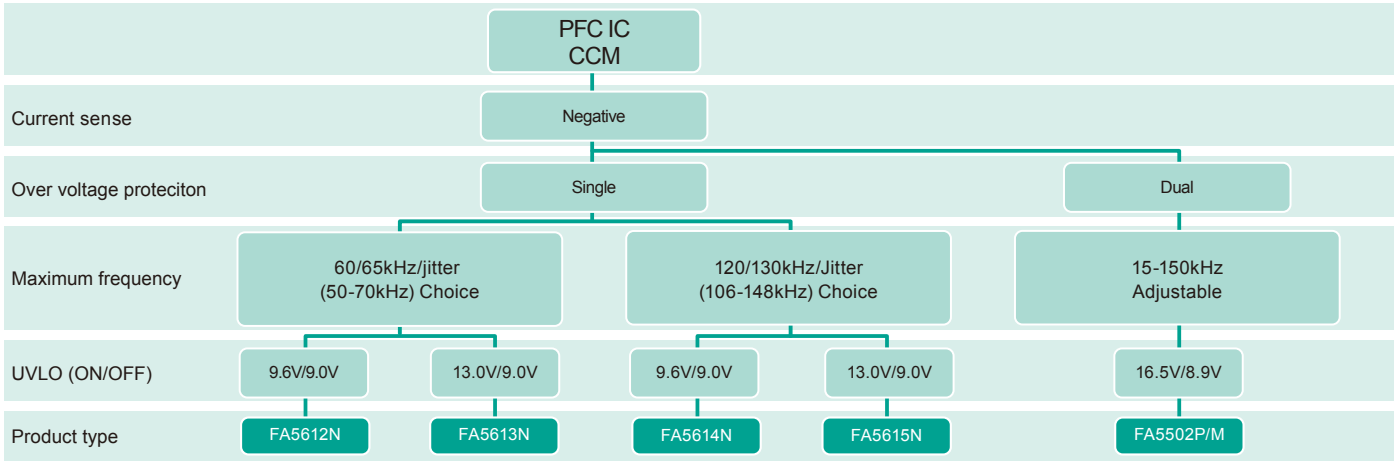
● Power factor correction ICs

Type Name	Input voltage	Duty	Current sense	Under-voltage lockout (ON/OFF)	Frequency	Maximum frequency	Zero Current Detection	FB open short protection	Over voltage protection	Remarks
CRM PFC										
FA5590N	10 - 26V	–	Negative	9.6V/9.0V	Self-oscillation	Adjustable	Current sence	✓	Voltage-Limit by Pulse width	
FA5591N				13.0V/9.0V						
FA1A10N				9.6V/8.8V		Fixed				
FA1A11N				12.4V/8.8V						
FA1A50N				9.6V/8.8V					Voltage-Limit by Pulse width and Voltage-Limit(OVP)	
FA1A60N				12.5V/7.5V						Improve light load efficiency Cooperate with FA6B19N/20N/22N
FA1A61N								✓(Open protection only)		Improve transient response Cooperate with FA6B21N
FA5696N				9.6V/9.0V		Adjustable		✓		
FA1A00N				9.6V/8.8V		Fixed				
FA1A01N				12.4V/8.8V						
FA5601N			Positive	13.0V/9.0V		Adjustable	Auxiliary-winding		Voltage-Limit by Pulse width	
FA1A21N				17.3V9.6V		Fixed		–	Voltage-Limit (V_{CC})	For Flyback Over load protection
CCM PFC										
FA5502P/M	10 - 28V	94%	Negative	16.5V/8.9V	Adjustable	150kHz	–	–	Voltage-Limit (OVP)	
FA5612N	10 - 26V			9.6V/9.0V	Choice 65/60kHz/jitter (50-70kHz)	–		✓	Voltage-Limit by Pulse width	Frequency diffusion function
FA5613N				13.0V/9.0V						
FA5614N	10 - 26V			9.6V/9.0V	Choice 130/120kHz/ jitter (106-148kHz)					Frequency diffusion function
FA5615N				13.0V/9.0V						

PKG: FA5502 "P":DIP16, "M":SOP-16(M), others are 8pin

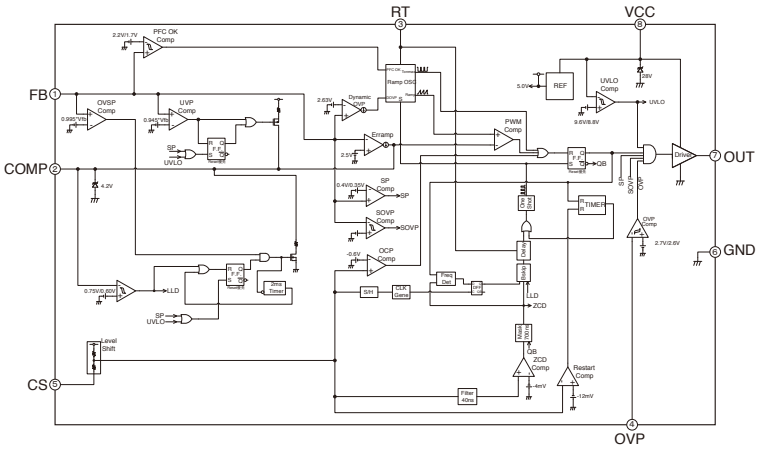
● Power factor correction ICs



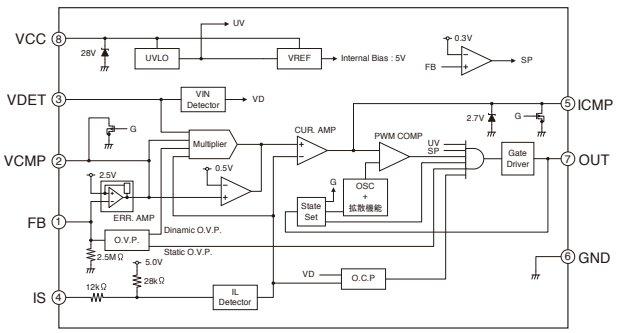


● Block diagram (Main model)

FA1A50N



FA5612N, FA5613N, FA5614N, FA5615N

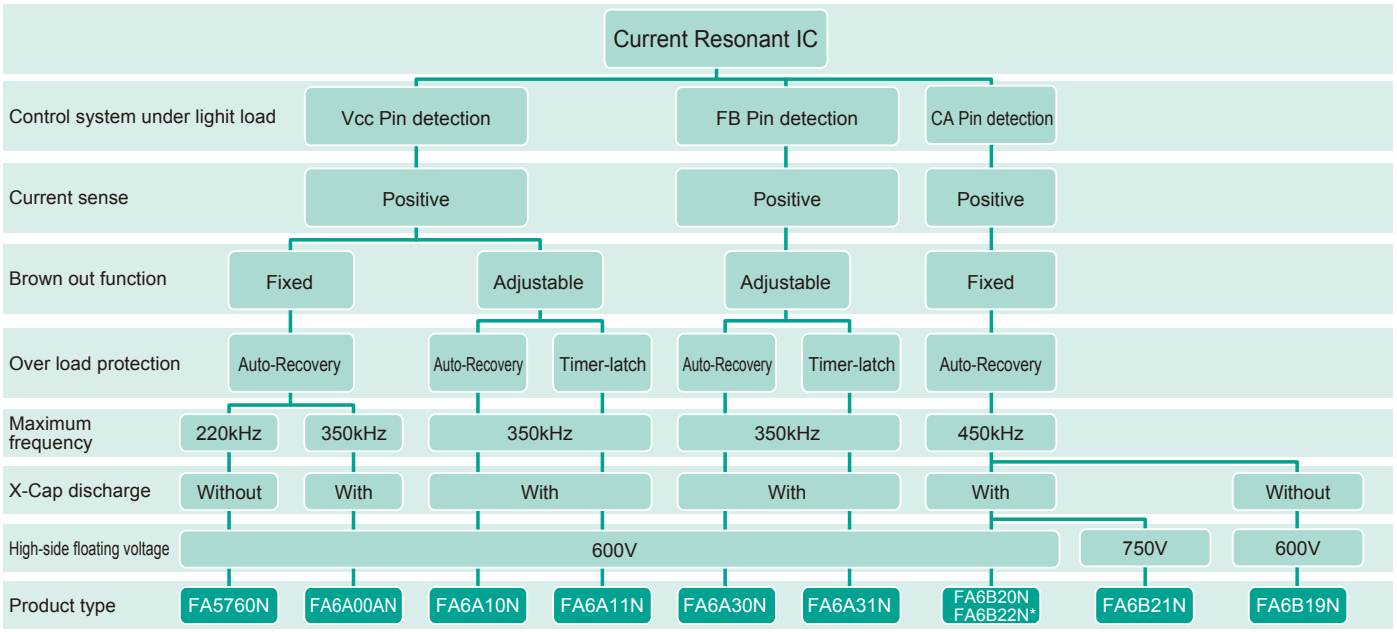


● Current Resonant ICs

Type Name	Control mode	Input voltage	Under-voltage lockout (ON/OFF)	Current sense	Frequency	Maximum frequency	Over load protection	Over voltage protection	Built-in start up circuit	High-side floating voltage	Brown out function	X-Cap discharge function
FA5760N	Voltage mode	14 - 24V	12.0V/8.9V	Positive	Self-oscillation	220kHz	Auto-Recovery	Latch	600V	600V	Fixed	Without
FA6A00AN		14 - 27V	12.0V/9.0V			350kHz					Adjustable	With
FA6A10N												
FA6A11N							Timer-latch					
FA6A30N			13.0V/9.0V				Auto-Recovery					
FA6A31N							Timer-latch					
FA6B19N		14 - 29V	14.0V/9.0V			450kHz	Auto-Recovery	Auto-Recovery		750V	Fixed	Without
FA6B20N												With
FA6B22N*												
FA6B21N												

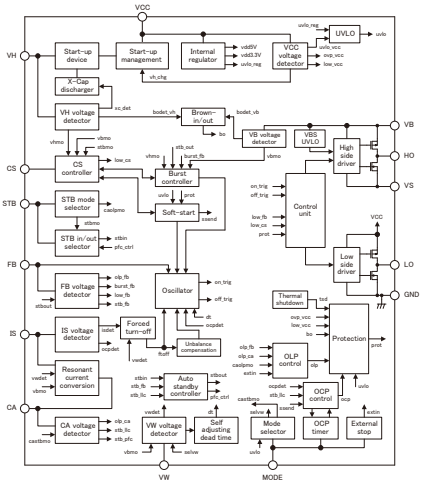
PKG: SOP-16(N) *Brown out delay time extension type

● Current Resonant ICs

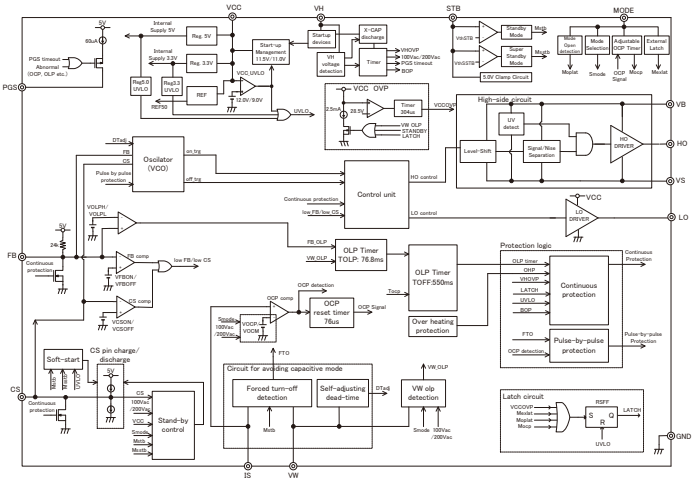


● Block diagram (Main model)

FA6B20N



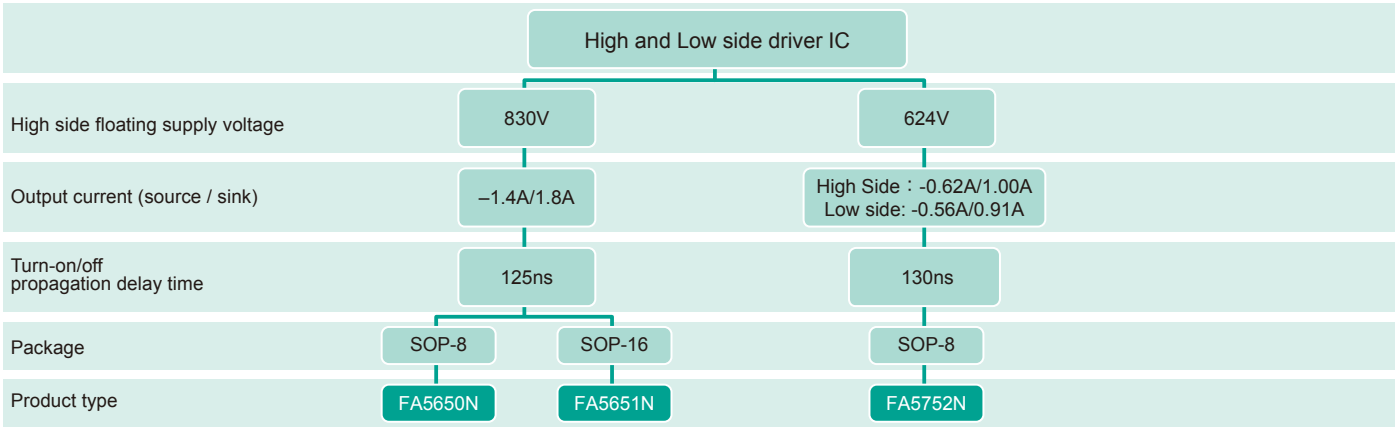
FA6A00AN



High and Low side driver ICs

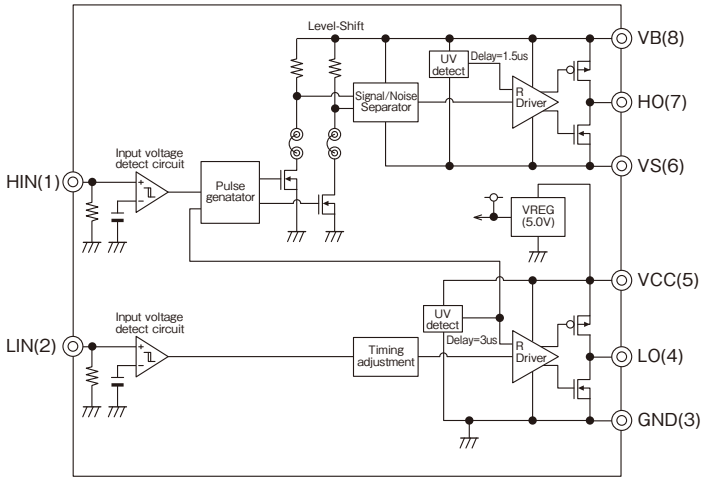
Type name	Absolute maximum ratings				Electrical characteristics				
	High side floating supply voltage	Maximum supply voltage	Output current source / sink	Maximum input frequency	Logic"1" / "0" Input voltage level (typ.)	Turn-on/off propagation delay time (typ.)	VCC and VBS supply under-voltage threshold (typ.)	Number of Input terminal	Package
FA5650N	830V	30V	-1.4A/1.8A	500kHz	Logic"1" 2.1V Logic"0" 1.1V	125ns	positive going 8.9V negative going 8.2V	2	SOP-8
FA5651N									SOP-16(N)
FA5752N	624V	24V	High side IHO: -0.62A/1.00A Low side ILO: -0.56A/0.91A		Logic"1" 2.1V Logic"0" 1.3V	130ns			SOP-8

● High and Low side driver IC

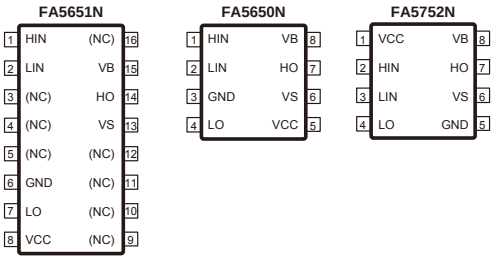


● Block diagram (Main model)

FA5650N



■ Pin Layout

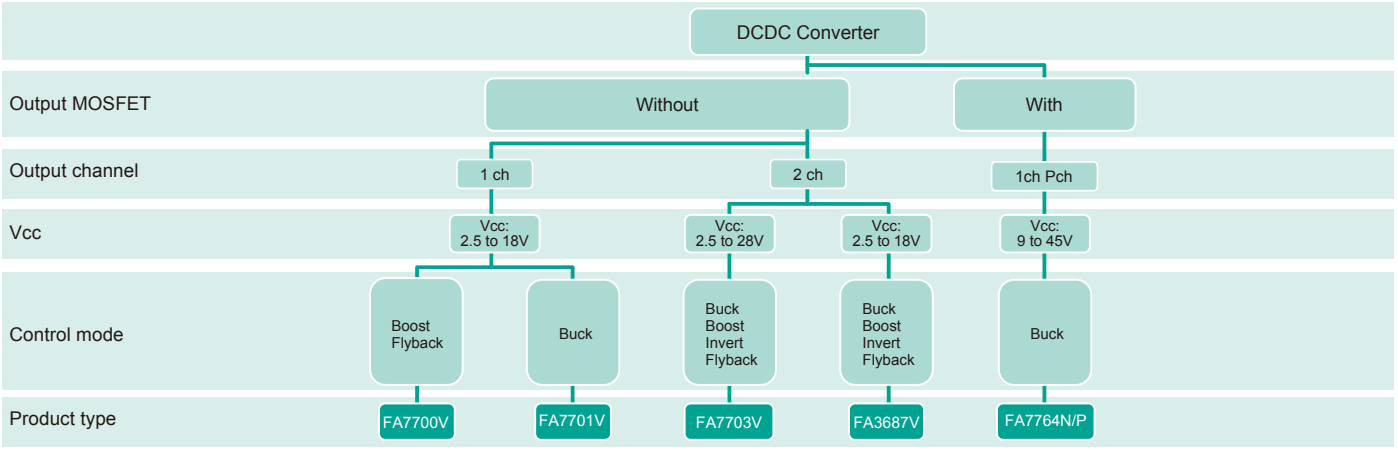


DC/DC Power Supply control ICs

● DC/DC Power Supply control ICs

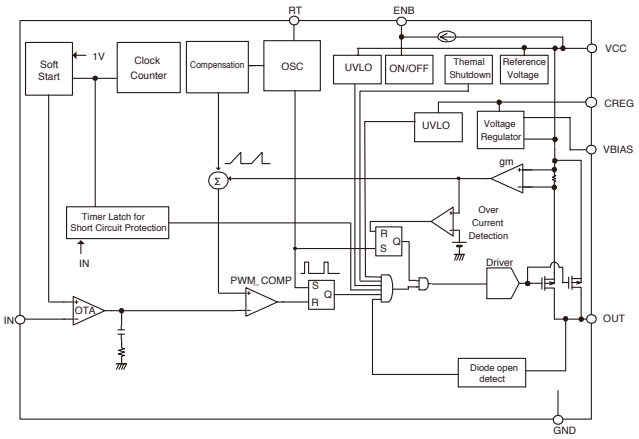
Type Name	Control mode				Output channel	Input voltage	Frequency	Reference Voltage	Operating Ambient Temperature	Output Current	Output MOSFET	Package
	Boost	Fly back	Buck	Inverting								
FA7700V	✓	✓			1	2.5 - 18V	50k - 1MHz	0.88V	-30 — +85℃	—	—	TSSOP-8
FA7701V			✓		1	2.5 - 18V	50k - 1MHz	0.88V	-30 — +85℃	—	—	TSSOP-8
FA7703V	✓	✓	✓	✓	2	2.5 - 28V	50k - 1MHz	1.0V	-30 — +85℃	—	—	TSSOP-16
FA3687V	✓	✓	✓	✓	2	2.5 - 18V	300k - 1.5MHz	1.0V	-30 — +85℃	—	—	TSSOP-16
FA7764N/P			✓		1	9 - 45V	30k - 400kHz	1.0V	-20 — +85℃	1.5A	With	N:SOP-8E P:DIP-8

● DC/DC Power Supply control ICs



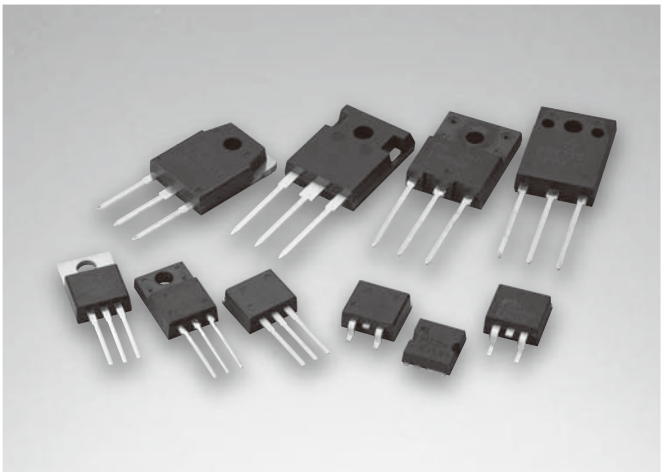
● Block diagram (Main model)

FA7764N/P



Power MOSFETs

Fuji Electric has a lineup of power MOSFETs ranging from medium to high-voltage types with features such as low power loss, low noise, and low on-resistance.
The “Super J-MOS®” Series uses superjunction technology, and was developed primarily for models with a withstand voltage of 600 V.



MOSFET Super J MOS®S2 Series

■ Concept

Superjunction technology has much improved trade-off characterisity between On-resistance and Breakdown voltage. Super J MOS® S2 has the same turn-off loss and turn-off d*v*/d*t* capabilities at conventional Super J MOS® S1. As a result, It contributes to high efficiency and miniaturization of power supply.

■ Applications

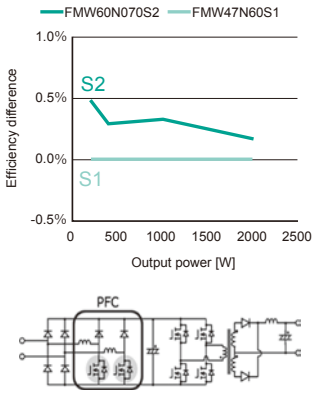
PFC or PWM converter for Server, PC, PCS, UPS, LCD-TV, Lighting and Standard power supply

■ Features & Benefit of Super J MOS® S2 series

Feature	Benefit
Low on-state resistance Low switching loss	→ High efficiency High power density
Low gate charge（Q_G） Low energy stored in output capacitance（E_{OSS}）	→ High efficiency at low load
Easy to use (more controllable d*v*/d*t* by R_G and Low V_{DS} surge)	→ Easy to design
100% avalanche tasted	→ High reliability

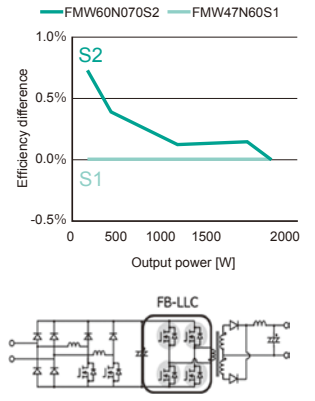
■ Benefit (Efficiency) of Super J MOS® S2 series

PFC stage
Efficiency difference



Circuit : PFC+LLC(Exchanged PFC MOS)
Input : 230V AC 50Hz
Output:53.5V/Iout=37A
External R_G : 2Ω
Sample : 600V/70mΩ max

LLC stage
Efficiency difference

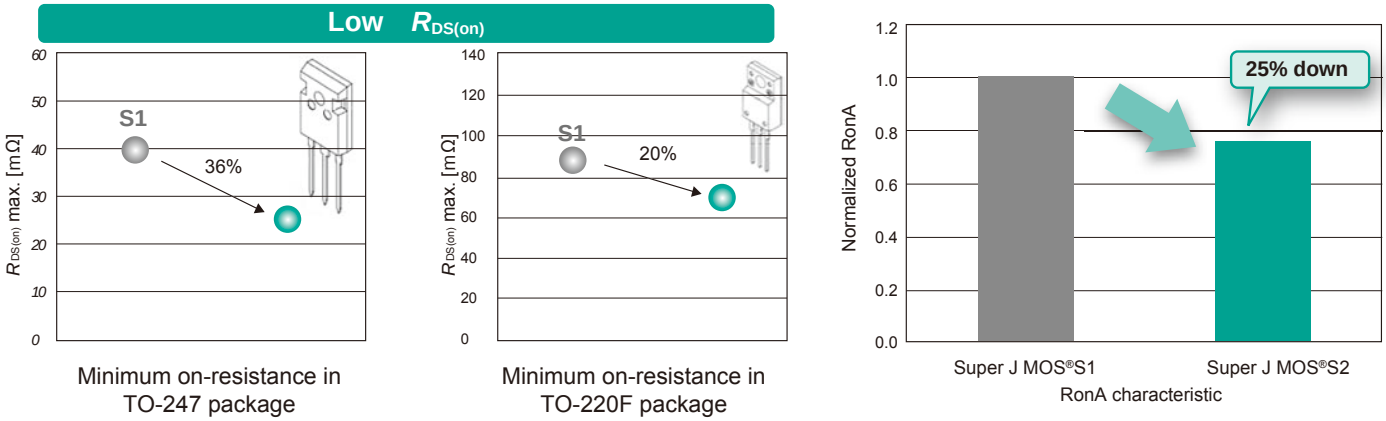


Circuit : PFC+LLC(Exchanged LLC MOS)
Input : 230V AC 50Hz
Output : 49V/Iout=6.12~56.01A
External R_G : 5.1Ω
Sample : 600V/70mΩ max.

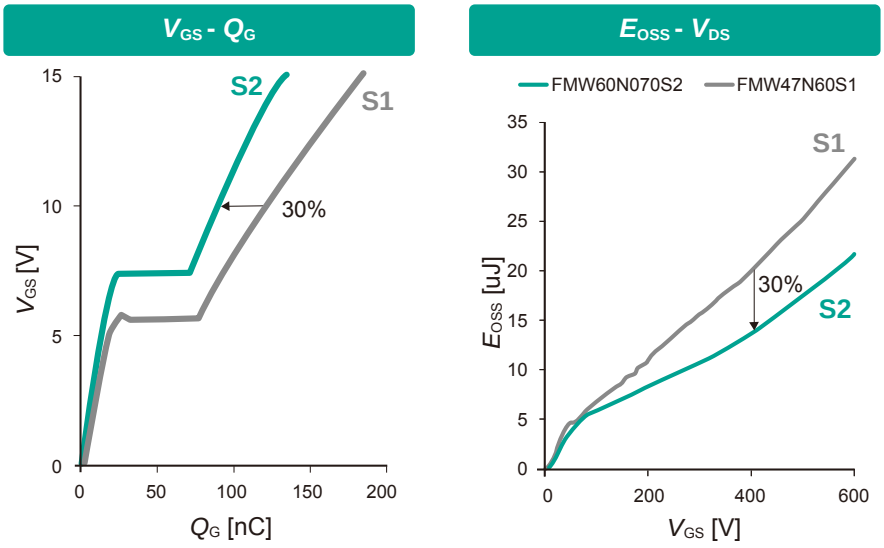
Super J MOS® is registered trademarks of Fuji Electric.

■ Features of Super J MOS® S2 series

- Low $R_{DS(on)}$・A 25% lower than our conventional MOSFET (Super J MOS® S1)
- Due to low $R_{DS(on)}$, Selectable smaller package
  ex) 600V/0.07Ω/TO-3P → 600V/0.07Ω/TO-220F



- Low Q_G 30% lower than our conventional MOSFET (Super J MOS® S1)
- Low E_{OSS} 30% lower than our conventional MOSFET (Super J MOS® S1)

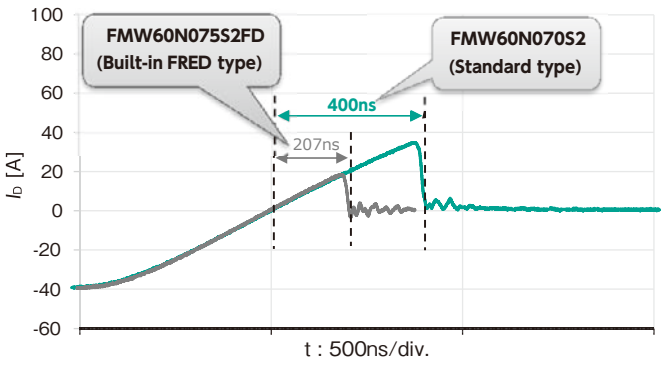


■ Features of Super J MOS® S2FD series (Built-in FRED type)

- t_{rr} of S2FD is 50% faster than S2
- High diode recovery ruggedness (High -di_{DR}/dt ruggedness)
- Guaranteed avalanche robustness

■ Applications

For resonant switching topologies in applications like UPS, Server,Telecom, LED lighting, Power conditioner system and Power supply.



Conditions : V_{DD}=400V, I_{DR}=39.4A, -di_{DR}/dt=100A/us, T_{ch}=25℃

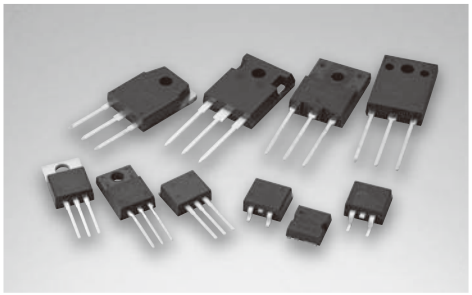
Built-in diode recovery wave form

Super J MOS® is registered trademarks of Fuji Electric.

Features of SuperFAP-E^3, E^{3S} Series

■ Concept

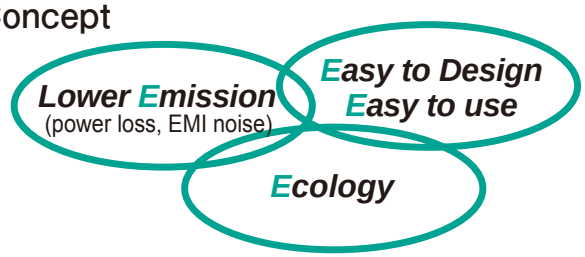
The second generation Quasi-Planer Junction technology copes with both low loss/noise and usability.
And this technology lets us achive high performance for power supply's circuit design.

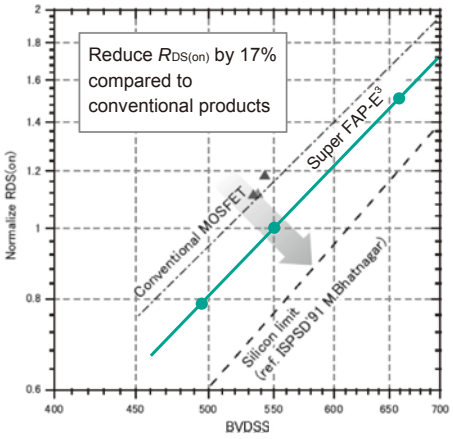


■ Features

- Coping with both low loss and low noise
- Low $R_{DS(on)}$
- High controllability of gate resistance during switching
- Low V_{GS} ringing waveform during switching
- Narrow band of the gate threshold voltage (3.0±0.5V)
- High avalanche durability

Concept





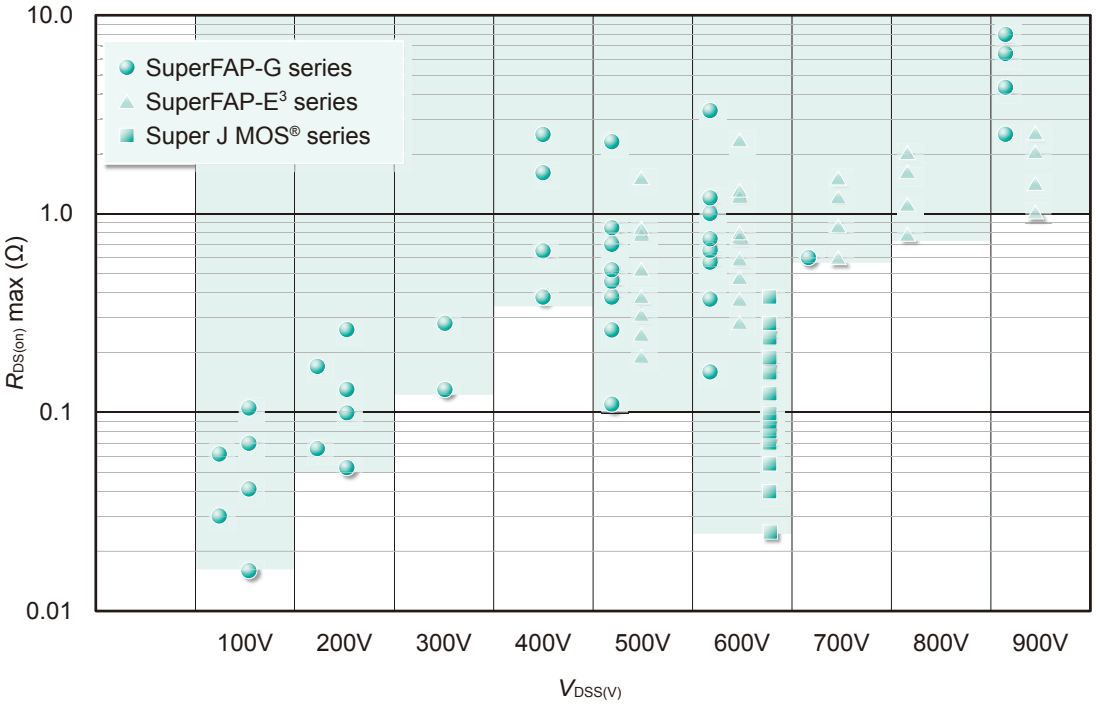
Features of SuperFAP-G Series

The Quasi-Planer Junction technology achieve low $R_{DS(on)}$ and low switching loss (low Q_{GD}).

■ Features

- Low turn off loss　75% lower than our conventional type
- Low Gate charge　60% lower than our conventional type
- High avalanche durability
- Due to low $R_{DS(on)}$, Selectable smaller package
  ex) 500V/0.4Ω/TO-3P → 500V/0.38Ω/TO-220

■ Series map (Except for Automotive)



■ Part numbers

FMV60N190S2 (example)

F	M		V		60	N		190	S2	
Company Symbol	Device code		Package code		Voltage	Polarity		Ron(mΩ)	Series	
Fuji	M	MOSFET	C	T-pack (S)	×1/10	N	N-ch	×1	S2	Super J MOS® 2nd Gen.
			H	TO-3P					S2FD	Super J MOS® 2nd Gen. (FRED)
			L	DFN8x8					S2A	Super J MOS® 2nd Gen. for Automotive
			P	TO-220					S2FDA	Super J MOS® 2nd Gen. (FRED) for Automotive
			V	TO-220F (SLS)						
			Y	TO-247						
			W	TO-247-P/TO-247-P2						

FMV20N50ES (example)

F	M		V		20	N		50	ES	
Company Symbol	Device code		Package code		Current	Polarity		Voltage	Series	
Fuji	M	MOSFET	A	TO-220F	×1	N	N-ch	×1/10	E	SuperFAP-E³
			C	T-pack (S)					ES	SuperFAP-E^3S
			H	TO-3P					G	SuperFAP-G
			I	T-pack (L)					GF	SuperFAP-G (FRED)
			P	TO-220					T2	Trench
			R	TO-3PF					R	3G-Trench
			V	TO-220F (SLS)						
			Y	TO-247						
			W	TO-247-P/TO-247-P2						

■ Letter symbols

V_{DSS}: Drain-source voltage
I_D: Continuous drain current
I_D(pulse): Pulsed drain current
R_{DS}(on): Drain-source on-state resistance
P_{tot}: Maximum power dissipation
V_{GS}: Gate-source voltage
$V_{GS(th)}$: Gate threshold voltage
Q_G: Total gate charge

Super J MOS® S2 series

Low-on resistance, low switching noise and low switching loss

Super J MOS® S2 series			TO-220	TO-220F (SLS)	TO-3P(Q)	TO-247-P/TO-247-P2	DFN8x8
							
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)					
600	0.3800	10.0	✓	✓			
	0.2800	13.0	✓	✓	✓		
	0.2230	14.0					✓
	0.1900	20.0	✓	✓	✓	✓	
	0.1870	22.7					✓
	0.1600	23.9	✓	✓		✓	
	0.1460	28.7					✓
	0.1250	30.1	✓	✓		✓	
	0.1150	37.1					✓
	0.1030	41.3					✓
	0.0990	38.1	✓	✓		✓	
	0.0910	42.3					✓
	0.0880	42.3	✓	✓		✓	
	0.0790	47.9	✓	✓		✓	
	0.0700	53.2		✓		✓	
	0.0550	64.4				✓	
	0.0400	77.5				✓	
	0.0254	95.5				✓	

600V class

Device type	V_{DSS} Volts	I_D Amps.	I_D (pulse) Amps.	$R_{DS(on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS(th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP60N380S2	600	10.0	32.4	0.3800	62	30	3.0±0.5	27.5	TO-220	2.0
FMV60N380S2	600	10.0	32.4	0.3800	20	30	3.0±0.5	27.5	TO-220F(SLS)	1.7
FMP60N280S2	600	13.0	41.6	0.2800	75	30	3.0±0.5	33	TO-220	2.0
FMV60N280S2	600	13.0	41.6	0.2800	26	30	3.0±0.5	33	TO-220F(SLS)	1.7
FMH60N280S2	600	13.0	41.6	0.2800	65	30	3.0±0.5	33	TO-3P(Q)	5.0
● **FML60N223S2**	600	14.0	56.0	0.2230	108	30	4.0±0.5	37	DFN8x8	0.2
FMP60N190S2	600	20.0	62.0	0.1900	113	30	3.0±0.5	46	TO-220	2.0
FMV60N190S2	600	20.0	62.0	0.1900	38	30	3.0±0.5	46	TO-220F(SLS)	1.7
FMH60N190S2	600	20.0	62.0	0.1900	94	30	3.0±0.5	46	TO-3P(Q)	5.0
FMW60N190S2	600	20.0	62.0	0.1900	94	30	3.0±0.5	46	TO-247-P/TO-247-P2	6.0
● **FML60N187S2**	600	22.7	66.0	0.1870	127	30	4.0±0.5	43	DFN8x8	0.2
FMP60N160S2	600	23.9	71.6	0.1600	127	30	4.0±0.5	43	TO-220	2.0
FMV60N160S2	600	23.9	71.6	0.1600	45	30	4.0±0.5	43	TO-220F(SLS)	1.7
FMW60N160S2	600	23.9	71.6	0.1600	110	30	4.0±0.5	43	TO-247-P/TO-247-P2	6.0
● **FML60N146S2**	600	28.7	83.6	0.1460	159	30	4.0±0.5	53	DFN8x8	0.2
FMP60N125S2	600	30.1	90.8	0.1250	160	30	4.0±0.5	53	TO-220	2.0
FMV60N125S2	600	30.1	90.8	0.1250	57	30	4.0±0.5	53	TO-220F(SLS)	1.7
FMW60N125S2	600	30.1	90.8	0.1250	140	30	4.0±0.5	53	TO-247-P/TO-247-P2	6.0
● **FML60N115S2**	600	37.1	108.0	0.1150	208	30	4.0±0.5	65	DFN8x8	0.2
● **FML60N103S2**	600	41.3	120.4	0.1030	232	30	4.0±0.5	72	DFN8x8	0.2
FMP60N099S2	600	38.1	117.0	0.0990	210	30	4.0±0.5	65	TO-220	2.0
FMV60N099S2	600	38.1	117.0	0.0990	75	30	4.0±0.5	65	TO-220F(SLS)	1.7
FMW60N099S2	600	38.1	117.0	0.0990	185	30	4.0±0.5	65	TO-247-P/TO-247-P2	6.0
● **FML60N091S2**	600	42.3	125.6	0.0910	263	30	4.0±0.5	80	DFN8x8	0.2

● : New Products

Super J MOS® is registered trademarks of Fuji Electric

The Super J MOS® series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ 600V class

Device type	V_{DSS} (V)	I_D (A)	$I_{D\ (pulse)}$ (A)	$R_{DS\ (on)}$ max. (Ω)	P_{tot} (W)	V_{GS} (V)	$V_{GS\ (th)}$ (V)	Q_G typ. (nC)	Package	Net mass Grams
FMP60N088S2	600	42.3	131	0.0880	235	30	4.0±0.5	72	TO-220	2.0
FMV60N088S2	600	42.3	131	0.0880	85	30	4.0±0.5	72	TO-220F(SLS)	1.7
FMW60N088S2	600	42.3	131	0.0880	205	30	4.0±0.5	72	T0-247-P/T0-247-P2	6.0
FMP60N079S2	600	47.9	148	0.0790	270	30	4.0±0.5	80	TO-220	2.0
FMV60N079S2	600	47.9	148	0.0790	95	30	4.0±0.5	80	TO-220F(SLS)	1.7
FMW60N079S2	600	47.9	148	0.0790	235	30	4.0±0.5	80	T0-247-P/T0-247-P2	6.0
FMV60N070S2	600	53.2	158	0.0700	110	30	4.0±0.5	90	TO-220F(SLS)	1.7
FMW60N070S2	600	53.2	158	0.0700	270	30	4.0±0.5	90	T0-247-P/T0-247-P2	6.0
FMW60N055S2	600	64.4	200	0.0550	340	30	4.0±0.5	110	T0-247-P/T0-247-P2	6.0
FMW60N040S2	600	77.5	265	0.0400	435	30	4.0±0.5	147	T0-247-P/T0-247-P2	6.0
FMW60N025S2	600	95.5	286.5	0.0254	575	30	4.0±0.5	222	T0-247-P/T0-247-P2	6.0

The Super J MOS® series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ Super J MOS® S2FD series (Built-in FRED type)

Low-on resistance, low switching noise and low switching loss

Super J MOS® S2FD Series (Built-in FRED type)			TO-220	TO-220F (SLS)	TO-247-P/TO-247-P2	DFN8x8
						
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)				
600	0.191	22.7				✓
	0.170	23.9	✓	✓	✓	
	0.150	28.7				✓
	0.133	30.1	✓	✓	✓	
	0.118	37.1				✓
	0.105	38.1	✓	✓	✓	
	0.104	41.3				✓
	0.094	42.3	✓	✓	✓	
	0.093	42.3				✓
	0.084	47.9	✓	✓	✓	
	0.075	53.2		✓	✓	
	0.059	64.4			✓	
	0.043	77.5			✓	
	0.027	95.5			✓	

■ 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	t_{rr} typ. ns	Package	Net mass Grams
● **FML60N191S2FD**	600	22.7	66	0.191	127	30	4.0±1.0	48	150	DFN8x8	0.2
FMP60N170S2FD	600	23.9	71.6	0.170	127	30	4.0±1.0	48	150	TO-220	2.0
FMV60N170S2FD	600	23.9	71.6	0.170	45	30	4.0±1.0	48	150	TO-220F(SLS)	1.7
FMW60N170S2FD	600	23.9	71.6	0.170	110	30	4.0±1.0	48	150	TO-247-P/TO-247-P2	6.0
● **FML60N150S2FD**	600	28.7	83.6	0.150	159	30	4.0±1.0	59	160	DFN8x8	0.2
FMP60N133S2FD	600	30.1	90.8	0.133	160	30	4.0±1.0	59	160	TO-220	2.0
FMV60N133S2FD	600	30.1	90.8	0.133	57	30	4.0±1.0	59	160	TO-220F(SLS)	1.7
FMW60N133S2FD	600	30.1	90.8	0.133	140	30	4.0±1.0	59	160	TO-247-P/TO-247-P2	6.0
● **FML60N118S2FD**	600	37.1	108	0.118	208	30	4.0±1.0	75	174	DFN8x8	0.2
FMP60N105S2FD	600	38.1	117	0.105	210	30	4.0±1.0	75	174	TO-220	2.0
FMV60N105S2FD	600	38.1	117	0.105	75	30	4.0±1.0	75	174	TO-220F(SLS)	1.7
FMW60N105S2FD	600	38.1	117	0.105	185	30	4.0±1.0	75	174	TO-247-P/TO-247-P2	6.0
● **FML60N104S2FD**	600	41.3	120.4	0.104	232	30	4.0±1.0	83	185	DFN8x8	0.2
FMP60N094S2FD	600	42.3	131	0.094	235	30	4.0±1.0	83	185	TO-220	2.0
FMV60N094S2FD	600	42.3	131	0.094	85	30	4.0±1.0	83	185	TO-220F(SLS)	1.7
FMW60N094S2FD	600	42.3	131	0.094	205	30	4.0±1.0	83	185	TO-247-P/TO-247-P2	6.0
● **FML60N093S2FD**	600	42.3	125.6	0.093	263	30	4.0±1.0	93	190	DFN8x8	0.2
FMP60N084S2FD	600	47.9	148	0.084	270	30	4.0±1.0	93	190	TO-220	2.0
FMV60N084S2FD	600	47.9	148	0.084	95	30	4.0±1.0	93	190	TO-220F(SLS)	1.7
FMW60N084S2FD	600	47.9	148	0.084	235	30	4.0±1.0	93	190	TO-247-P/TO-247-P2	6.0
FMV60N075S2FD	600	53.2	158	0.075	110	30	4.0±1.0	97	207	TO-220F(SLS)	1.7
FMW60N075S2FD	600	53.2	158	0.075	270	30	4.0±1.0	97	207	TO-247-P/TO-247-P2	6.0
FMW60N059S2FD	600	64.4	200	0.059	340	30	4.0±1.0	129	215	TO-247-P/TO-247-P2	6.0
FMW60N043S2FD	600	77.5	265	0.043	435	30	4.0±1.0	177	250	TO-247-P/TO-247-P2	6.0
FMW60N027S2FD	600	95.5	286.5	0.027	575	30	4.0±1.0	256	288	TO-247-P/TO-247-P2	6.0

●: New Product

The Super J MOS® series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-E^3 series

Low-on resistance and low switching noise

SuperFAP-E^3 series			TO-220	TO-220F (SLS)	TO-3P (Q)	TO-3PF	T-Pack(L)	T-Pack(S)
								
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)						
500	1.5	5	✓	✓			✓	✓
	0.85	6.5	✓	✓			✓	✓
	0.79	7.5	✓	✓				
	0.52	12	✓	✓			✓	✓
	0.38	16	✓	✓	✓		✓	✓
	0.31	20	✓	✓	✓		✓	✓
	0.245	23		✓	✓	✓		
	0.19	28			✓	✓		
600	2.3	3	✓	✓			✓	✓
	1.3	5.5	✓	✓			✓	✓
	1.2	6	✓	✓				
	0.79	10	✓	✓			✓	✓
	0.75	11	✓	✓			✓	✓
	0.58	13	✓	✓			✓	✓
	0.47	16	✓	✓			✓	✓
	0.365	19		✓	✓	✓		
	0.28	23			✓	✓		
650	1.47	7		✓				
	0.97	9		✓				
700	1.5	7		✓	✓			
	1.2	9		✓	✓			
	0.85	11		✓	✓			
	0.59	15		✓				
800	2	6		✓	✓		✓	✓
	1.6	8		✓	✓		✓	✓
	1.1	10		✓	✓			
	0.78	13		✓	✓			
900	2.5	6		✓	✓		✓	✓
	2	7		✓	✓		✓	✓
	1.4	9		✓	✓	✓		
	1	11		✓	✓	✓		

SuperFAP-E^3 series

500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP05N50E	500	5	20	1.5	60	30	3±0.5	21	TO-220	2.0
FMV05N50E	500	5	20	1.5	21	30	3±0.5	21	TO-220F(SLS)	1.7
FMI05N50E	500	5	20	1.5	60	30	3±0.5	21	T-Pack(L)	1.6
FMC05N50E	500	5	20	1.5	60	30	3±0.5	21	T-Pack(S)	1.6
FMP07N50E	500	6.5	26	0.85	90	30	3±0.5	32	TO-220	2.0
FMV07N50E	500	6.5	26	0.85	32	30	3±0.5	32	TO-220F(SLS)	1.7
FMI07N50E	500	6.5	26	0.85	90	30	3±0.5	32	T-Pack(L)	1.6
FMC07N50E	500	6.5	26	0.85	90	30	3±0.5	32	T-Pack(S)	1.6
FMP08N50E	500	7.5	30	0.79	105	30	3±0.5	35	TO-220	2.0
FMV08N50E	500	7.5	30	0.79	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMP12N50E	500	12	48	0.52	165	30	3±0.5	60	TO-220	2.0
FMV12N50E	500	12	48	0.52	60	30	3±0.5	60	TO-220F(SLS)	1.7
FMI12N50E	500	12	48	0.52	165	30	3±0.5	60	T-Pack(L)	1.6
FMC12N50E	500	12	48	0.52	165	30	3±0.5	60	T-Pack(S)	1.6
FMP16N50E	500	16	64	0.38	225	30	3±0.5	60	TO-220	2.0
FMV16N50E	500	16	64	0.38	80	30	3±0.5	60	TO-220F(SLS)	1.7
FMI16N50E	500	16	64	0.38	225	30	3±0.5	60	T-Pack(L)	1.6
FMC16N50E	500	16	64	0.38	225	30	3±0.5	60	T-Pack(S)	1.6
FMH16N50E	500	16	64	0.38	195	30	3±0.5	60	TO-3P(Q)	5.1
FMP20N50E	500	20	80	0.31	270	30	3±0.5	77	TO-220	2.0
FMV20N50E	500	20	80	0.31	95	30	3±0.5	77	TO-220F(SLS)	1.7
FMI20N50E	500	20	80	0.31	270	30	3±0.5	77	T-Pack(L)	1.6
FMC20N50E	500	20	80	0.31	270	30	3±0.5	77	T-Pack(S)	1.6
FMH20N50E	500	20	80	0.31	235	30	3±0.5	77	TO-3P(Q)	5.1
FMV23N50E	500	23	92	0.245	130	30	3±0.5	93	TO-220F(SLS)	1.7
FMH23N50E	500	23	92	0.245	315	30	3±0.5	93	TO-3P(Q)	5.1
FMR23N50E	500	23	92	0.245	150	30	3±0.5	93	TO-3PF	6.0
FMH28N50E	500	28	112	0.19	400	30	3±0.5	130	TO-3P(Q)	5.1
FMR28N50E	500	28	112	0.19	200	30	3±0.5	130	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The SuperFAP-E^3 series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-E^3 series

600 – 800V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP03N60E	600	3	12	2.3	60	30	3±0.5	21.5	TO-220	2.0
FMV03N60E	600	3	12	2.3	21	30	3±0.5	21.5	TO-220F(SLS)	1.7
FMI03N60E	600	3	12	2.3	60	30	3±0.5	21.5	T-Pack(L)	1.6
FMC03N60E	600	3	12	2.3	60	30	3±0.5	21.5	T-Pack(S)	1.6
FMP05N60E	600	5.5	22	1.3	90	30	3±0.5	33	TO-220	2.0
FMV05N60E	600	5.5	22	1.3	32	30	3±0.5	33	TO-220F(SLS)	1.7
FMI05N60E	600	5.5	22	1.3	90	30	3±0.5	33	T-Pack(L)	1.6
FMC05N60E	600	5.5	22	1.3	90	30	3±0.5	33	T-Pack(S)	1.6
FMP06N60E	600	6	24	1.2	105	30	3±0.5	35	TO-220	2.0
FMV06N60E	600	6	24	1.2	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMP10N60E	600	10	40	0.79	165	30	3±0.5	47	TO-220	2.0
FMV10N60E	600	10	40	0.79	60	30	3±0.5	47	TO-220F(SLS)	1.7
FMI10N60E	600	10	40	0.79	165	30	3±0.5	47	T-Pack(L)	1.6
FMC10N60E	600	10	40	0.79	165	30	3±0.5	47	T-Pack(S)	1.6
FMP11N60E	600	11	44	0.75	180	30	3±0.5	48.5	TO-220	2.0
FMV11N60E	600	11	44	0.75	65	30	3±0.5	48.5	TO-220F(SLS)	1.7
FMI11N60E	600	11	44	0.75	180	30	3±0.5	48.5	T-Pack(L)	1.6
FMC11N60E	600	11	44	0.75	180	30	3±0.5	48.5	T-Pack(S)	1.6
FMP13N60E	600	13	52	0.58	225	30	3±0.5	60	TO-220	2.0
FMV13N60E	600	13	52	0.58	80	30	3±0.5	60	TO-220F(SLS)	1.7
FMI13N60E	600	13	52	0.58	225	30	3±0.5	60	T-Pack(L)	1.6
FMC13N60E	600	13	52	0.58	225	30	3±0.5	60	T-Pack(S)	1.6
FMP16N60E	600	16	64	0.47	270	30	3±0.5	76	TO-220	2.0
FMV16N60E	600	16	64	0.47	95	30	3±0.5	76	TO-220F(SLS)	1.7
FMI16N60E	600	16	64	0.47	270	30	3±0.5	76	T-Pack(L)	1.6
FMC16N60E	600	16	64	0.47	270	30	3±0.5	76	T-Pack(S)	1.6
FMV19N60E	600	19	76	0.365	130	30	3±0.5	105	TO-220F(SLS)	1.7
FMH19N60E	600	19	76	0.365	315	30	3±0.5	105	TO-3P(Q)	5.1
FMR19N60E	600	19	76	0.365	150	30	3±0.5	105	TO-3PF	6.0
FMH23N60E	600	23	92	0.28	400	30	3±0.5	130	TO-3P(Q)	5.1
FMR23N60E	600	23	92	0.28	200	30	3±0.5	130	TO-3PF	6.0
FMV07N65E	650	7	28	1.47	37	30	3±0.5	35	TO-220F(SLS)	1.7
FMV09N65E	650	9	36	0.97	60	30	3±0.5	47	TO-220F(SLS)	1.7
FMV07N70E	700	7	28	1.5	48	30	4±0.5	32	TO-220F(SLS)	1.7
FMH07N70E	700	7	28	1.5	115	30	4±0.5	32	TO-3P(Q)	5.1
FMV09N70E	700	9	36	1.2	60	30	4±0.5	38	TO-220F(SLS)	1.7
FMH09N70E	700	9	36	1.2	145	30	4±0.5	38	TO-3P(Q)	5.1
FMV11N70E	700	11	44	0.85	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMH11N70E	700	11	44	0.85	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV15N70E	700	15	60	0.59	120	30	4±0.5	66	TO-220F(SLS)	1.7
FMV06N80E	800	6	24	2.0	48	30	4±0.5	32	TO-220F(SLS)	1.7
FMH06N80E	800	6	24	2.0	115	30	4±0.5	32	TO-3P(Q)	5.1
FMI06N80E	800	6	24	2.0	135	30	4±0.5	32	T-Pack(L)	1.6
FMC06N80E	800	6	24	2.0	135	30	4±0.5	32	T-Pack(S)	1.6
FMV08N80E	800	8	32	1.6	60	30	4±0.5	38	TO-220F(SLS)	1.7
FMH08N80E	800	8	32	1.6	145	30	4±0.5	38	TO-3P(Q)	5.1
FMI08N80E	800	8	32	1.6	165	30	4±0.5	38	T-Pack(L)	1.6
FMC08N80E	800	8	32	1.6	165	30	4±0.5	38	T-Pack(S)	1.6
FMV10N80E	800	10	40	1.1	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMH10N80E	800	10	40	1.1	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV13N80E	800	13	52	0.78	120	30	4±0.5	66	TO-220F(SLS)	1.7
FMH13N80E	800	13	52	0.78	285	30	4±0.5	66	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-E^3 series

900V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMH06N90E	900	6	24	2.5	115	30	4±0.5	33	TO-3P(Q)	5.1
FMV06N90E	900	6	24	2.5	48	30	4±0.5	33	TO-220F(SLS)	1.7
FMI06N90E	900	6	24	2.5	135	30	4±0.5	33	T-Pack(L)	1.6
FMC06N90E	900	6	24	2.5	135	30	4±0.5	33	T-Pack(S)	1.6
FMH07N90E	900	7	28	2.0	145	30	4±0.5	39	TO-3P(Q)	5.1
FMV07N90E	900	7	28	2.0	60	30	4±0.5	39	TO-220F(SLS)	1.7
FMI07N90E	900	7	28	2.0	165	30	4±0.5	39	T-Pack(L)	1.6
FMC07N90E	900	7	28	2.0	165	30	4±0.5	39	T-Pack(S)	1.6
FMH09N90E	900	9	36	1.4	205	30	4±0.5	50	TO-3P(Q)	5.1
FMV09N90E	900	9	36	1.4	85	30	4±0.5	50	TO-220F(SLS)	1.7
FMR09N90E	900	9	36	1.4	100	30	4±0.5	50	TO-3PF	6.0
FMH11N90E	900	11	44	1.0	285	30	4±0.5	60	TO-3P(Q)	5.1
FMV11N90E	900	11	44	1.0	120	30	4±0.5	60	TO-220F(SLS)	1.7
FMR11N90E	900	11	44	1.0	135	30	4±0.5	60	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-E^{3S} Low Qg series

Low-on resistance, low switching noise and low switching loss

SuperFAP-E^{3S} Low Qg series			TO-220	TO-220F (SLS)	TO-3P (Q)	TO-3PF	T-Pack(L)	T-Pack(S)	TFP
									
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
500	0.5	12	✓	✓			✓	✓	✓
	0.38	16	✓	✓	✓		✓	✓	✓
	0.31	20	✓	✓	✓		✓	✓	✓
	0.27	21		✓	✓	✓			
	0.245	23		✓	✓	✓			
	0.19	28			✓	✓			
600	1.2	6	✓	✓			✓	✓	
	0.75	12	✓	✓			✓	✓	✓
	0.58	13	✓	✓	✓		✓	✓	✓
	0.47	16	✓	✓	✓		✓	✓	✓
	0.4	17		✓	✓	✓			
	0.365	19		✓	✓	✓			
	0.28	23			✓	✓			

500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	TO-220	2.0
FMV12N50ES	500	12	48	0.5	65	30	3.7±0.5	41	TO-220F(SLS)	1.7
FMI12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	T-Pack(L)	1.6
FMC12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	T-Pack(S)	1.6
FML12N50ES	500	12	48	0.5	180	30	3.7±0.5	41	TFP	1.6
FMP16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	TO-220	2.0
FMV16N50ES	500	16	64	0.38	80	30	3.7±0.5	52	TO-220F(SLS)	1.7
FMI16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	T-Pack(L)	1.6
FMC16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	T-Pack(S)	1.6
FMH16N50ES	500	16	64	0.38	195	30	3.7±0.5	52	TO-3P(Q)	5.1
FML16N50ES	500	16	64	0.38	225	30	3.7±0.5	52	TFP	1.6
FMP20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	TO-220	2.0
FMV20N50ES	500	20	80	0.31	95	30	4.2±0.5	57	TO-220F(SLS)	1.7
FMI20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	T-Pack(L)	1.6
FMC20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	T-Pack(S)	1.6
FMH20N50ES	500	20	80	0.31	235	30	4.2±0.5	57	TO-3P(Q)	5.1
FML20N50ES	500	20	80	0.31	270	30	4.2±0.5	57	TFP	1.6
FMV21N50ES	500	21	84	0.27	120	30	4.2±0.5	67	TO-220F(SLS)	1.7
FMR21N50ES	500	21	84	0.27	135	30	4.2±0.5	67	TO-3PF	6.0
FMH21N50ES	500	21	84	0.27	285	30	4.2±0.5	67	TO-3P(Q)	5.1
FMV23N50ES	500	23	92	0.245	130	30	4.2±0.5	74	TO-220F(SLS)	1.7
FMR23N50ES	500	23	92	0.245	150	30	4.2±0.5	74	TO-3PF	6.0
FMH23N50ES	500	23	92	0.245	315	30	4.2±0.5	74	TO-3P(Q)	5.1
FMR28N50ES	500	28	112	0.19	200	30	4.2±0.5	92	TO-3PF	6.0
FMH28N50ES	500	28	112	0.19	400	30	4.2±0.5	92	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The SuperFAP-E^{3S} series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-E^{3S} Low Qg series

600V class

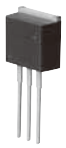
Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
FMP06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	TO-220	2.0
FMV06N60ES	600	6	24	1.2	37	30	3.7±0.5	31	TO-220F(SLS)	1.7
FMI06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	T-Pack(L)	1.6
FMC06N60ES	600	6	24	1.2	105	30	3.7±0.5	31	T-Pack(S)	1.6
FMP12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	TO-220	2.0
FMV12N60ES	600	12	48	0.75	65	30	4.2±0.5	37	TO-220F(SLS)	1.7
FMI12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	T-Pack(L)	1.6
FMC12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	T-Pack(S)	1.6
FML12N60ES	600	12	48	0.75	180	30	4.2±0.5	37	TFP	1.6
FMP13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	TO-220	2.0
FMV13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	TO-220F(SLS)	1.7
FMI13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	T-Pack(L)	1.6
FMC13N60ES	600	13	48	0.58	225	30	4.2±0.5	48	T-Pack(S)	1.6
FMH13N60ES	600	13	48	0.58	195	30	4.2±0.5	48	TO-3P(Q)	5.1
FML13N60ES	600	13	48	1.58	225	30	4.2±0.5	48	TFP	1.6
FMP16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	TO-220	2.0
FMV16N60ES	600	16	64	0.47	95	30	4.2±0.5	56	TO-220F(SLS)	1.7
FMI16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	T-Pack(L)	1.6
FMC16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	T-Pack(S)	1.6
FMH16N60ES	600	16	64	0.47	235	30	4.2±0.5	56	TO-3P(Q)	5.1
FML16N60ES	600	16	64	0.47	270	30	4.2±0.5	56	TFP	1.6
FMV17N60ES	600	17	68	0.4	120	30	4.2±0.5	68	TO-220F(SLS)	1.7
FMR17N60ES	600	17	68	0.4	135	30	4.2±0.5	68	TO-3PF	6.0
FMH17N60ES	600	17	68	0.4	285	30	4.2±0.5	68	TO-3P(Q)	5.1
FMV19N60ES	600	19	76	0.365	130	30	4.2±0.5	74	TO-220F(SLS)	1.7
FMR19N60ES	600	19	76	0.365	150	30	4.2±0.5	74	TO-3PF	6.0
FMH19N60ES	600	19	76	0.365	315	30	4.2±0.5	74	TO-3P(Q)	5.1
FMR23N60ES	600	23	92	0.28	200	30	4.2±0.5	92	TO-3PF	6.0
FMH23N60ES	600	23	92	0.28	400	30	4.2±0.5	92	TO-3P(Q)	5.1

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The SuperFAP-E^{3S} series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-G series

Low-on resistance and low gate charge

SuperFAP-G series			TO-220	TO-220F	TO-220F (SLS)	TO-3PF	TO-247	T-Pack(L)	T-Pack(S)	TFP
										
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)								
100	0.062	29	✓	✓				✓	✓	
120	0.03	67	✓	✓				✓	✓	✓
150	0.105	23	✓	✓				✓	✓	
	0.07	33	✓	✓				✓	✓	✓
	0.041	57	✓	✓				✓	✓	✓
	0.016	100					✓			
200	0.17	18	✓	✓				✓	✓	✓
	0.066	45	✓	✓				✓	✓	✓
250	0.26	14	✓	✓				✓	✓	
	0.13	24			✓					
	0.1	37	✓	✓		✓		✓	✓	✓
	0.053	59				✓	✓			
300	0.28	15		✓						
	0.13	32	✓	✓				✓	✓	✓
450	2.5	3	✓	✓						
	1.6	4.3	✓	✓						
	0.65	10	✓	✓				✓	✓	
	0.38	17	✓	✓				✓	✓	✓
500	2.3	3.6	✓	✓				✓	✓	
	0.85	9	✓	✓				✓	✓	
	0.7	11	✓	✓				✓	✓	
	0.52	14	✓	✓				✓	✓	
	0.46	16	✓	✓				✓	✓	
	0.38	19	✓	✓			✓	✓	✓	✓
	0.26	25				✓	✓			
	0.11	51					✓			
600	3.3	3	✓	✓				✓	✓	
	1.2	8	✓	✓				✓	✓	
	1	9	✓	✓				✓	✓	
	0.75	12	✓	✓				✓	✓	
	0.65	13	✓	✓		✓				
	0.57	16	✓	✓			✓	✓	✓	
	0.37	21				✓	✓			
	0.16	43					✓			
700	0.6	17				✓				
900	8	2.2	✓	✓						
	6.4	2.6	✓	✓				✓	✓	
	4.3	3.7	✓	✓						
	2.5	6.0						✓	✓	

SuperFAP-G series

100 – 250V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3598-01	100	29	116	0.062	105	±30	3 to 5	22	TO-220	2.0
2SK3599-01MR	100	29	116	0.062	37	±30	3 to 5	22	TO-220F	1.7
2SK3600-01L, S	100	29	116	0.062	105	±30	3 to 5	22	T-pack	1.6
2SK3920-01	120	67	268	0.03	270	±30	3 to 5	52	TO-220	2.0
2SK3886-01MR	120	67	268	0.03	95	±30	3 to 5	52	TO-220F	1.7
2SK3921-01L, S	120	67	268	0.03	270	±30	3 to 5	52	T-pack	1.6
2SK3922-01	120	67	268	0.03	270	±30	3 to 5	52	TFP	0.8
2SK3602-01	150	23	92	0.105	105	±30	3 to 5	21	TO-220	2.0
2SK3603-01MR	150	23	92	0.105	37	±30	3 to 5	21	TO-220F	1.7
2SK3604-01L, S	150	23	92	0.105	105	±30	3 to 5	21	T-pack	1.6
2SK3648-01	150	33	132	0.07	150	±30	3 to 5	34	TO-220	2.0
2SK3649-01MR	150	33	132	0.07	53	±30	3 to 5	34	TO-220F	1.7
2SK3650-01L, S	150	33	132	0.07	150	±30	3 to 5	34	T-pack	1.6
2SK3474-01	150	33	132	0.07	150	±30	3 to 5	34	TFP	0.8
2SK3537-01MR	150	33	132	0.07	53	±20	1 to 2.5	46	TO-220F	1.7
2SK3590-01	150	57	228	0.041	270	±30	3 to 5	52	TO-220	2.0
2SK3591-01MR	150	57	228	0.041	95	±30	3 to 5	52	TO-220F	1.7
2SK3592-01L, S	150	57	228	0.041	270	±30	3 to 5	52	T-pack	1.6
2SK3593-01	150	57	228	0.041	270	±30	3 to 5	52	TFP	0.8
2SK3882-01	150	100	400	0.016	600	±30	3 to 5	140	TO-247	4.9
2SK3606-01	200	18	72	0.17	105	±30	3 to 5	21	TO-220	2.0
2SK3607-01MR	200	18	72	0.17	37	±30	3 to 5	21	TO-220F	1.7
2SK3608-01L, S	200	18	72	0.17	105	±30	3 to 5	21	T-pack	1.6
2SK3609-01	200	18	72	0.17	105	±30	3 to 5	21	TFP	0.8
2SK3594-01	200	45	180	0.066	270	±30	3 to 5	51	TO-220	2.0
2SK3595-01MR	200	45	180	0.066	95	±30	3 to 5	51	TO-220F	1.7
2SK3596-01L, S	200	45	180	0.066	270	±30	3 to 5	51	T-pack	1.6
2SK3597-01	200	45	180	0.066	270	±30	3 to 5	51	TFP	0.8
2SK3610-01	250	14	56	0.26	105	±30	3 to 5	21	TO-220	2.0
2SK3611-01MR	250	14	56	0.26	37	±30	3 to 5	21	TO-220F	1.7
2SK3612-01L, S	250	14	56	0.26	105	±30	3 to 5	21	T-pack	1.6
FMV24N25G	250	24	96	0.13	65	±30	3 to 5	36	TO-220F(SLS)	1.7
2SK3554-01	250	37	148	0.1	270	±30	3 to 5	44	TO-220	2.0
2SK3555-01MR	250	37	148	0.1	95	±30	3 to 5	44	TO-220F	1.7
2SK3556-01L, S	250	37	148	0.1	270	±30	3 to 5	44	T-pack	1.6
2SK3535-01	250	37	148	0.1	270	±30	3 to 5	44	TFP	0.8
2SK3651-01R	250	37	148	0.1	115	±30	3 to 5	44	TO-3PF	6.0
2SK3778-01	250	59	236	0.053	410	±30	3 to 5	80	TO-247	4.9
2SK3779-01R	250	59	236	0.053	210	±30	3 to 5	80	TO-3PF	6.0

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Super FAP-G series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

SuperFAP-G series

300 – 500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3580-01MR	300	15	60	0.28	48	±30	3.5 to 4.5	23	TO-220F	1.7
2SK3772-01	300	32	128	0.13	270	±30	3 to 5	44.5	TO-220	2.0
2SK3773-01MR	300	32	128	0.13	95	±30	3 to 5	44.5	TO-220F	1.7
2SK3774-01L, S	300	32	128	0.13	270	±30	3 to 5	44.5	T-pack	1.6
2SK3775-01	300	32	128	0.13	270	±30	3 to 5	44.5	TFP	0.8
2SK3725-01	450	3	12	2.5	50	±30	3 to 5	10.5	TO-220	2.0
2SK3726-01MR	450	3	12	2.5	17	±30	3 to 5	10.5	TO-220F	1.7
2SK3916-01	450	4.3	17.2	1.6	21	±30	3 to 5	13	TO-220	2.0
2SK3917-01MR	450	4.3	17.2	1.6	21	±30	3 to 5	13	TO-220F	1.7
2SK3514-01	450	10	40	0.65	135	±30	3 to 5	22	TO-220	2.0
2SK3515-01MR	450	10	40	0.65	48	±30	3 to 5	22	TO-220F	1.7
2SK3516-01L, S	450	10	40	0.65	135	±30	3 to 5	22	T-pack	1.6
2SK3692-01	450	17	68	0.38	225	±30	3 to 5	33	TO-220	2.0
2SK3693-01MR	450	17	68	0.38	80	±30	3 to 5	33	TO-220F	1.7
2SK3694-01L, S	450	17	68	0.38	225	±30	3 to 5	33	T-pack	1.6
2SK4040-01	450	17	68	0.38	225	±30	3 to 5	33	TFP	0.8
2SK3985-01	500	3.6	14.4	2.3	60	±30	3 to 5	13	TO-220	2.0
2SK3986-01MR	500	3.6	14.4	2.3	21	±30	3 to 5	13	TO-220F	1.7
2SK3987-01L, S	500	3.6	14.4	2.3	60	±30	3 to 5	13	T-pack	1.6
2SK3519-01	500	9	36	0.85	135	±30	3 to 5	20	TO-220	2.0
2SK3520-01MR	500	9	36	0.85	48	±30	3 to 5	20	TO-220F	1.7
2SK4004-01MR	500	9	36	0.85	48	±30	2.5 to 3.5	24	TO-220F	1.7
2SK3521-01L, S	500	9	36	0.85	135	±30	3 to 5	20	T-pack	1.6
2SK3931-01	500	11	44	0.70	165	±30	3 to 5	25	TO-220	2.0
2SK3932-01MR	500	11	44	0.70	60	±30	3 to 5	25	TO-220F	1.7
2SK3933-01L, S	500	11	44	0.70	165	±30	3 to 5	25	T-pack	1.6
2SK3468-01	500	14	56	0.52	195	±30	3 to 5	30	TO-220	2.0
2SK3469-01MR	500	14	56	0.52	70	±30	3 to 5	30	TO-220F	1.7
2SK3512-01L, S	500	14	56	0.52	195	±30	3 to 5	30	T-pack	1.6
2SK3504-01	500	16	64	0.46	225	±30	3 to 5	33	TO-220	2.0
2SK3505-01MR	500	16	64	0.46	80	±30	3 to 5	33	TO-220F	1.7
2SK3581-01L, S	500	16	64	0.46	225	±30	3 to 5	33	T-pack	1.6
2SK3682-01	500	19	76	0.38	270	±30	3 to 5	32	TO-220	2.0
2SK3683-01MR	500	19	76	0.38	95	±30	3 to 5	32	TO-220F	1.7
2SK3684-01L, S	500	19	76	0.38	270	±30	3 to 5	32	T-pack	1.6
2SK3685-01	500	19	76	0.38	235	±30	3 to 5	32	TO-247	4.9
FML19N50G	500	19	76	0.38	270	±30	3 to 5	32	TFP	0.8
2SK3522-01	500	25	100	0.26	335	±30	3 to 5	54	TO-247	4.9
2SK3523-01R	500	25	100	0.26	160	±30	3 to 5	54	TO-3PF	6.0
2SK3680-01	500	51	208	0.11	600	±30	3 to 5	118	TO-247	4.9

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-G series

600 – 900V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3988-01	600	3	12	3.3	60	±30	3 to 5	13	TO-220	2.0
2SK3989-01MR	600	3	12	3.3	21	±30	3 to 5	13	TO-220F	1.7
2SK3990-01L, S	600	3	12	3.3	60	±30	3 to 5	13	T-pack	1.6
2SK3524-01	600	8	32	1.2	135	±30	3 to 5	20	TO-220	2.0
2SK3525-01MR	600	8	32	1.2	48	±30	3 to 5	20	TO-220F	1.7
2SK3526-01L, S	600	8	32	1.2	135	±30	3 to 5	20	T-pack	1.6
2SK3887-01	600	9	36	1.0	165	±30	3 to 5	25	TO-220	2.0
2SK3888-01MR	600	9	36	1.0	60	±30	3 to 5	25	TO-220F	1.7
2SK3889-01L, S	600	9	36	1.0	165	±30	3 to 5	25	T-pack	1.6
2SK3501-01	600	12	48	0.75	195	±30	3 to 5	30	TO-220	2.0
2SK3502-01MR	600	12	48	0.75	70	±30	3 to 5	30	TO-220F	1.7
2SK3513-01L, S	600	12	48	0.75	195	±30	3 to 5	30	T-pack	1.6
2SK3450-01	600	13	52	0.65	225	±30	3 to 5	34	TO-220	2.0
2SK3451-01MR	600	13	52	0.65	80	±30	3 to 5	34	TO-220F	1.7
2SK3753-01R	600	13	52	0.65	95	±30	3 to 5	34	TO-3PF	6.0
2SK3686-01	600	16	64	0.57	270	±30	3 to 5	33	TO-220	2.0
2SK3687-01MR	600	16	64	0.57	97	±30	3 to 5	33	TO-220F	1.7
2SK3688-01L, S	600	16	64	0.57	270	±30	3 to 5	33	T-pack	1.6
2SK3689-01	600	16	64	0.57	235	±30	3 to 5	33	TO-247	4.9
2SK3527-01	600	21	84	0.37	335	±30	3 to 5	54	TO-247	4.9
2SK3528-01R	600	21	84	0.37	160	±30	3 to 5	54	TO-3PF	6.0
2SK3681-01	600	43	172	0.16	600	±30	3 to 5	118	TO-247	4.9
2SK3891-01R	700	17	68	0.6	170	±30	3 to 5	46	TO-3PF	6.0
2SK3727-01	900	2.2	8.8	8.0	75	±30	3.5 to 4.5	8.3	TO-220	2.0
2SK3728-01MR	900	2.2	8.8	8.0	26	±30	3.5 to 4.5	8	TO-220F	1.7
2SK3981-01	900	2.6	10.4	6.4	90	±30	3 to 5	13	TO-220	2.0
2SK3982-01MR	900	2.6	10.4	6.4	32	±30	3 to 5	13	TO-220F	1.7
2SK3983-01L, S	900	2.6	10.4	6.4	90	±30	3 to 5	13	T-pack	1.6
2SK3698-01	900	3.7	14.8	4.3	120	±30	3.5 to 4.5	13	TO-220	2.0
2SK3699-01MR	900	3.7	14.8	4.3	43	±30	3.5 to 4.5	13	TO-220F	1.7
2SK3676-01L, S	900	6	24	2.5	195	±30	3 to 5	21.5	T-pack	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

SuperFAP-G series (Built-in FRED type)

SuperFAP-G Built-in FRED series			TO-220	TO-220F	TO-247	T-Pack (L)	T-Pack (S)
							
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)					
500	0.55	13	✓	✓			
600	0.8	11	✓	✓		✓	✓
	0.17	42			✓		

500 – 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ Volts	Q_G typ. nC	Package	Net mass Grams
2SK3695-01	500	13	52	0.55	195	±30	3 to 5	28	TO-220	2.0
2SK3696-01MR	500	13	52	0.55	70	±30	3 to 5	28	TO-220F	1.7
2SK3928-01	600	11	44	0.8	195	±30	3 to 5	30	TO-220	2.0
2SK3929-01MR	600	11	44	0.8	70	±30	3 to 5	30	TO-220F	1.7
2SK3930-01L, S	600	11	44	0.8	195	±30	3 to 5	30	T-pack	1.6
2SK3697-01	600	42	168	0.17	600	±30	3 to 5	105	TO-247	4.9

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

Trench Power MOSFET

Low-on resistance and high gate capability

Trench Power MOSFET			TO-220	TO-220F	TO-3P	TO-247	T-Pack(L)	T-Pack(S)	D2-pack
									
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
40	0.006	70				✓			
60	0.0065	70		✓					
		80	✓				✓	✓	✓
	0.0065	100			✓				
75	0.0079	70		✓					
	0.0085	70						✓	
100	0.0067	80						✓	
	0.0067	100				✓			
	0.0128	80	✓	✓			✓	✓	
150	0.0245	65	✓	✓			✓	✓	
200	0.0470	49	✓	✓			✓	✓	

■ 60 – 100V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
2SK4068-01	40	70	280	0.006	115	+30/-20	3.0±0.5	TO-247	4.9
2SK3273-01MR	60	70	280	0.0065	70	+30/-20	3.0±0.5	TO-220F	1.7
2SK3270-01	60	80	320	0.0065	135	+30/-20	3.0±0.5	TO-220	2.0
2SK3272-01L, S	60	80	320	0.0065	135	+30/-20	3.0±0.5	T-pack (L, S)	1.6
2SK3272-01SJ	60	80	320	0.0065	135	+30/-20	3.0±0.5	D2-pack	1.6
2SK4047-01S	60	80	320	0.0065	195	+30/-20	3.0±0.5	T-pack (S)	1.6
2SK3271-01	60	100	400	0.0065	155	+30/-20	3.0±0.5	TO-3P	5.5
2SK3730-01MR	75	70	280	0.0079	70	±20	3.0±0.5	TO-220F	1.7
2SK3804-01S	75	70	280	0.0085	162	±20	3.0±0.5	T-pack (S)	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

■ 100 – 200V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
FMC80N10R6	100	80	320	0.0067	180	+30/-20	2 to 4	T-pack (S)	1.6
FMY100N10R6	100	100	400	0.0067	280	+30/-20	2 to 4	TO-247	6.3
FMP80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	TO-220	2.0
FMA80N10T2	100	80	320	0.0128	95	+30/-20	2 to 4	TO-220F	1.7
FMI80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC80N10T2	100	80	320	0.0128	270	+30/-20	2 to 4	T-pack(S)	1.6
FMP65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	TO-220	2.0
FMA65N15T2	150	65	260	0.0245	95	+30/-20	2 to 4	TO-220F	1.7
FMI65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC65N15T2	150	65	260	0.0245	270	+30/-20	2 to 4	T-pack(S)	1.6
FMP49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	TO-220	2.0
FMA49N20T2	200	49	196	0.047	95	+30/-20	2 to 4	TO-220F	1.7
FMI49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	T-pack(L)	1.6
FMC49N20T2	200	49	196	0.047	270	+30/-20	2 to 4	T-pack(S)	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Trench Power MOSFET series products satisfies the quality assurance level of general consumer use.
If you intend to use the products for equipment requiring higher reliability, such as equipment for automobiles and medical equipment, please contact Fuji Electric.
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S2 series

AEC Q101

Low-on resistance, low switching noise and low switching loss

Automotive Super J MOS® S2 Series			TO-247	T-Pack(S)
				
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)		
600	0.190	15.5		✓
	0.160	17.9	✓	✓
	0.125	22.8	✓	✓
	0.099	29.3	✓	✓
	0.088	32.8	✓	✓
	0.079	37.1	✓	✓
	0.070	39.4	✓	
	0.040	66.2	✓	
	0.025	95.5	✓	

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMC60N190S2A	600	15.5	46.5	0.190	113	30	3.0±0.5	46	T-Pack	1.6
FMY60N160S2A	600	17.9	53.7	0.160	110	30	4.0±0.5	43	TO-247	6.4
FMC60N160S2A	600	17.9	53.7	0.160	127	30	4.0±0.5	43	T-Pack	1.6
FMY60N125S2A	600	22.8	68.2	0.125	140	30	4.0±0.5	53	TO-247	6.4
FMC60N125S2A	600	22.8	68.2	0.125	160	30	4.0±0.5	53	T-Pack	1.6
FMY60N099S2A	600	29.3	87.7	0.099	185	30	4.0±0.5	65	TO-247	6.4
FMC60N099S2A	600	29.3	87.7	0.099	210	30	4.0±0.5	65	T-Pack	1.6
FMY60N088S2A	600	32.8	98.4	0.088	205	30	4.0±0.5	72	TO-247	6.4
FMC60N088S2A	600	32.8	98.4	0.088	235	30	4.0±0.5	72	T-Pack	1.6
FMY60N079S2A	600	37.1	111.3	0.079	235	30	4.0±0.5	80	TO-247	6.4
FMC60N079S2A	600	37.1	111.3	0.079	270	30	4.0±0.5	80	T-Pack	1.6
FMY60N070S2A	600	39.4	118.2	0.070	270	30	4.0±0.5	90	TO-247	6.4
FMY60N040S2A	600	66.2	198.6	0.040	435	30	4.0±0.5	147	TO-247	6.4
FMY60N025S2A	600	95.5	286.5	0.025	575	30	4.0±0.5	222	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive Super J MOS® S2 series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Super J MOS® S2FD series (Built-in FRED type)

Automotive Super J MOS® S2FD series (Built-in FRED type)			TO-247	T-Pack(S)
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)		
400	0.060	42		✓
500	0.071	38.9	✓	✓
600	0.133	22.8	✓	✓
	0.105	29.3	✓	✓
	0.081	37.1	✓	✓

400V, 500V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMC40N060S2FDA	400	42	126	0.060	270	30	4.0±1	120	T-Pack	1.6
FMY50N071S2FDA	500	38.9	116.7	0.071	235	30	4.0±1	98	TO-247	6.4
FMC50N071S2FDA	500	38.9	116.7	0.071	270	30	4.0±1	98	T-Pack	1.6

600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY60N133S2FDA	600	22.8	68.2	0.133	140	30	4.0±1	59	TO-247	6.4
FMC60N133S2FDA	600	22.8	68.2	0.133	160	30	4.0±1	59	T-Pack	1.6
FMY60N105S2FDA	600	29.3	87.7	0.105	185	30	4.0±1	75	TO-247	6.4
FMC60N105S2FDA	600	29.3	87.7	0.105	210	30	4.0±1	75	T-Pack	1.6
FMY60N081S2FDA	600	37.1	111.3	0.081	235	30	4.0±1	93	TO-247	6.4
FMC60N081S2FDA	600	37.1	111.3	0.081	270	30	4.0±1	93	T-Pack	1.6

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

Super J MOS® is registered trademarks of Fuji Electric.

The Automotive Super J MOS® S2FD series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

■ Automotive MOSFET（Trench Power MOS、SuperFAP-E^{3S}）

Automotive Trench Power MOSFET SuperFAP-E^{3S} Low Qg series			TO-220	TO-220F	TO-3P	TO-247	T-Pack(L)	T-Pack(S)	D2-pack
									
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)							
40	0.006	70				✓			
60	0.0065	70		✓					
		80	✓				✓	✓	✓
		100			✓	✓			
75	0.0079	70		✓					
	0.0085	70						✓	
100	0.0067	80					✓		
		100				✓			
300	0.072	50				✓			
	0.045	72				✓			
600	0.28	24				✓			
	0.20	31				✓			
	0.16	36				✓			

Automotive SuperFAP-E^{3S} Low Qg series

AEC Q101

■ 300 — 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	Package	Net mass Grams
FMY50N30ES	300	50	200	0.072	400	+30/-30	4.2±0.5	97	TO-247	6.4
FMY72N30ES	300	72	288	0.045	570	+30/-30	4.2±0.5	155	TO-247	6.4
FMY24N60ES	600	24	96	0.280	400	+30/-30	4.2±0.5	95	TO-247	6.4
FMY31N60ES	600	31	124	0.200	495	+30/-30	4.2±0.5	125	TO-247	6.4
FMY36N60ES	600	36	144	0.160	570	+30/-30	4.2±0.5	155	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive SuperFAP-E^{3S} Low Qg series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive Trench Power MOSFET

■ 40 — 100V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Package	Net mass Grams
2SK4068-01	40	70	280	0.006	115	+30/-20	3.0±0.5	TO-247	4.9
2SK3273-01MR	60	70	280	0.0065	70	+30/-20	3.0±0.5	TO-220F	1.7
2SK3270-01	60	80	320	0.0065	135	+30/-20	3.0±0.5	TO-220	2.0
2SK3272-01L, S	60	80	320	0.0065	135	+30/-20	3.0±0.5	T-pack	1.6
2SK3272-01SJ	60	80	320	0.0065	135	+30/-20	3.0±0.5	D2-pack	1.6
2SK4047-01S	60	80	320	0.0065	195	+30/-20	3.0±0.5	T-pack	1.6
FMY100N06T ※1	60	100	400	0.0065	135	+30/-20	3.0±0.5	TO-247	6.3
2SK3271-01	60	100	400	0.0065	155	+30/-20	3.0±0.5	TO-3P	5.5
2SK3730-01MR	75	70	280	0.0079	70	±20	3.0±0.5	TO-220F	1.7
2SK3804-01S	75	70	280	0.0085	135	±20	3.0±0.5	T-pack	1.6
FMC80N10R6	100	80	320	0.0067	324	+30/-20	2 to 4	T-Pack	1.6
FMY100N10R6 ※1	100	100	400	0.0067	280	+30/-20	2 to 4	TO-247	6.3

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

The Automotive Trench Power MOSFET series products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101).
Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive SuperFAP-E^{3S} Low Qg series(Built-in FRED type)

Automotive SuperFAP-E^{3S} Low Qg series (Built-in FRED type)			TO-247
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)	
300	0.085	47	✓
	0.053	67	✓
600	0.29	22	✓
	0.21	30	✓
	0.17	35	✓

Low-on resistance, low switching noise and low switching loss

■ 300 – 600V class

Device type	V_{DSS} Volts	I_D Amps.	$I_{D\ (pulse)}$ Amps.	$R_{DS\ (on)}$ max. *1 Ohms	P_{tot} *2 Watts	V_{GS} Volts	$V_{GS\ (th)}$ typ. Volts	Q_G typ. nC	t_{rr} typ. nsec	Package	Net mass Grams
FMY47N30ESF	300	47	188	0.085	400	+30/-30	4.2±1.0	96	130	TO-247	6.4
FMY67N30ESF	300	67	268	0.053	570	+30/-30	4.2±1.0	155	150	TO-247	6.4
FMY22N60ESF	600	22	88	0.290	400	+30/-30	4.2±1.0	95	150	TO-247	6.4
FMY30N60ESF	600	30	120	0.210	495	+30/-30	4.2±1.0	125	160	TO-247	6.4
FMY35N60ESF	600	35	140	0.170	570	+30/-30	4.2±1.0	155	160	TO-247	6.4

*1 $R_{DS\ (on)}$: V_{GS}=10V, *2 P_{tot}: T_C=25°C

Automotive SuperFAP-E^{3S} Low Qg Built-in FRED series of products satisfies the quality assurance level of general automobile use (conforms to AEC-Q101). Do not use the products for equipment requiring strict reliability such as aerospace equipment.

Automotive IPS series (Intelligent Power Switches)

Self protection

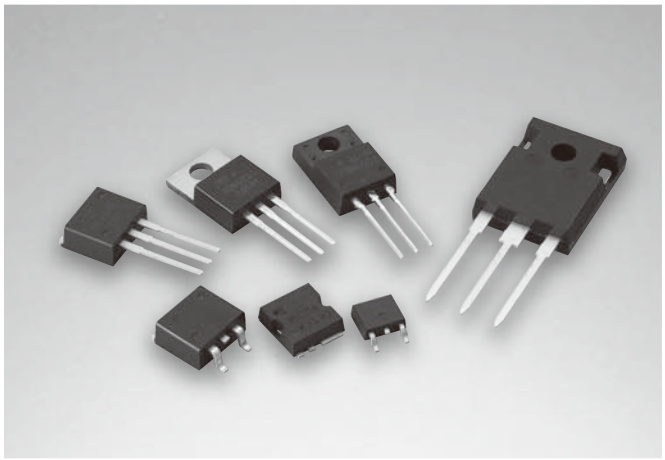
Device type	Type	Channels	V_{CC} DC (pulse) Volts	I_D Amps.	$R_{DS\ (on)}$ typ. Ohms	$R_{DS\ (on)}$ max. Ohms	P_{tot} Watts	Package	Net mass Grams	Remarks
F5106H	High side	1	35 (50)	2	0.1 ※1	0.12 ※1	1.5	SOP-8	0.2	Built-in Amp
F5112H	High side	1	35 (50)	2	0.1 ※1	0.12 ※1	2	SOP-8	0.2	
F5114H	High side	2	35 (50)	1.6	0.1 ※1	0.12 ※1	1.5	SSOP-12	0.2	
F5074H	High side	1	35 (50)	80	0.004 ※1	0.005 ※1	114	PSOP-12	0.4	
F5018	Low side	1	40	8	0.088 ※2	0.14 ※2	15	K-pack	0.6	
F5019	Low side	1	40	12	0.088 ※2	0.14 ※2	30	T-pack	1.6	
F5020	Low side	1	40	3	0.25 ※2	0.40 ※2	10	K-pack	0.6	
F5033	Low side	2	40	1	0.41 ※2	0.60 ※2	1.5	SOP-8	0.2	
F5041	Low side	2	40	1	0.47 ※2	0.60 ※2	1.5	SOP-8	0.2	
F5042	Low side	1	40	8	0.088 ※2	0.14 ※2	15	K-pack	0.6	High frequency switching version for F5018
F5043	Low side	1	40	12	0.088 ※2	0.14 ※2	30	T-pack	1.6	High frequency switching version for F5019
F5055	Low side	2	40	5.9	0.088 ※2	0.14 ※2	7.8	SSOP-20	0.3	
F5063L	Low side	2	40	1.9	0.095 ※2	0.14 ※2	1.75	SOP-8	0.2	

※1 : $R_{DS\ (on)}$: V_{cc}=13V ※2 : $R_{DS\ (on)}$: V_{IN}/V_{GS}=5V

5 Rectifier Diodes

Rectifier Diodes

Fuji Electric's rectifier diodes have features such as low V_F characteristics and low I_R, and are compatible with PFC circuits of power supplies and secondary-side rectification circuits.



Features of SBD, LLD

Ultra Low-IR SBD (Schottky-Barrier Diode)

■ Features

- Guaranteed T_{vj}=175°C
- V_F is same level and I_R is reduced by less than 1/10.

LLD (Low Loss Diode)　Super LLD series for PFC circuit

■ Features

Super LLD-3 for CCM-PFC

- Realize acceleration and low V_F compaired with existing model.

Super LLD-2 for CRM-PFC

- Achieved low power loss by low V_F
- Achieved low noise by soft recovery

■ Part numbers

FDRW50C60L (example)

F	DR		W		50	C		60		L	
Company code	Device code		Package code		Current	Polarity		Voltage		Series	
Fuji	DR	FWD	P	TO-220	× 1	S、T	Single	60	600V	L	Ultra Fast Recovery
			W	TO-247-P2		C	Cathode Common	65	650V		
				TO-247(2pin)-P2				120	1200V	J	Sort/Fast Recovery
				TO-247-2L-P2							

YA875C10R (example)

YA		87		5		C		10						R
Package code		Series		Current		Polarity		Voltage						Additional code
KP	K-Pack (L)	8x	SBD	1	5A	S	Single	SBD	02	20V	LLD	2	200V	R or RR
KS	K-Pack (S)	9x	LLD	2	10A	C	Cathode Common		03	30V		3	300V	
MS	TFP			3	15A				04	40V		4	400V	
PA	TO-3P			4	15A				06	60V		6	600V	
PG	TO-3PF			5	20A				08	80V		8	800V	
PH	TO-247			6	30A				09	90V		10	1000V	
TP	T-Pack (L)			8	30A				10	100V		12	1200V	
TS	T-Pack (S)			9	40A				12	120V		15	1500V	
YA	TO-220			0	40A				15	150V				
YG	TO-220F								20	200V				

ESAD92M02R (example)

ESA		D			92		M		02						R
Chip		Current			Series		Package code		Voltage						Additional code
ESA	Dual chips	Lead	ERA	≦ 1A	8x	SBD	non	Non Isolation	SBD	004	40V	LLD	02	200V	R or RR
ER	Single chip		ERB	≦ 2A	9x	LLD	M	Full mold		006	60V		03	300V	
			ERC	≦ 3A						009	90V				
			ERD	–											
		TOPKG	ERC	≦ 5A											
			ESAB	5A-10A											
			ESAC	10A-20A											
			ESAD	20A-30A											

■ Letter symbols

V_{RRM} Repetitive peak reverse voltage
V_{RSM} Non-repetitive peak reverse voltage
I_O Average output current
I_{FSM} Surge current
T_{vj} Junction temperature
T_a Ambient temperature
T_c Case temperature

T_{stg} Storage temperature
V_{FM} Forward voltage
I_{RRM} Reverse current
t_{rr} Reverse recovery time
$R_{th\ (j\text{-}c)}$ Thermal resistance (Junction to case)
T_l Lead temperature
$I_{F(AV)}$ Average forward current

Schottky-Barrier Diodes (SBD)

Schottky-Barrier Diodes(SBD)					TO-220F	K-Pack(L)	K-Pack(S)	TFP
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R (mA)				
Single	40	5	0.55	5	✓		✓	
	45	10	0.60	2	✓			
	60	5	0.59	5	✓			
		15	0.63	20	✓			
Dual	20	7	0.39	10		✓	✓	
	30	5	0.47	5			✓	
	40	5	0.55	5	✓		✓	
		10	0.55	5	✓			
		20	0.6	15	✓			
		30	0.53	8	✓			✓
	60	5	0.58	5	✓			
		10	0.58	5	✓			
		15	0.58	5	✓			
		20	0.58	15	✓			
		30	0.58	3				✓
	90	5	0.9	5			✓	
	100	5	0.8	0.7	✓			
		10	0.8	1.2	✓			
		20	0.8	2.5	✓			
		30	0.8	20	✓			

1 in one-package

Device type	Maximum rating V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	Thermal rating T_{vj} and T_{stg} °C	Characteristics (T_a=25°C) V_{FM} max. Volts	I_{RRM} *3 max.mA	$R_{th\ (j\text{-}c)}$ °C/W	Package	Net mass Grams
KS826S04	40	5.0 (T_C=110℃)	80	-40 to +150	0.55 (I_F=5.0A)	5	10	K-pack(S)	0.6
YG811S04R	40	5.0 (T_C=122℃)	120	-40 to +150	0.55 (I_F=5.0A)	5	5.0	TO-220F	1.7
YG812S04R	45	10 (T_C=124℃)	120	-40 to +150	0.6 (I_F=10A)	2	2.5	TO-220F	1.7
YG811S06R	60	5.0 (T_C=127℃)	80	-40 to +150	0.59 (I_F=5.0A)	5	5.0	TO-220F	1.7
YG804S06R	60	15 (T_C=99℃)	120	-40 to +150	0.63 (I_F=15A)	20	2.2	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}

Schottky-Barrier Diodes (SBD)

2 in one-package

Device type	Maximum rating V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	Thermal rating T_{vj} and T_{stg} °C	Characteristics (T_a=25°C) V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j-c)}$ °C/W	Package	Net mass Grams
KP883C02	20	7.0 (T_C=89℃)	60	-40 to +125	0.39 (I_F=2.5A)	10	10.0	K-Pack(L)	0.6
KS883C02	20	7.0 (T_C=89℃)	60	-40 to +125	0.39 (I_F=2.5A)	10	10.0	K-pack(S)	0.6
KS823C03	30	5.0 (T_C=117℃)	60	-40 to +150	0.47 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
KS823C04	40	5.0 (T_C=107℃)	60	-40 to +150	0.55 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
YG801C04R	40	5.0 (T_C=125℃)	100	-40 to +150	0.55 (I_F=2.0A)	5	5.0	TO-220F	1.7
YG802C04R	40	10 (T_C=110℃)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.5	TO-220F	1.7
YG805C04R	40	20 (T_C=100℃)	120	-40 to +150	0.6 (I_F=10A)	15	2.5	TO-220F	1.7
YG838C04R	40	30 (T_C=85℃)	180	-40 to +150	0.53 (I_F=12.5A)	8	2.0	TO-220F	1.7
MS838C04	40	30 (T_C=111℃)	180	-40 to +150	0.53 (I_F=12.5A)	8	1.2	TFP	0.8
YG801C06R	60	5.0 (T_C=125℃)	60	-40 to +150	0.58 (I_F=2.0A)	5	5.0	TO-220F	1.7
YG802C06R	60	10 (T_C=118℃)	80	-40 to +150	0.58 (I_F=4.0A)	5	3.5	TO-220F	1.7
YG803C06R	60	15 (T_C=94℃)	100	-40 to +150	0.58 (I_F=6.0A)	5	3.0	TO-220F	1.7
YG805C06R	60	20 (T_C=108℃)	80	-40 to +150	0.58 (I_F=8.0A)	15	2.5	TO-220F	1.7
MS808C06	60	30 (T_C=118℃)	150	-40 to +150	0.58 (I_F=12.5A)	3	1.2	TFP	0.8
KS823C09	90	5.0 (T_C=100℃)	60	-40 to +150	0.9 (I_F=2.5A)	5	10.0	K-pack(S)	0.6
YG801C10R	100	5.0 (T_C=117℃)	60	-40 to +150	0.8 (I_F=1.5A)	0.7	5.0	TO-220F	1.7
YG802C10R	100	10 (T_C=102℃)	80	-40 to +150	0.8 (I_F=3.0A)	1.2	3.5	TO-220F	1.7
YG805C10R	100	20 (T_C=91℃)	100	-40 to +150	0.8 (I_F=5.0A)	2.5	2.5	TO-220F	1.7
YG808C10R	100	30 (T_C=80℃)	180	-40 to +150	0.8 (I_F=10A)	20	2.0	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Schottky-Barrier Diodes (SBD)

Schottky-Barrier Diodes (SBD)					TO-3P	TO-3PF	T-Pack (S)	T-Pack (L)
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(mA)				
Dual	40	10	0.55	5			✓	✓
		20	0.6	15			✓	
		30	0.55	20	✓	✓		
	60	30	0.58	20	✓	✓	✓	

2 in one-package

Device type	Maximum rating V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	Thermal rating T_{vj} and T_{stg} °C	Characteristics (T_a=25°C) V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j-c)}$ °C/W	Package	Net mass Grams
TP802C04R	40	10 (T_C=116℃)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.0	T-Pack(L)	1.6
TS802C04R	40	10 (T_C=116℃)	120	-40 to +150	0.55 (I_F=4.0A)	5	3.0	T-pack(S)	1.6
TS805C04R	40	20 (T_C=110℃)	120	-40 to +150	0.6 (I_F=10A)	15	2.0	T-pack(S)	1.6
ESAD83M-004RR	40	30 (T_C=105℃)	150	-40 to +150	0.55 (I_F=12.5A)	20	1.7	TO-3PF	6.0
ESAD83-004R	40	30 (T_C=118℃)	150	-40 to +150	0.55 (I_F=12.5A)	20	1.2	TO-3P	5.5
ESAD83M-006RR	60	30 (T_C=106℃)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.7	TO-3PF	6.0
TS808C06R	60	30 (T_C=115℃)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.2	T-pack(S)	1.6
ESAD83-006R	60	30 (T_C=119℃)	120	-40 to +150	0.58 (I_F=12.5A)	20	1.2	TO-3P	5.5

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: per element
*4: V_R=V_{RRM} per element

Ultra Low IR Schottky-Barrier Diodes

Ultra Low IR Schottky-Barrier Diodes					TO-220	TO-220F
						
Chip	V_{RRM} (V)	I_O(A)	V_F (V)	I_R (mA)		
Dual	100	10	0.82	0.015	✓	✓
		20	0.86	0.02	✓	✓
		30	0.86	0.03	✓	✓
	120	10	0.84	0.015	✓	✓
		20	0.88	0.02	✓	✓
		30	0.88	0.03	✓	✓
	150	10	0.86	0.015	✓	✓
		20	0.89	0.02	✓	✓
		30	0.89	0.03	✓	✓
	200	10	0.89	0.015	✓	✓
		20	0.93	0.02	✓	✓
		30	0.93	0.03	✓	✓

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max.mA	°C/W		Grams
YG872C10R	100	10 (T_C=146℃)	125	-40 to +175	0.82	0.015	3.5	TO-220F	1.7
YA872C10R	100	10 (T_C=158℃)	125	-40 to +175	0.82	0.015	2.0	TO-220	2.0
YG875C10R	100	20 (T_C=131℃)	145	-40 to +175	0.86	0.020	2.5	TO-220F	1.7
YA875C10R	100	20 (T_C=144℃)	145	-40 to +175	0.86	0.020	1.75	TO-220	2.0
YG878C10R	100	30 (T_C=122℃)	160	-40 to +175	0.86	0.030	2.0	TO-220F	1.7
YA878C10R	100	30 (T_C=142℃)	160	-40 to +175	0.86	0.030	1.25	TO-220	2.0
YG872C12R	120	10 (T_C=143℃)	125	-40 to +175	0.84	0.015	3.5	TO-220F	1.7
YA872C12R	120	10 (T_C=158℃)	125	-40 to +175	0.84	0.015	2.0	TO-220	2.0
YG875C12R	120	20 (T_C=127℃)	145	-40 to +175	0.88	0.020	2.5	TO-220F	1.7
YA875C12R	120	20 (T_C=144℃)	145	-40 to +175	0.88	0.020	1.75	TO-220	2.0
YG878C12R	120	30 (T_C=116℃)	160	-40 to +175	0.88	0.030	2.0	TO-220F	1.7
YA878C12R	120	30 (T_C=141℃)	160	-40 to +175	0.88	0.030	1.25	TO-220	2.0
YG872C15R	150	10 (T_C=144℃)	125	-40 to +175	0.86	0.015	3.5	TO-220F	1.7
YA872C15R	150	10 (T_C=157℃)	125	-40 to +175	0.86	0.015	2.0	TO-220	2.0
YG875C15R	150	20 (T_C=130℃)	145	-40 to +175	0.89	0.020	2.5	TO-220F	1.7
YA875C15R	150	20 (T_C=143℃)	145	-40 to +175	0.89	0.020	1.75	TO-220	2.0
YG878C15R	150	30 (T_C=120℃)	160	-40 to +175	0.89	0.030	2.0	TO-220F	1.7
YA878C15R	150	30 (T_C=140℃)	160	-40 to +175	0.89	0.030	1.25	TO-220	2.0
YG872C20R	200	10 (T_C=143℃)	125	-40 to +175	0.89	0.015	3.5	TO-220F	1.7
YA872C20R	200	10 (T_C=157℃)	125	-40 to +175	0.89	0.015	2.0	TO-220	2.0
YG875C20R	200	20 (T_C=127℃)	145	-40 to +175	0.93	0.020	2.5	TO-220F	1.7
YA875C20R	200	20 (T_C=141℃)	145	-40 to +175	0.93	0.020	1.75	TO-220	2.0
YG878C20R	200	30 (T_C=116℃)	160	-40 to +175	0.93	0.030	2.0	TO-220F	1.7
YA878C20R	200	30 (T_C=138℃)	160	-40 to +175	0.93	0.030	1.25	TO-220	2.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Low IR Schottky-Barrier Diodes

Low IR Schottky-Barrier Diodes					TO-220	TO-220F	TO-3P (Q)	TO-3PF	TO-247	T-Pack(L)	T-Pack(S)	TFP
												
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R (mA)								
Single	120	5	0.88	0.15		✓						
	150	5	0.9	0.15		✓						
Dual	45	20	0.63	0.175	✓	✓					✓	✓
		30	0.63	0.2	✓	✓					✓	✓
	60	10	0.68	0.15	✓	✓					✓	
		20	0.74	0.175	✓	✓					✓	
		30	0.74	0.2	✓	✓					✓	
		40	0.7	0.2	✓	✓				✓		
	80	10	0.76	0.15	✓	✓					✓	✓
		20	0.76	0.175	✓	✓					✓	✓
		30	0.76	0.2	✓	✓					✓	
		40	0.71	0.2	✓	✓				✓		
	100	10	0.86	0.15	✓	✓					✓	
		20	0.86	0.175	✓	✓					✓	✓
		30	0.86	0.2	✓	✓	✓			✓	✓	✓
		40	0.82	0.2	✓	✓				✓		
	120	10	0.88	0.15	✓	✓				✓	✓	
		20	0.88	0.15	✓	✓			✓	✓	✓	✓
		30	0.88	0.2	✓	✓			✓		✓	✓
		40	0.95	0.2	✓	✓						
	150	10	0.9	0.15	✓	✓				✓	✓	
		20	0.9	0.15	✓	✓		✓	✓	✓	✓	✓
		30	0.9	0.2	✓	✓	✓		✓		✓	✓
		40	0.97	0.2	✓	✓						

1 in one-package

Device type	Maximum rating V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	Thermal rating T_{vj} and T_{stg} °C	Characteristics (T_a=25°C) V_{FM} *3 max. Volts	I_{RRM} *4 max.mA	$R_{th\ (j-c)}$ °C/W	Package	Net mass Grams
YG861S12R	120	5 (T_C=104℃)	75	-40 to +150	0.88	0.15	5.0	TO-220F	1.7
YG861S15R	150	5 (T_C=94℃)	75	-40 to +150	0.90	0.15	5.0	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: I_F=I_O *4: V_R=V_{RRM}

Low IR Schottky-Barrier Diodes

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max.mA	°C/W		Grams
YG865C04R	45	20 (T_C=115℃)	145	-40 to +150	0.63	0.175	2.5	TO-220F	1.7
YA865C04R	45	20 (T_C=126℃)	145	-40 to +150	0.63	0.175	1.75	TO-220	2.0
TS865C04R	45	20 (T_C=126℃)	145	-40 to +150	0.63	0.175	1.75	T-pack(S)	1.6
MS865C04	45	20 (T_C=125℃)	145	-40 to +150	0.63	0.175	1.75	TFP	0.8
YG868C04R	45	30 (T_C=105℃)	160	-40 to +150	0.63	0.20	2.0	TO-220F	1.7
YA868C04R	45	30 (T_C=122℃)	160	-40 to +150	0.63	0.20	1.25	TO-220	2.0
TS868C04R	45	30 (T_C=122℃)	160	-40 to +150	0.63	0.20	1.25	T-pack(S)	1.6
MS868C04	45	30 (T_C=122℃)	160	-40 to +150	0.63	0.20	1.25	TFP	0.8
YG862C06R	60	10 (T_C=124℃)	125	-40 to +150	0.68	0.15	3.5	TO-220F	1.7
YA862C06R	60	10 (T_C=136℃)	125	-40 to +150	0.68	0.15	2.0	TO-220	2.0
TS862C06R	60	10 (T_C=136℃)	125	-40 to +150	0.68	0.15	2.0	T-pack(S)	1.6
YG865C06R	60	20 (T_C=109℃)	145	-40 to +150	0.74	0.175	2.5	TO-220F	1.7
YA865C06R	60	20 (T_C=122℃)	145	-40 to +150	0.74	0.175	1.75	TO-220	2.0
TS865C06R	60	20 (T_C=122℃)	145	-40 to +150	0.74	0.175	1.75	T-pack(S)	1.6
YG868C06R	60	30 (T_C=101℃)	160	-40 to +150	0.74	0.20	2.0	TO-220F	1.7
YA868C06R	60	30 (T_C=119℃)	160	-40 to +150	0.74	0.20	1.25	TO-220	2.0
TS868C06R	60	30 (T_C=119℃)	160	-40 to +150	0.74	0.20	1.25	T-pack(S)	1.6
YG869C06R	60	40 (T_C=105℃)	190	-40 to +150	0.70	0.20	1.2	TO-220F	1.7
YA869C06R	60	40 (T_C=114℃)	190	-40 to +150	0.70	0.20	1.0	TO-220	2.0
TP869C06R	60	40 (T_C=114℃)	190	-40 to +150	0.70	0.20	1.0	T-Pack(L)	1.6
YG862C08R	80	10 (T_C=109℃)	125	-40 to +150	0.76	0.15	3.5	TO-220F	1.7
YA862C08R	80	10 (T_C=126℃)	125	-40 to +150	0.76	0.15	2.0	TO-220	2.0
TS862C08R	80	10 (T_C=126℃)	125	-40 to +150	0.76	0.15	2.0	T-pack(S)	1.6
MS862C08	80	10 (T_C=115℃)	125	-40 to +150	0.76	0.15	3.0	TFP	0.8
YG865C08R	80	20 (T_C=89℃)	145	-40 to +150	0.76	0.175	2.5	TO-220F	1.7
YA865C08R	80	20 (T_C=107℃)	145	-40 to +150	0.76	0.175	1.75	TO-220	2.0
TS865C08R	80	20 (T_C=107℃)	145	-40 to +150	0.76	0.175	1.75	T-pack(S)	1.6
MS865C08	80	20 (T_C=108℃)	145	-40 to +150	0.76	0.175	1.75	TFP	0.8
YG868C08R	80	30 (T_C=72℃)	160	-40 to +150	0.76	0.20	2.0	TO-220F	1.7
YA868C08R	80	30 (T_C=105℃)	160	-40 to +150	0.76	0.20	1.25	TO-220	2.0
TS868C08R	80	30 (T_C=105℃)	160	-40 to +150	0.76	0.20	1.25	T-pack(S)	1.6
YG869C08R	80	40 (T_C=86℃)	190	-40 to +150	0.71	0.20	1.2	TO-220F	1.7
YA869C08R	80	40 (T_C=98℃)	190	-40 to +150	0.71	0.20	1.0	TO-220	2.0
TP869C08R	80	40 (T_C=98℃)	190	-40 to +150	0.71	0.20	1.0	T-Pack(L)	1.6

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Low IR Schottky-Barrier Diodes

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)			Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	$R_{th\ (j-c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max.mA	°C/W		Grams
YG862C10R	100	10 (T_C=118℃)	125	-40 to +150	0.86	0.15	3.5	TO-220F	1.7
YA862C10R	100	10 (T_C=132℃)	125	-40 to +150	0.86	0.15	2.0	TO-220	2.0
TS862C10R	100	10 (T_C=132℃)	125	-40 to +150	0.86	0.15	2.0	T-pack(S)	1.6
YG865C10R	100	20 (T_C=103℃)	145	-40 to +150	0.86	0.175	2.5	TO-220F	1.7
YA865C10R	100	20 (T_C=117℃)	145	-40 to +150	0.86	0.175	1.75	TO-220	2.0
TS865C10R	100	20 (T_C=117℃)	145	-40 to +150	0.86	0.175	1.75	T-pack(S)	1.6
MS865C10	100	20 (T_C=117℃)	145	-40 to +150	0.86	0.175	1.75	TFP	0.8
YG868C10R	100	30 (T_C=91℃)	160	-40 to +150	0.86	0.20	2.0	TO-220F	1.7
YA868C10R	100	30 (T_C=113℃)	160	-40 to +150	0.86	0.20	1.25	TO-220	2.0
TS868C10R	100	30 (T_C=113℃)	160	-40 to +150	0.86	0.20	1.25	T-pack(S)	1.6
TP868C10R	100	30 (T_C=113℃)	160	-40 to +150	0.86	0.20	1.25	T-Pack(L)	1.6
MS868C10	100	30 (T_C=114℃)	160	-40 to +150	0.86	0.20	1.2	TFP	0.8
PA868C10R	100	30 (T_C=107℃)	160	-40 to +150	0.86	0.20	1.5	TO-3P(Q)	5.1
YG869C10R	100	40 (T_C=94℃)	190	-40 to +150	0.82	0.20	1.2	TO-220F	1.7
YA869C10R	100	40 (T_C=105℃)	190	-40 to +150	0.82	0.20	1.0	TO-220	2.0
TP869C10R	100	40 (T_C=105℃)	190	-40 to +150	0.82	0.20	1.0	T-Pack(L)	1.6
YG862C12R	120	10 (T_C=122℃)	75	-40 to +150	0.88	0.15	3.00	TO-220F	1.7
YA862C12R	120	10 (T_C=137℃)	75	-40 to +150	0.88	0.15	1.20	TO-220	2.0
TP862C12R	120	10 (T_C=137℃)	75	-40 to +150	0.88	0.15	1.50	T-Pack(L)	1.6
TS862C12R	120	10 (T_C=137℃)	75	-40 to +150	0.88	0.15	1.50	T-pack(S)	1.6
YG865C12R	120	20 (T_C=116℃)	150	-40 to +150	0.88	0.15	1.75	TO-220F	1.7
YA865C12R	120	20 (T_C=126℃)	150	-40 to +150	0.88	0.15	1.25	TO-220	2.0
PH865C12	120	20 (T_C=126℃)	150	-40 to +150	0.88	0.15	1.50	TO-247	4.9
TP865C12R	120	20 (T_C=126℃)	150	-40 to +150	0.88	0.15	1.25	T-Pack(L)	1.6
TS865C12R	120	20 (T_C=126℃)	150	-40 to +150	0.88	0.15	1.25	T-pack(S)	1.6
MS865C12	120	20 (T_C=126℃)	150	-40 to +150	0.88	0.15	1.25	TFP	0.8
YG868C12R	120	30 (T_C=116℃)	190	-40 to +150	0.88	0.20	1.20	TO-220F	1.7
YA868C12R	120	30 (T_C=122℃)	190	-40 to +150	0.88	0.20	1.00	TO-220	2.0
PH868C12	120	30 (T_C=122℃)	190	-40 to +150	0.88	0.20	1.20	TO-247	4.9
TS868C12R	120	30 (T_C=122℃)	190	-40 to +150	0.88	0.20	1.00	T-pack(S)	1.6
MS868C12	120	30 (T_C=115℃)	190	-40 to +150	0.88	0.20	1.20	TFP	0.8
YG869C12R	120	40 (T_C=95℃)	190	-40 to +150	0.95	0.20	1.20	TO-220F	1.7
YA869C12R	120	40 (T_C=104℃)	190	-40 to +150	0.95	0.20	1.00	TO-220	2.0
YG862C15R	150	10 (T_C=117℃)	75	-40 to +150	0.90	0.15	3.00	TO-220F	1.7
YA862C15R	150	10 (T_C=134℃)	75	-40 to +150	0.90	0.15	1.50	TO-220	2.0
TP862C15R	150	10 (T_C=134℃)	75	-40 to +150	0.90	0.15	1.50	T-Pack(L)	1.6
TS862C15R	150	10 (T_C=134℃)	75	-40 to +150	0.90	0.15	1.50	T-pack(S)	1.6
YG865C15R	150	20 (T_C=101℃)	150	-40 to +150	0.90	0.15	1.75	TO-220F	1.7
PH865C15	150	20 (T_C=109℃)	150	-40 to +150	0.90	0.15	1.50	TO-247	4.9
PG865C15R	150	20 (T_C=80℃)	150	-40 to +150	0.90	0.15	2.50	TO-3PF	6.0
YA865C15R	150	20 (T_C=115℃)	150	-40 to +150	0.90	0.15	1.25	TO-220	2.0
TP865C15R	150	20 (T_C=115℃)	150	-40 to +150	0.90	0.15	1.25	T-Pack(L)	1.6
TS865C15R	150	20 (T_C=115℃)	150	-40 to +150	0.90	0.15	1.25	T-pack(S)	1.6
MS865C15	150	20 (T_C=115℃)	150	-40 to +150	0.90	0.15	1.25	TFP	0.8
YG868C15R	150	30 (T_C=113℃)	190	-40 to +150	0.90	0.20	1.20	TO-220F	1.7
YA868C15R	150	30 (T_C=119℃)	190	-40 to +150	0.90	0.20	1.00	TO-220	2.0
TS868C15R	150	30 (T_C=119℃)	190	-40 to +150	0.90	0.20	1.00	T-pack(S)	1.6
MS868C15	150	30 (T_C=113℃)	190	-40 to +150	0.90	0.20	1.20	TFP	0.8
PA868C15R	150	30 (T_C=129℃)	190	-40 to +150	0.90	0.20	1.20	TO-3P	5.5
PH868C15	150	30 (T_C=129℃)	190	-40 to +150	0.90	0.20	1.20	TO-247	4.9
YG869C15R	150	40 (T_C=90℃)	190	-40 to +150	0.97	0.20	1.20	TO-220F	1.7
YA869C15R	150	40 (T_C=100℃)	190	-40 to +150	0.97	0.20	1.00	TO-220	2.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element

Super LLD 2 (Critical mode PFC)

Super LLD 2 (Critical mode PFC)						TO-220	TO-220F	TO-247
								
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)			
Single	600	8	1.55	10	0.05	✓	✓	
		10	1.55	10	0.05	✓	✓	
	800	5	2.2	10	0.05		✓	
Dual	600	10	1.55	10	0.05	✓	✓	✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM}	I_{RRM} *3	t_{rr} *4	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
YA971S6R	600	8 (T_C=116℃)	70	-40 to +150	1.55 (I_F=8A)	10	0.05	2.5	TO-220	2.0
YG971S6R	600	8 (T_C=89℃)	70	-40 to +150	1.55 (I_F=8A)	10	0.05	4.5	TO-220F	1.7
YA972S6R	600	10 (T_C=115℃)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	2.0	TO-220	2.0
YG972S6R	600	10 (T_C=89℃)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	3.5	TO-220F	1.7
YG971S8R	800	5 (T_C=93℃)	60	-40 to +150	2.2 (I_F=5A)	10	0.05	4.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM}	I_{RRM} *3	t_{rr} *4	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
YA975C6R	600	20 (T_C=106℃)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.25	TO-220	2.0
YG975C6R	600	20 (T_C=89℃)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.75	TO-220F	1.7
PH975C6	600	20 (T_C=97℃)	100	-40 to +150	1.55 (I_F=10A)	10	0.05	1.5	TO-247	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: V_R=V_{RRM} per element
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

Super LLD 3 (Continuous mode PFC)

Super LLD 3 (Continuous mode PFC)						TO-220	TO-220F	TO-247	T-Pack (S)
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single	600	8	3	25	0.026	✓	✓		
		10	3	30	0.028	✓	✓		
Dual	600	16	3	25	0.026	✓	✓		✓
		20	3	30	0.028	✓	✓	✓	✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM}	I_{RRM} *3	t_{rr} *4	$R_{th\ (j-c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
YA981S6R	600	8 (T_C=99℃)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	2.5	TO-220	2.0
YG981S6R	600	8 (T_C=58℃)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	4.5	TO-220F	1.7
YA982S6R	600	10 (T_C=99℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	2.0	TO-220	2.0
YG982S6R	600	10 (T_C=60℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	3.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: V_R=V_{RRM}
*4: I_F=0.1A, I_R=0.2A, Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM}	I_{RRM} *3	t_{rr} *4	$R_{th\ (j-c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
YA982C6R	600	16 (T_C=88℃)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	1.5	TO-220	2.0
TS982C6R	600	16 (T_C=88℃)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	1.5	T-pack(S)	1.6
YG982C6R	600	16 (T_C=68℃)	40	-40 to +150	3.0 (I_F=8A)	25	0.026	2	TO-220F	1.7
YA985C6R	600	20 (T_C=86℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.25	TO-220	2.0
TS985C6R	600	20 (T_C=86℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.25	T-pack(S)	1.6
YG985C6R	600	20 (T_C=60℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.75	TO-220F	1.7
PH985C6	600	20 (T_C=73℃)	50	-40 to +150	3.0 (I_F=10A)	30	0.028	1.5	TO-247	4.9

( ) Conditions
*1: 50Hz Square wave duty 1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: V_R=V_{RRM} per element
*4: I_F=0.1A. I_R=0.2A. Irec=0.05A

Low-Loss Fast Recovery Diodes (LLD)

Low-Loss Fast Recovery Diodes (LLD)						TO-220F	K-Pack(L)	K-Pack(S)	TFP
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single	200	5	0.95	100	0.035	✓	✓	✓	
		10	0.98	200	0.035	✓			
	300	5	1.2	100	0.035	✓			
Dual	200	5	0.95	100	0.035	✓	✓	✓	
		10	0.95	100	0.035	✓			
		20	0.98	200	0.035	✓			✓
	300	5	1.2	100	0.035	✓			
		10	1.2	100	0.035	✓			
		20	1.2	200	0.035				✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th(j-c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
KP926S2	200	5 (T_C=106℃)	70	-40 to +150	0.95	100	0.035	10.0	K-Pack(L)	0.6
KS926S2	200	5 (T_C=106℃)	70	-40 to +150	0.95	100	0.035	10.0	K-pack(S)	0.6
YG911S2R	200	5 (T_C=134℃)	50	-40 to +150	0.95	100	0.035	3.5	TO-220F	1.7
YG912S2R	200	10 (T_C=116℃)	80	-40 to +150	0.98	200	0.035	3.5	TO-220F	1.7
YG911S3R	300	5 (T_C=128℃)	40	-40 to +150	1.2	100	0.035	3.5	TO-220F	1.7

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: I_F=I_O per element *4: V_R=V_{RRM}
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th(j-c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
KP923C2	200	5 (T_C=103℃)	50	-40 to +150	0.95	100	0.035	10.0	K-Pack(L)	0.6
KS923C2	200	5 (T_C=103℃)	50	-40 to +150	0.95	100	0.035	10.0	K-pack(S)	0.6
YG901C2R	200	5 (T_C=120℃)	25	-40 to +150	0.95	100	0.035	5.0	TO-220F	1.7
YG902C2R	200	10 (T_C=115℃)	50	-40 to +150	0.95	100	0.035	3.5	TO-220F	1.7
YG906C2R	200	20 (T_C=102℃)	80	-40 to +150	0.98	200	0.035	2.5	TO-220F	1.7
MS906C2	200	20 (T_C=105℃)	80	-40 to +150	0.98	200	0.035	2.0	TFP	0.8
YG901C3R	300	5 (T_C=105℃)	25	-40 to +150	1.2	100	0.035	5.0	TO-220F	1.7
YG902C3R	300	10 (T_C=101℃)	40	-40 to +150	1.2	100	0.035	3.5	TO-220F	1.7
MS906C3	300	20 (T_C=95℃)	80	-40 to +150	1.2	200	0.035	2.0	TFP	0.8

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

Low-Loss Fast Recovery Diodes (LLD)

Low-Loss Fast Recovery Diodes (LLD)						TO-3P	TO-3PF	T-Pack (S)	T-Pack (L)
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Dual	200	5	0.95	100	0.035				✓
		10	0.95	100	0.035			✓	✓
		20	0.95	200	0.04	✓	✓		
		20	0.98	200	0.035			✓	✓
	300	10	1.2	100	0.035			✓	✓
		20	1.2	200	0.04	✓	✓		
		30	1.2	300	0.04	✓			
		60	1.2	600	0.04	✓			
	400	20	1.5	500	0.05	✓			

2 in one-package

Device type	Maximum rating V_{RRM} Volts	I_O *1 Amps.	I_{FSM} *2 Amps.	Thermal rating T_{vj} and T_{stg} °C	Characteristics (T_a=25°C) V_{FM} *3 max. Volts	I_{RRM} *4 max. μA	t_{rr} *5 μ sec.	$R_{th\ (j\text{-}c)}$ °C/W	Package	Net mass Grams
TP901C2R	200	5 (T_C=120℃)	25	-40 to +150	0.95 (I_F=2.5A)	100	0.035	5.0	T-Pack(L)	1.6
TP902C2R	200	10 (T_C=125℃)	50	-40 to +150	0.95 (I_F=5A)	100	0.035	2.5	T-Pack(L)	1.6
TS902C2R	200	10 (T_C=125℃)	50	-40 to +150	0.95 (I_F=5A)	100	0.035	2.5	T-pack(S)	1.6
ESAD92M-02RR	200	20 (T_C=108℃)	100	-40 to +150	0.95 (I_F=10A)	200	0.04	2.0	TO-3PF	6.0
TP906C2R	200	20 (T_C=110℃)	80	-40 to +150	0.98 (I_F=10A)	200	0.035	2.0	T-Pack(L)	1.6
TS906C2R	200	20 (T_C=110℃)	80	-40 to +150	0.98 (I_F=10A)	200	0.035	2.0	T-pack(S)	1.6
ESAD92-02R	200	20 (T_C=115℃)	100	-40 to +150	0.95 (I_F=10A)	200	0.04	1.5	TO-3P	5.5
TP902C3R	300	10 (T_C=115℃)	40	-40 to +150	1.2 (I_F=5A)	100	0.035	2.5	T-Pack(L)	1.6
TS902C3R	300	10 (T_C=115℃)	40	-40 to +150	1.2 (I_F=5A)	100	0.035	2.5	T-pack(S)	1.6
ESAD92-03R	300	20 (T_C=110℃)	80	-40 to +150	1.2 (I_F=10A)	200	0.04	1.5	TO-3P	5.5
ESAD92M-03RR	300	20 (T_C=96℃)	80	-40 to +150	1.2 (I_F=10A)	200	0.04	2.0	TO-3PF	6.0
ESAE92-03R	300	30 (T_C=99℃)	115	-40 to +150	1.2 (I_F=15A)	300	0.04	1.2	TO-3P	5.5
ESAF92-03R	300	60 (T_C=86℃)	240	-40 to +150	1.2 (I_F=30A)	600	0.04	0.75	TO-3P	5.5
PA905C4R	400	20 (T_C=107℃)	70	-40 to +150	1.5 (I_F=10A)	500	0.05	1.5	TO-3P	5.5

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: per element
*4: V_R=V_{RRM} per element *5: I_F=0.1A, I_R=0.2A, Irec.=0.05A

Low-Loss Fast Soft Recovery Diodes (LLD)

Low-Loss Fast Soft Recovery Diodes (LLD)						TO-220	TO-220F	TO-3PF	T-Pack (S)	K-Pack (S)	TFP
											
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)						
Single	300	5	1.3	20	0.04					✓	
	400	5	1.45	20	0.05					✓	
Dual	300	10	1.3	20	0.04	✓	✓		✓		
		20	1.3	35	0.04	✓	✓	✓	✓		✓
	400	10	1.45	20	0.05	✓	✓		✓		
		20	1.45	35	0.05	✓	✓	✓	✓		✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
KS986S3	300	5 (T_C=128℃)	90	-40 to +150	1.3	20	0.04	3.5	K-pack(S)	0.6
KS986S4	400	5 (T_C=125℃)	80	-40 to +150	1.45	20	0.05	3.5	K-pack(S)	0.6

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms *3: I_F=I_O per element *4: V_R=V_{RRM}
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μ sec.	°C/W		Grams
YG982C3R	300	10 (T_C=112℃)	90	-40 to +150	1.3	20	0.04	3	TO-220F	1.7
YA982C3R	300	10 (T_C=128℃)	90	-40 to +150	1.3	20	0.04	1.75	TO-220	2.0
TS982C3R	300	10 (T_C=128℃)	90	-40 to +150	1.3	20	0.04	1.75	T-pack(S)	1.6
YG985C3R	300	20 (T_C=105℃)	110	-40 to +150	1.3	35	0.04	1.75	TO-220F	1.7
YA985C3R	300	20 (T_C=118℃)	110	-40 to +150	1.3	35	0.04	1.25	TO-220	2.0
TS985C3R	300	20 (T_C=118℃)	110	-40 to +150	1.3	35	0.04	1.25	T-pack(S)	1.6
MS985C3	300	20 (T_C=118℃)	110	-40 to +150	1.3	35	0.04	1.25	TFP	0.8
PG985C3R	300	20 (T_C=73℃)	110	-40 to +150	1.3	35	0.04	3	TO-3PF	6.0
YG982C4R	400	10 (T_C=107℃)	80	-40 to +150	1.45	20	0.05	3	TO-220F	1.7
YA982C4R	400	10 (T_C=125℃)	80	-40 to +150	1.45	20	0.05	1.75	TO-220	2.0
TS982C4R	400	10 (T_C=125℃)	80	-40 to +150	1.45	20	0.05	1.75	T-pack(S)	1.6
YG985C4R	400	20 (T_C=100℃)	100	-40 to +150	1.45	35	0.05	1.75	TO-220F	1.7
YA985C4R	400	20 (T_C=114℃)	100	-40 to +150	1.45	35	0.05	1.25	TO-220	2.0
TS985C4R	400	20 (T_C=114℃)	100	-40 to +150	1.45	35	0.05	1.25	T-pack(S)	1.6
MS985C4	400	20 (T_C=114℃)	100	-40 to +150	1.45	35	0.05	1.25	TFP	0.8
PG985C4R	400	20 (T_C=64℃)	100	-40 to +150	1.45	35	0.05	3	TO-3PF	6.0

( ) Conditions
*1: 50Hz Square wave duty=1/2 (Average forward current of centertap full wave connection)
*2: Sine wave, 10ms per element *3: I_F=0.5I_O per element
*4: V_R=V_{RRM} per element
*5: I_F=0.1A. I_R=0.2A. Irec=0.05A

Ultra Fast Recovery Diodes

Ultra Fast Recovery Diodes						TO-220	TO-247(2pin)-P2	TO-247-P2	TO-247-2L-P2
									
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)				
Single	600	15	2.6	250	0.031	✓	✓		
		25	2.6	250	0.033	✓	✓		
		35	2.6	250	0.036		✓		
		75	2.95	250	0.060				✓
	650	60	3.2	250	0.060				✓
Dual	600	50	2.6	250	0.033			✓	
		70	2.6	250	0.036			✓	

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
FDRP15S60L	600	15 (T_C=98°C)	110	-40 to +150	2.6	250	0.031	1.6	TO-220	2.0
FDRW15S60L	600	15 (T_C=85°C)	110	-40 to +150	2.6	250	0.031	2.0	TO-247(2pin)-P2	4.9
FDRP25S60L	600	25 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	1.2	TO-220	2.0
FDRW25S60L	600	25 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	1.2	TO-247(2pin)-P2	4.9
FDRW35S60L	600	35 (T_C=91°C)	140	-40 to +150	2.6	250	0.036	0.8	TO-247(2pin)-P2	4.9
FDRW75T60L	600	75 (T_C=49°C)	300	-40 to +150	2.95	250	0.060	0.57	TO-247-2L-P2	4.9
FDRW60T65L	650	60 (T_C=50°C)	250	-40 to +150	3.2	250	0.060	0.68	TO-247-2L-P2	4.9

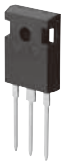
( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms 1shot *3: I_F=I_O
*4: V_R=V_{RRM} *5: V_R=30V, I_F=0.1 I_O, -di/dt=200A/us

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O *1	I_{FSM} *2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
FDRW50C60L	600	50 (T_C=86°C)	125	-40 to +150	2.6	250	0.033	0.6	TO-247-P2	4.9
FDRW70C60L	600	70 (T_C=91°C)	140	-40 to +150	2.6	250	0.036	0.4	TO-247-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2, Output Current of center tap full wave connection
*2: Sine wave, 10ms 1shot, Rating per element *3: I_F=0.5 I_O, Rating per element
*4: V_R=V_{RRM}, Rating per element
*5: V_R=30V, I_F=0.05 I_O, -di/dt=200A/us, Rating per element

Soft Recovery Fast Recovery Diodes

Soft Recovery Fast Recovery Diodes						TO-247(2pin)-P2	TO-247-P2
							
Chip	V_{RRM} (V)	I_O (A)	V_F (V)	I_R(μA)	t_{rr} (μsec)		
Single	1200	12	2.8	250	0.042	✓	
		20	2.8	250	0.055	✓	
		30	2.8	250	0.063	✓	
Dual	1200	40	2.8	250	0.055		✓
		60	2.8	250	0.063		✓

1 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O*1	I_{FSM}*2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
FDRW12S120J	1200	12 (T_C=97°C)	100	-40 to +150	2.8	250	0.042	1.6	TO-247(2pin)-P2	4.9
FDRW20S120J	1200	20 (T_C=88°C)	120	-40 to +150	2.8	250	0.055	1.2	TO-247(2pin)-P2	4.9
FDRW30S120J	1200	30 (T_C=89°C)	150	-40 to +150	2.8	250	0.063	0.781	TO-247(2pin)-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2
*2: Sine wave, 10ms 1shot *3: I_F=I_O
*4: V_R=V_{RRM} *5: V_R=30V, I_F=0.1 I_O, -di/dt=200A/us

2 in one-package

Device type	Maximum rating			Thermal rating	Characteristics (T_a=25°C)				Package	Net mass
	V_{RRM}	I_O*1	I_{FSM}*2	T_{vj} and T_{stg}	V_{FM} *3	I_{RRM} *4	t_{rr} *5	$R_{th\ (j\text{-}c)}$		
	Volts	Amps.	Amps.	°C	max. Volts	max. μA	μsec.	°C/W		Grams
FDRW40C120J	1200	40 (T_C=98°C)	120	-40 to +150	2.8	250	0.055	0.5	TO-247-P2	4.9
FDRW60C120J	1200	60 (T_C=87°C)	150	-40 to +150	2.8	250	0.063	0.397	TO-247-P2	4.9

( ) Conditions
*1: 50Hz Square wave duty=1/2, Output Current of center tap full wave connection
*2: Sine wave, 10ms 1shot, Rating per element *3: I_F=0.5 I_O, Rating per element
*4: V_R=V_{RRM}, Rating per element
*5: V_R=30V, I_F=0.05 I_O, -di/dt=200A/us, Rating per element

Pressure Sensors

Fuji Electric's pressure sensors combine piezo resistance, compensation circuits, and EMC protection on single chip and contribute to reduction of system size. They operate in wide pressure range and are applicable to various uses.

Features of Pressure Sensors

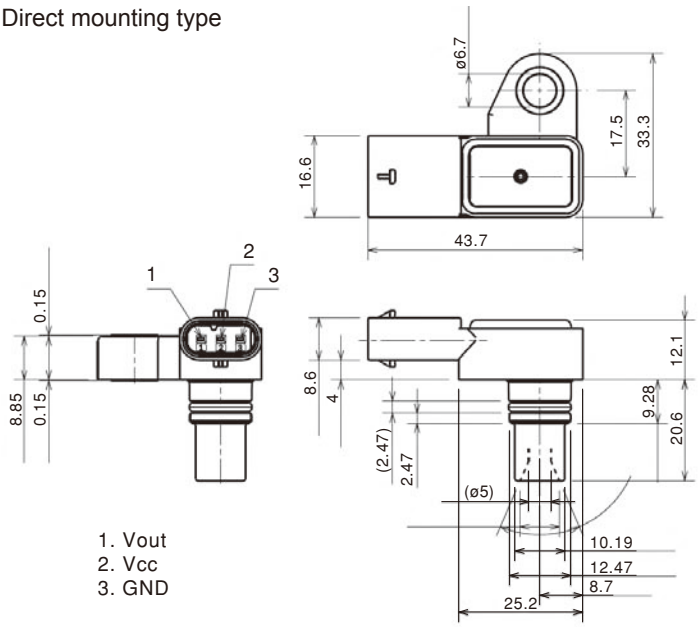
- Absolute pressure measurement
- High accuracy with digital trimming
- Wide pressure range, full scale of 100kPa to 300kPa
- Provided with overvoltage protection circuit, EMC filter, and surge protective device in the sensor chip
- Surge protection conforms to ISO7637-level 3 (2011) for automotive components
- Diagnostic self-detecting function in the event of a wire opened among Vcc, Vout and GND terminals
- High reliability ensured by EPROM bit redundancy

■ Products

Device type	Max. applied voltage (kPa.abs)	Allowable voltage (V)	Operating temperature (°C)	Operating pressure (kPa.abs)	Operating voltage (V)	Output Voltage range (V)	Absolute pressure/ Relative pressure	Package
EPL4PC-R3S	500	7	-40 to 125	20 to 106.7	5.0±0.25	0.789 to 4.211	Absolute pressure	Assembly type
EPL6GC-R3S	500	7	-40 to 125	25 to 242	5.0±0.25	0.5 to 4.5	Absolute pressure	Assembly type

■ Dimensions, mm

Direct mounting type



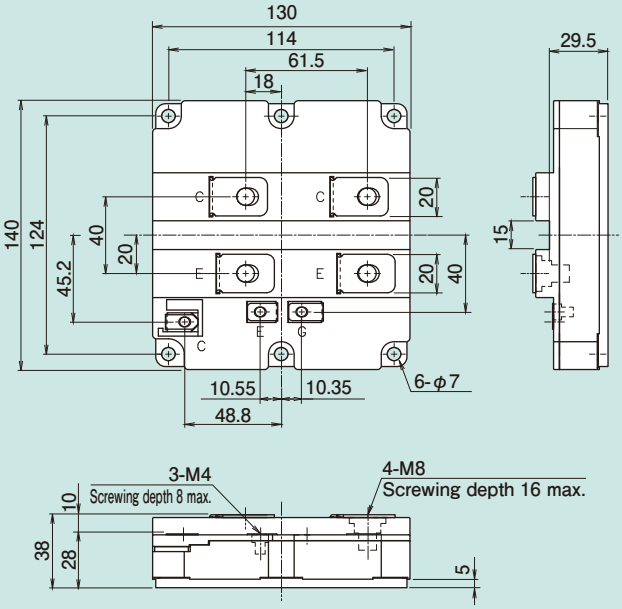
1. Vout
2. Vcc
3. GND

Outline

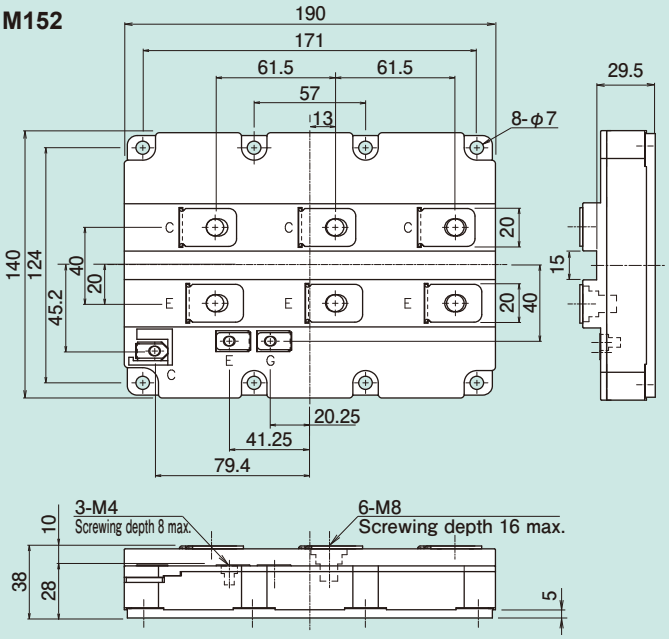
<Power devices>

Unit: mm

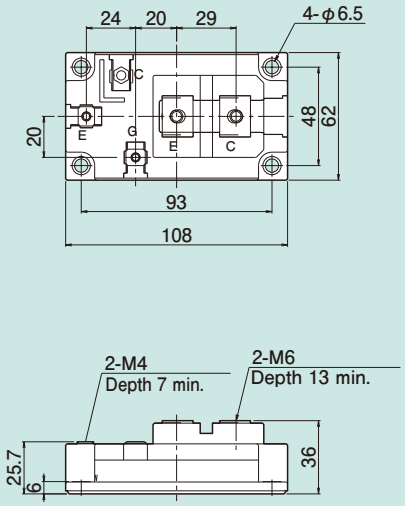
M151



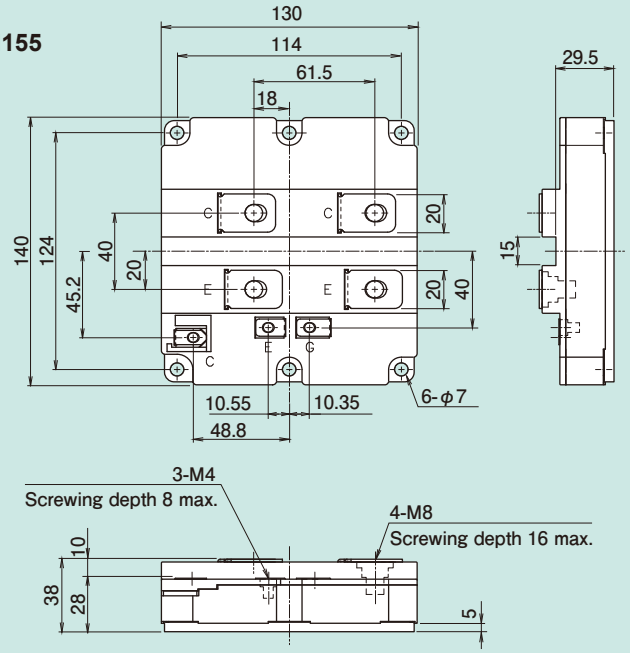
M152



M153

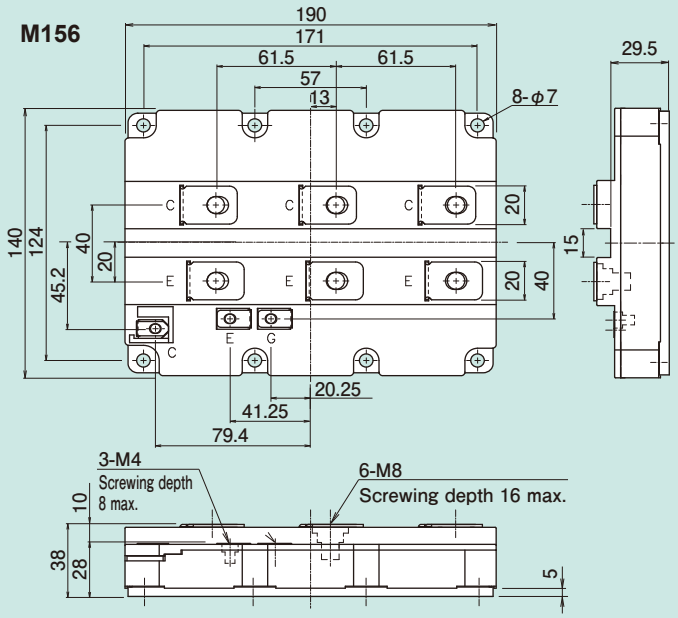


M155

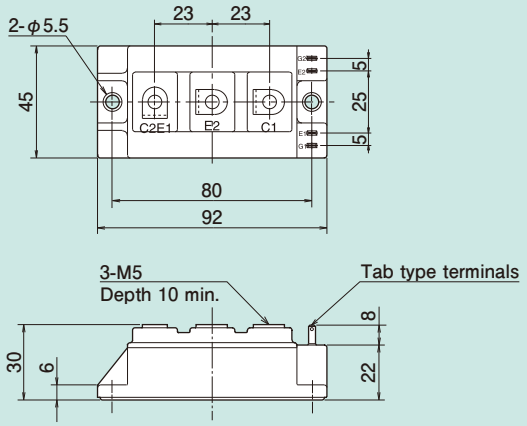


Unit: mm

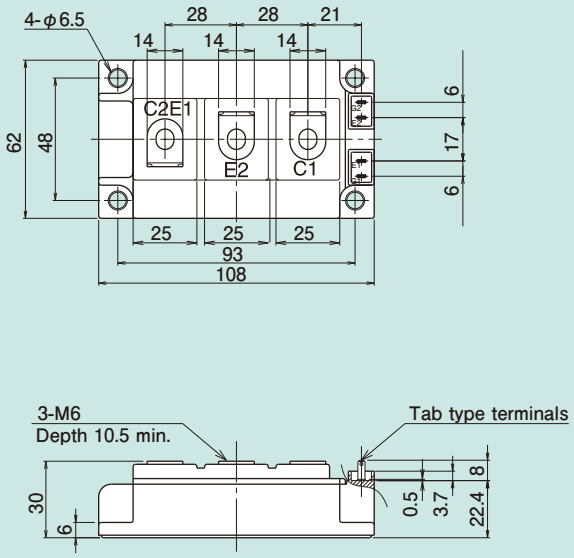
M156



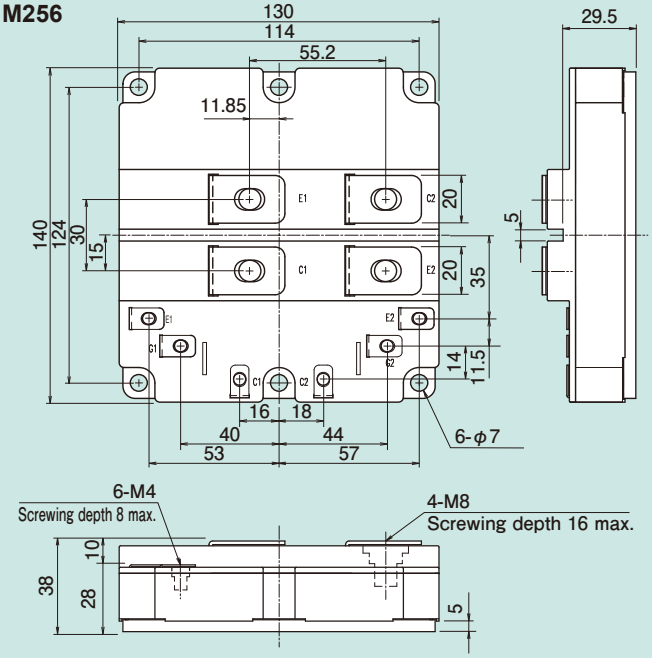
M233



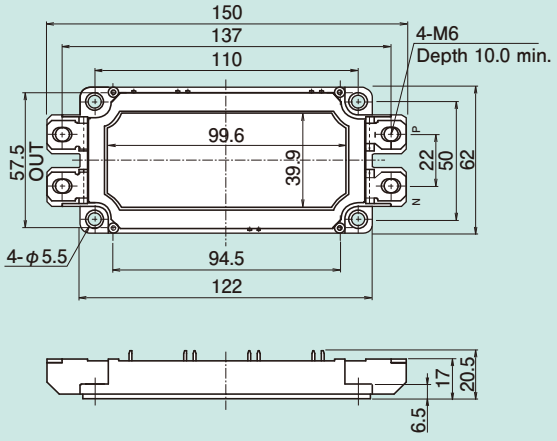
M249



M256



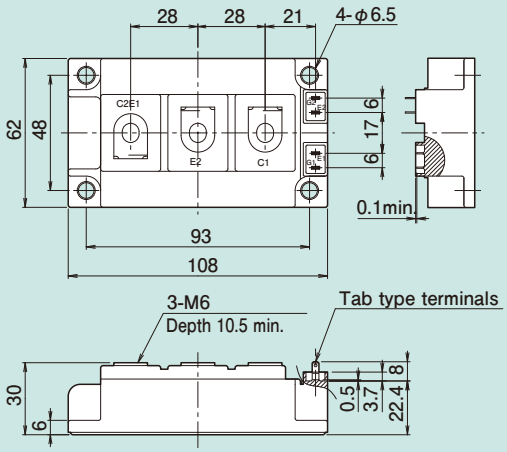
M254



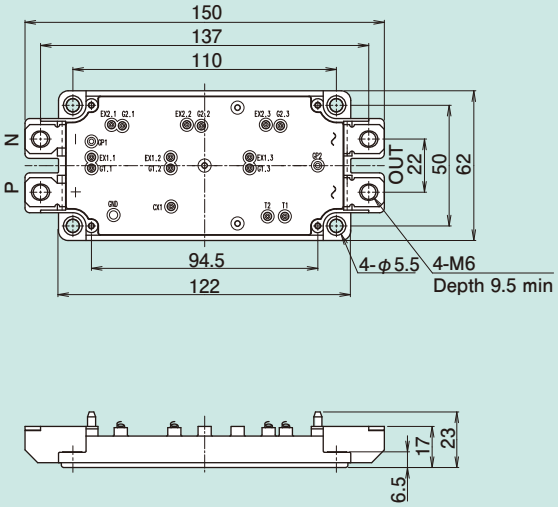
Outline

Unit: mm

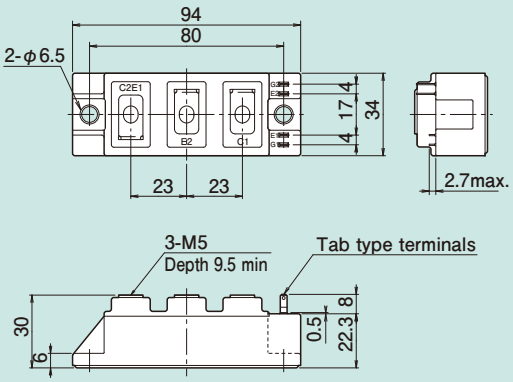
M259



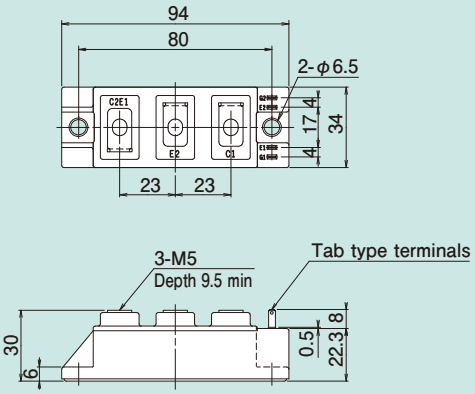
M260



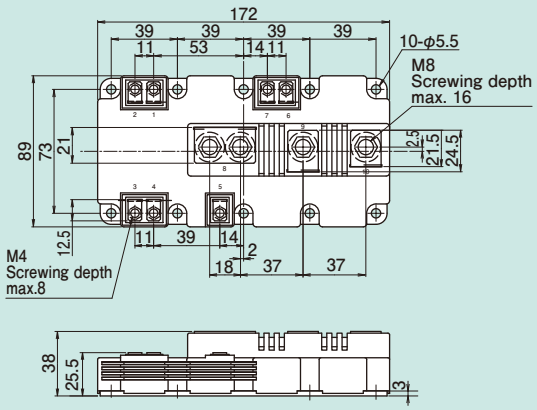
M262



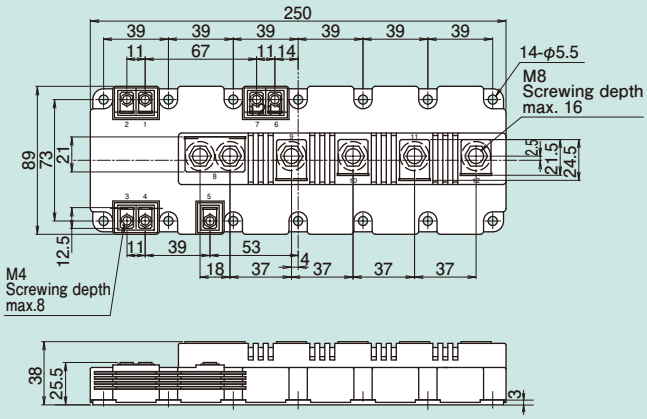
M263



M271

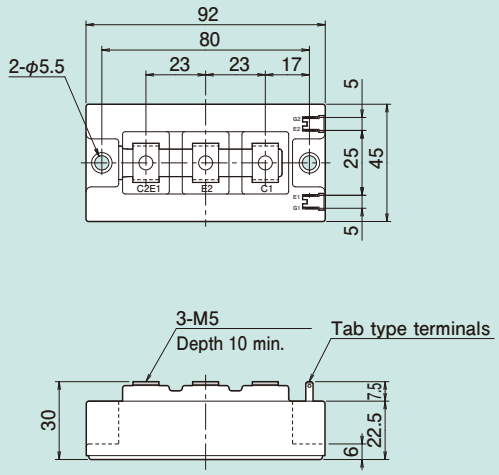


M272

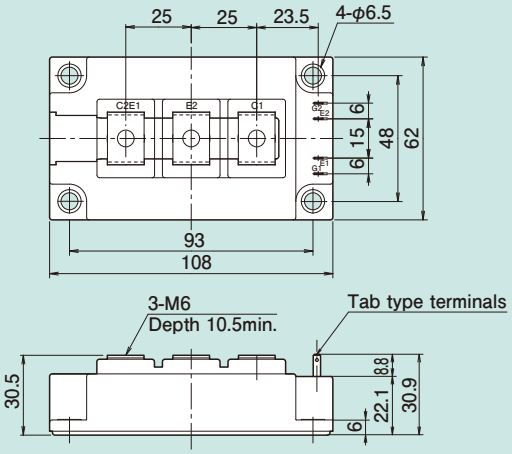


Unit: mm

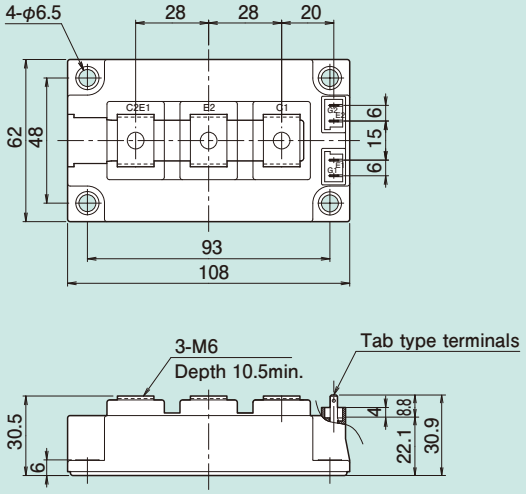
M274



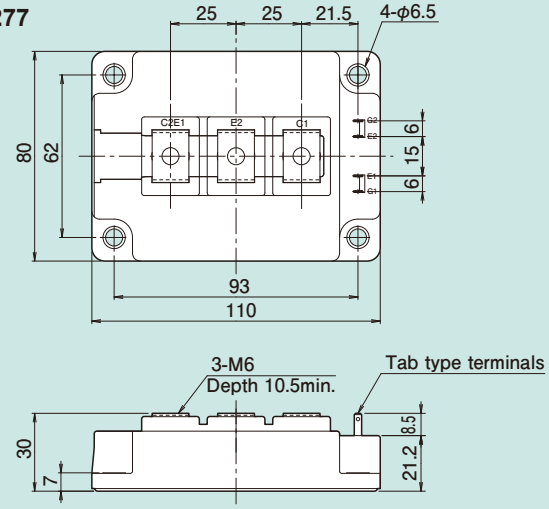
M275



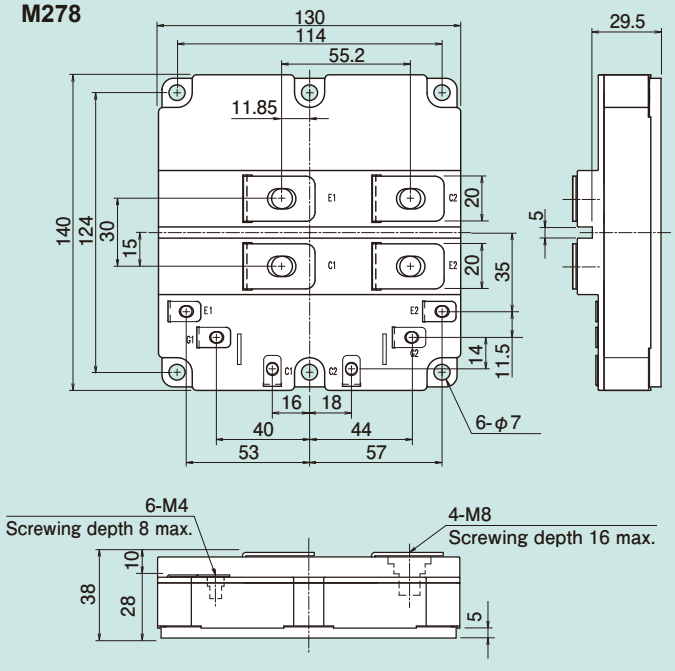
M276



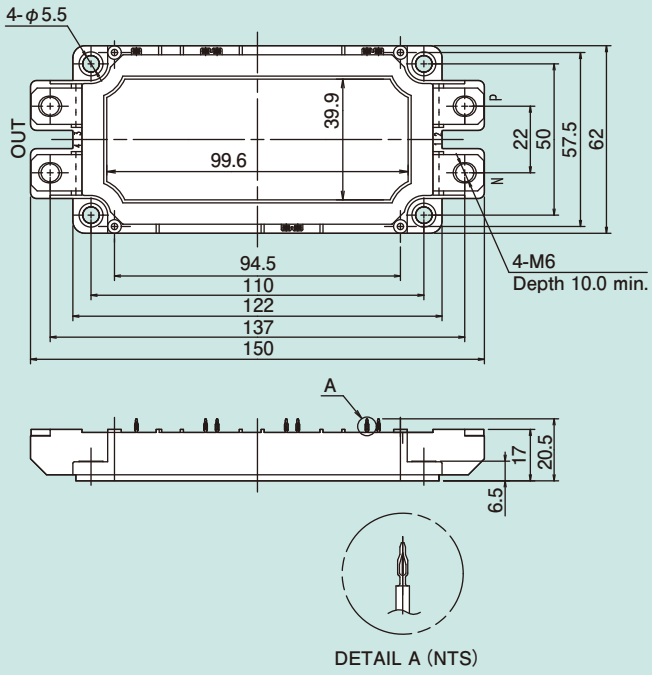
M277



M278



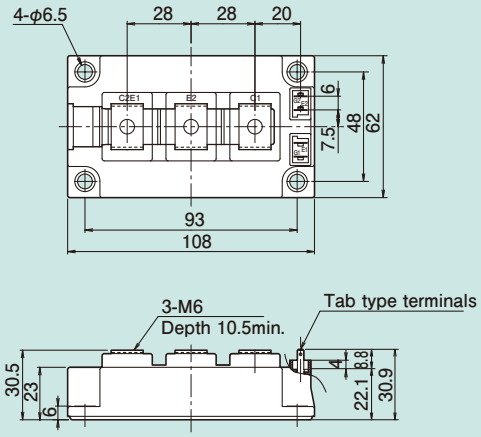
M282



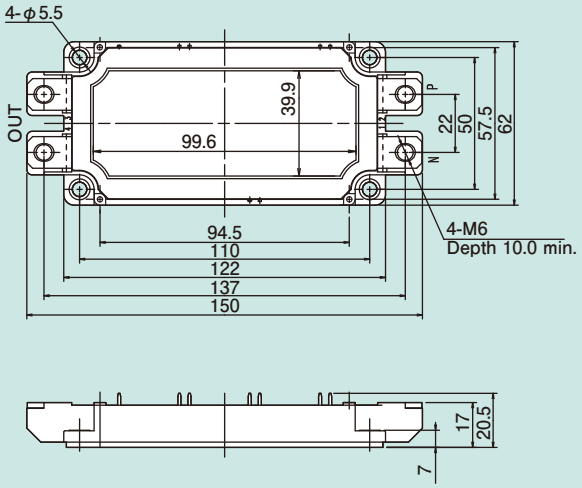
Outline

Unit: mm

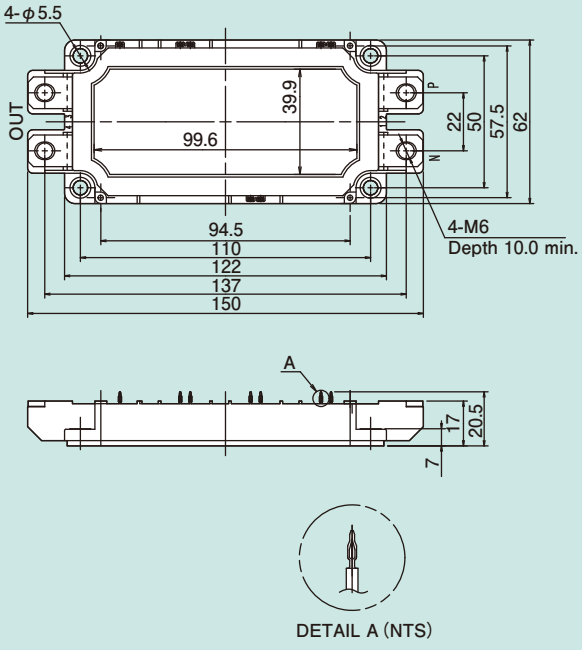
M283



M285



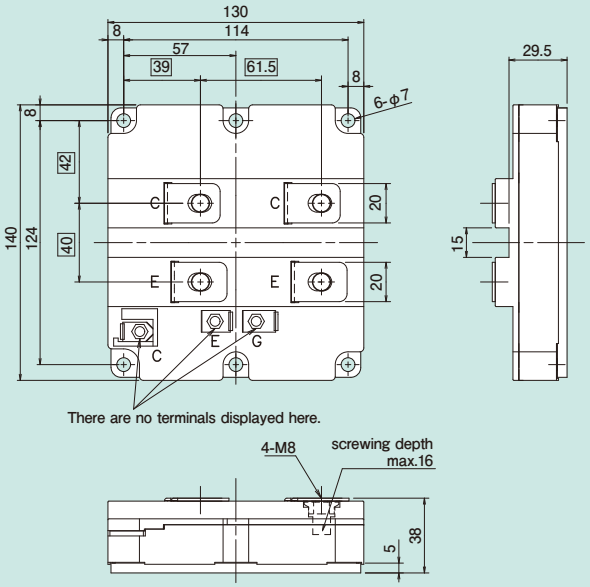
M286



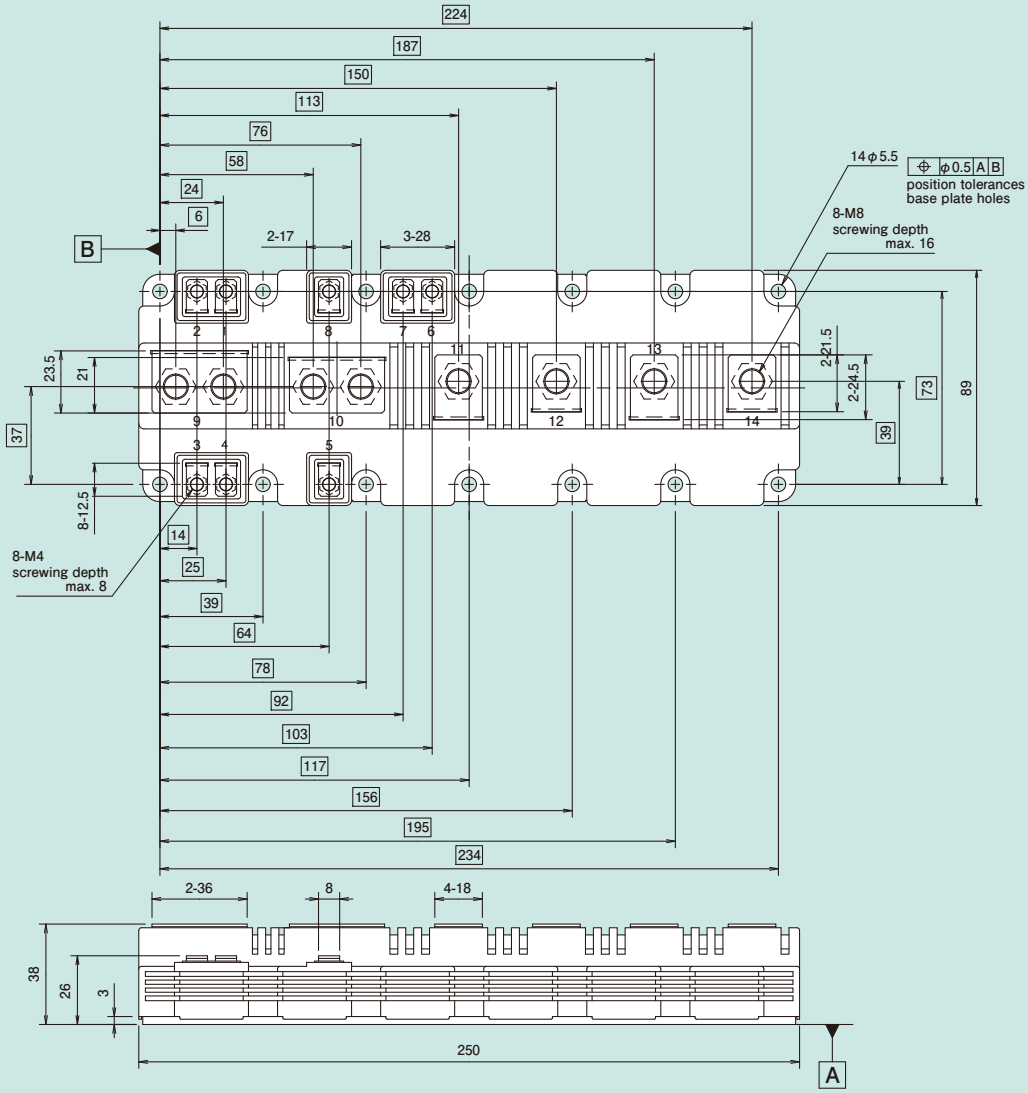
DETAIL A (NTS)

Unit: mm

M289



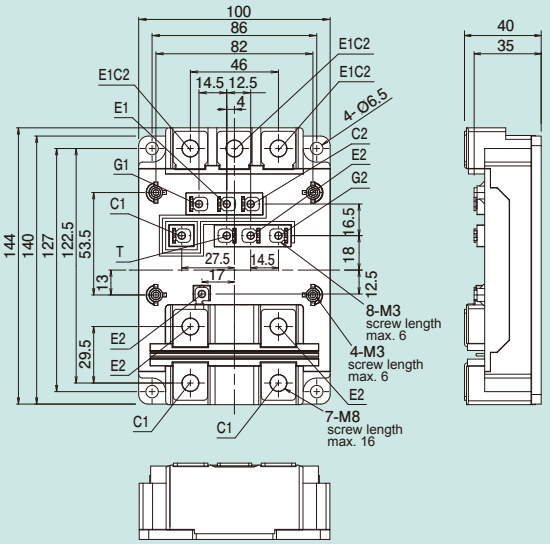
M291



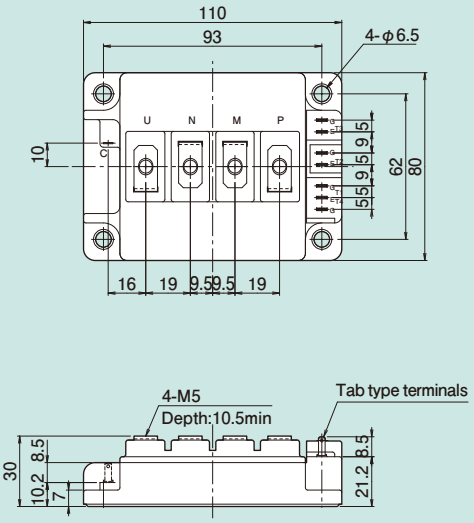
Outline

Unit: mm

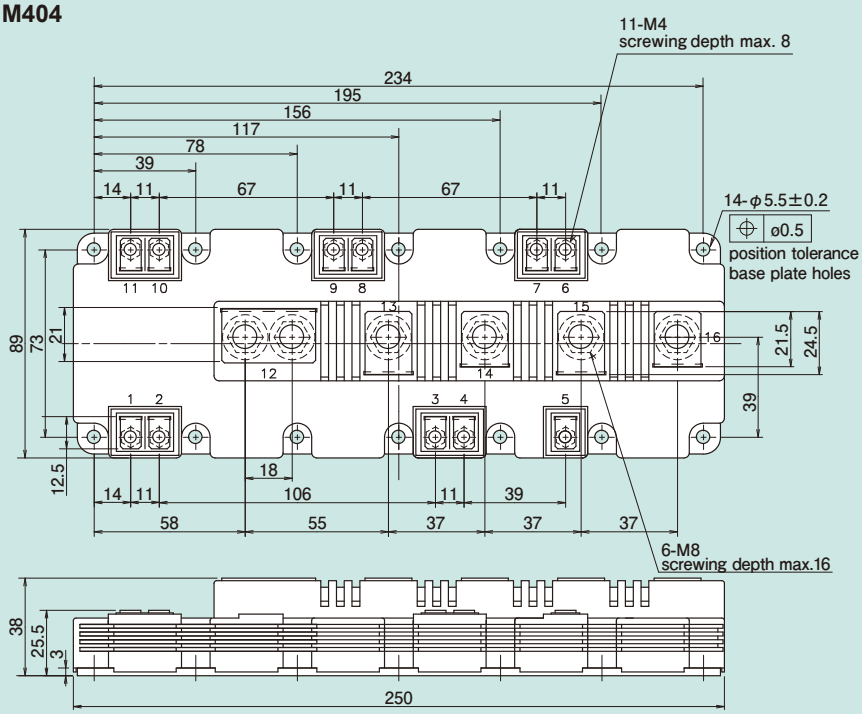
M292



M403

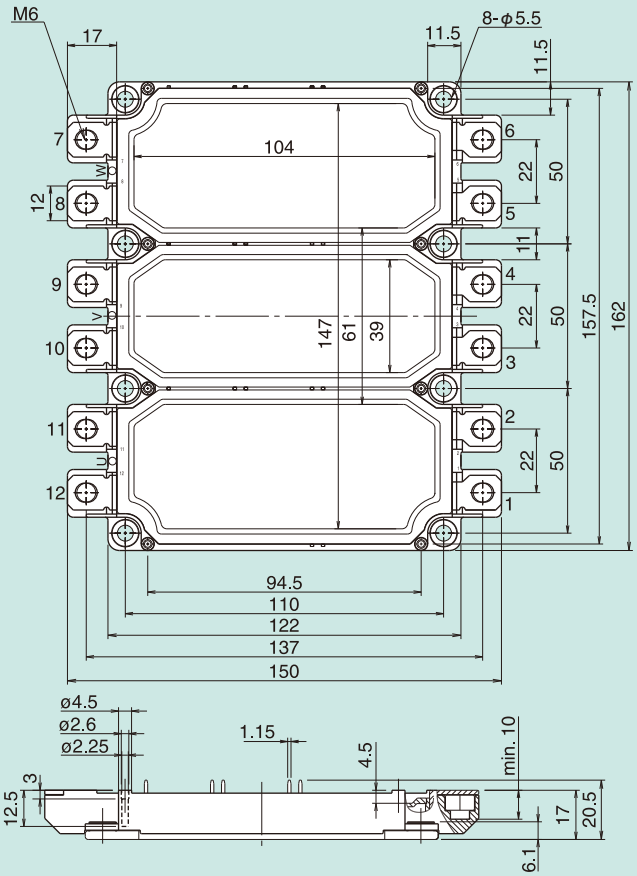


M404

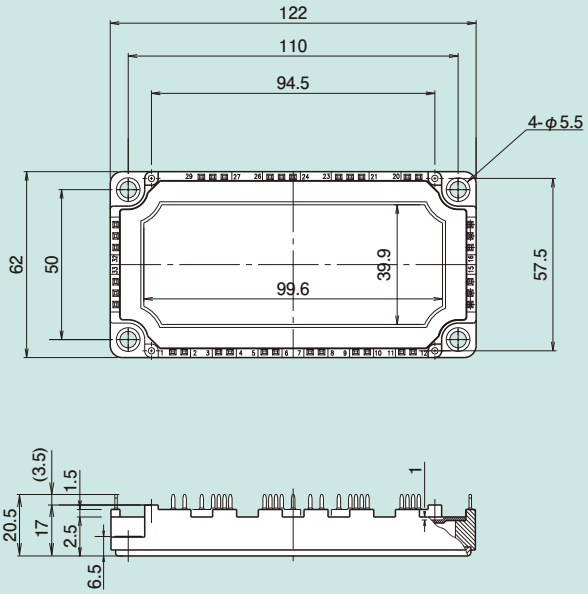


Unit: mm

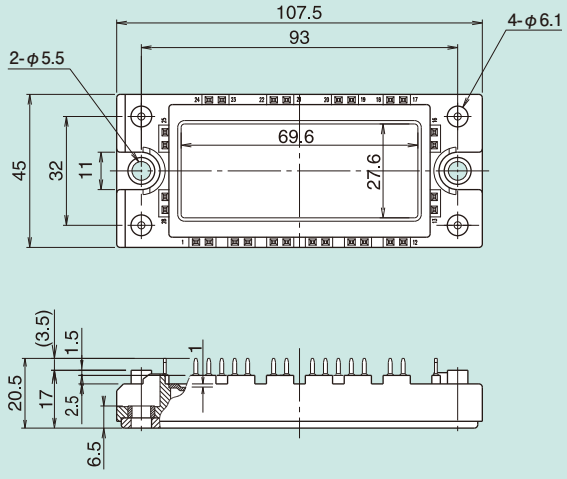
M629



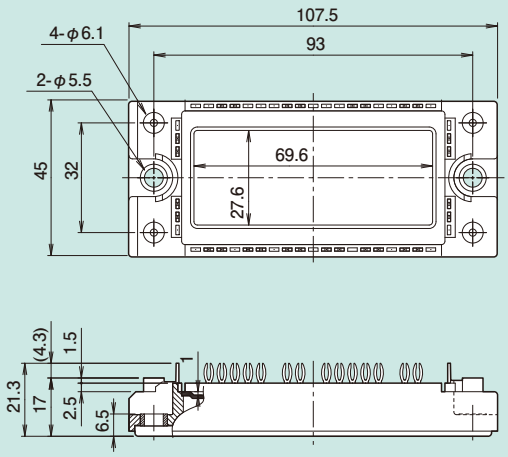
M633



M636



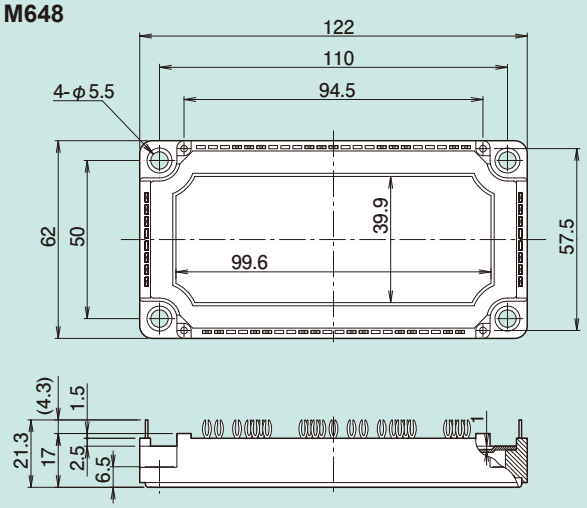
M647



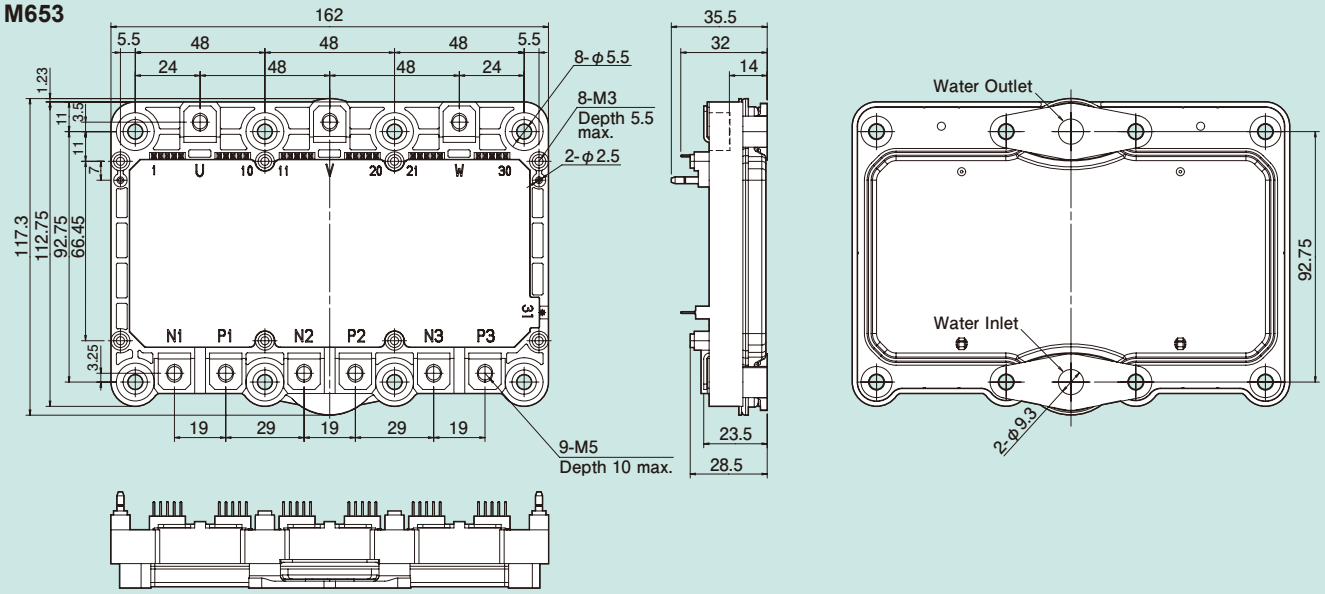
Outline

Unit: mm

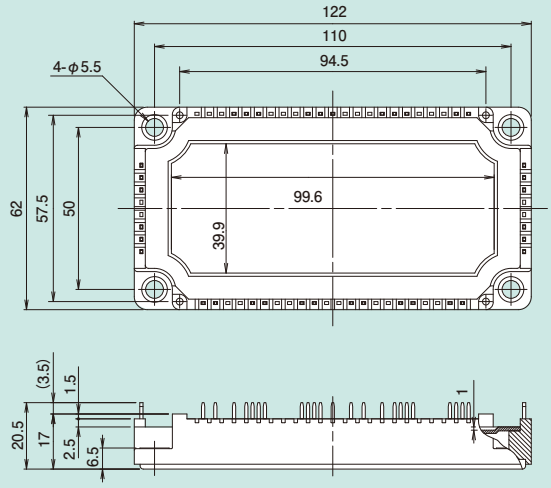
M648



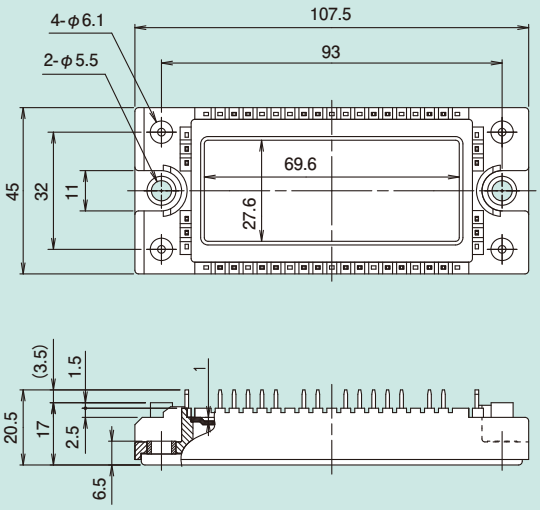
M653



M668

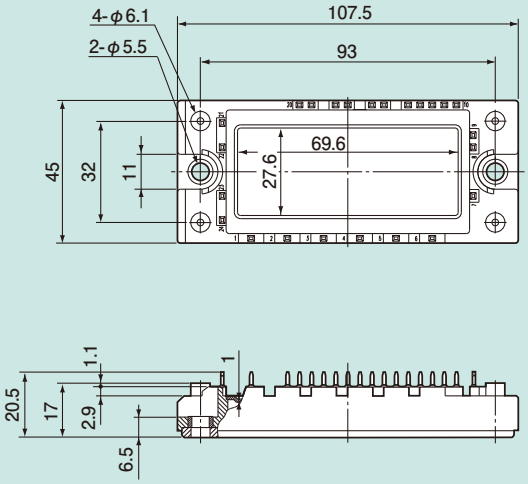


M669

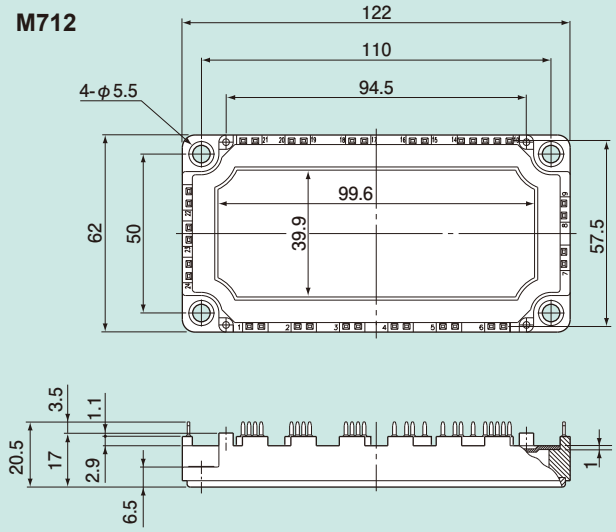


Unit: mm

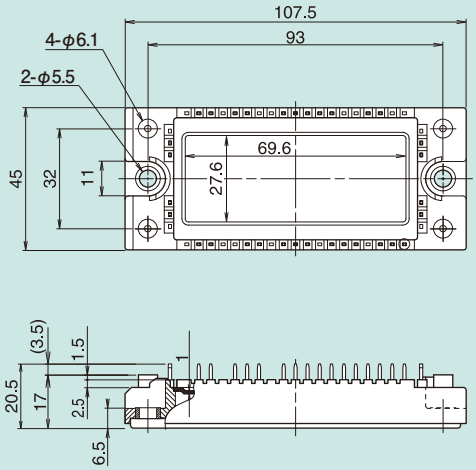
M711



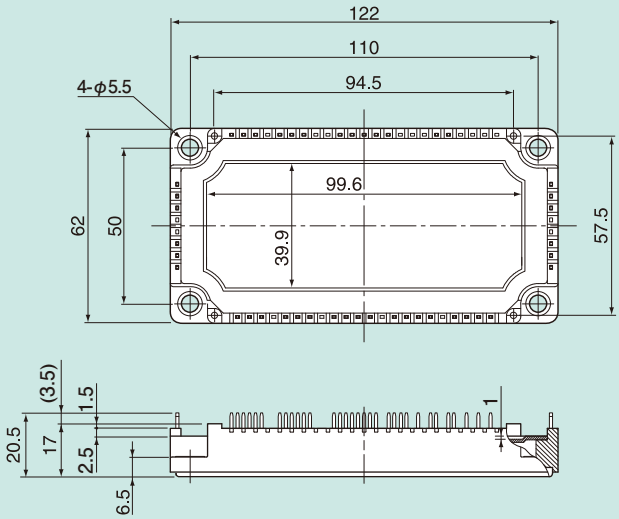
M712



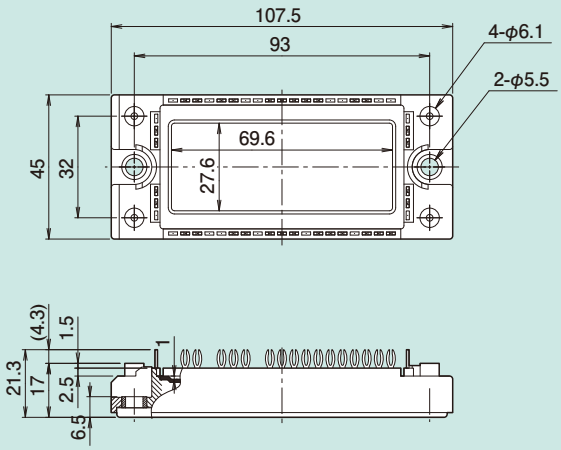
M719



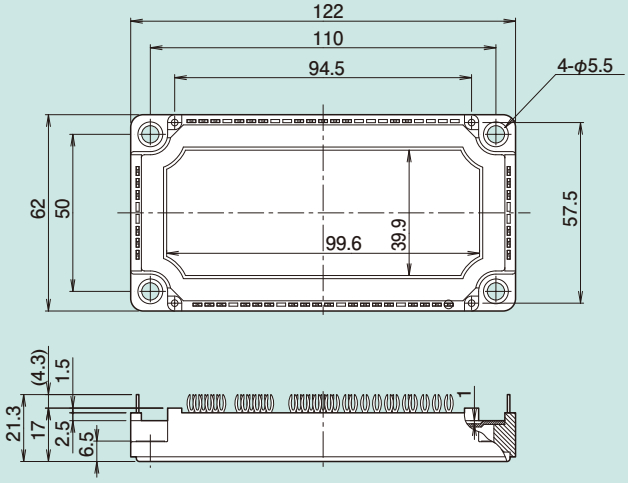
M720



M721



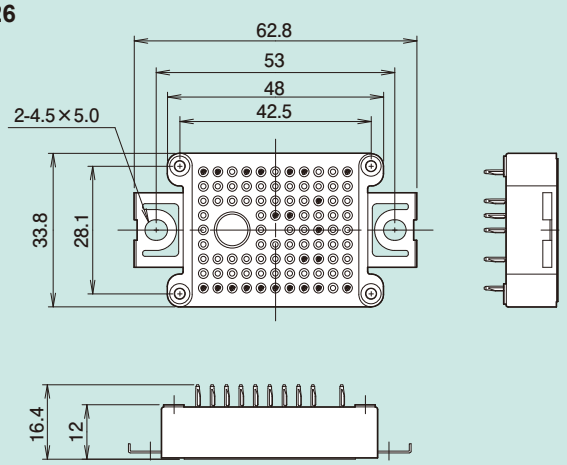
M722



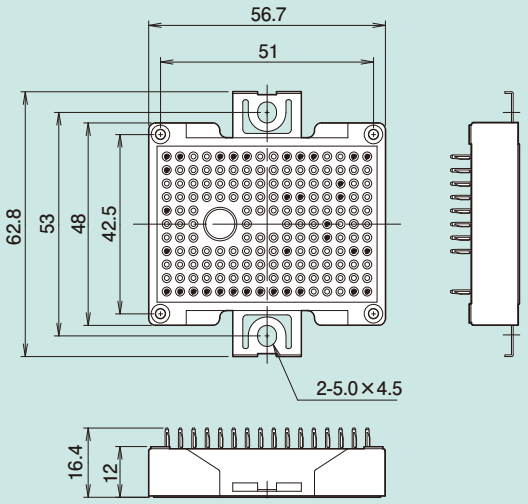
Outline

Unit: mm

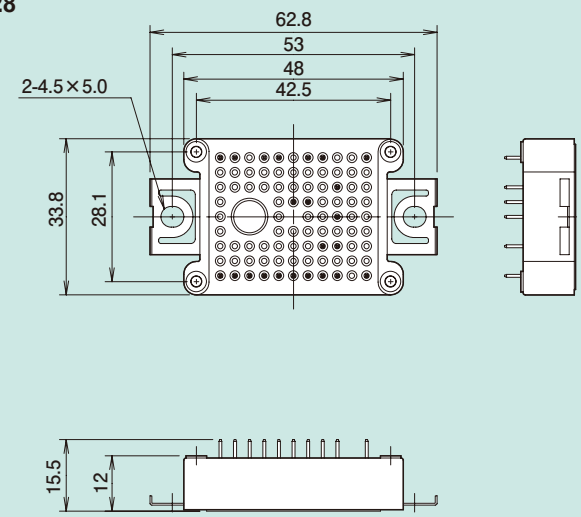
M726



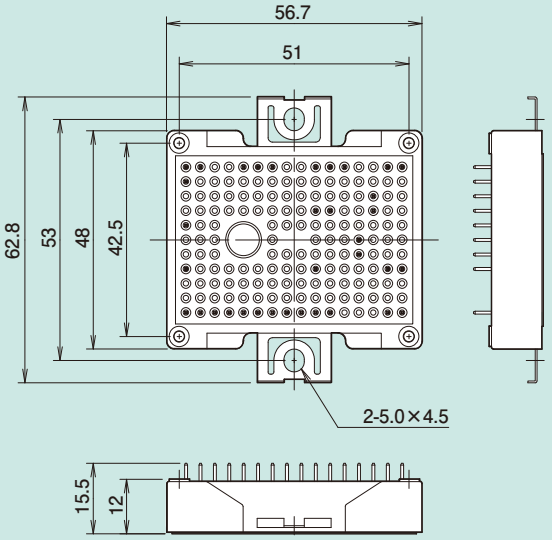
M727



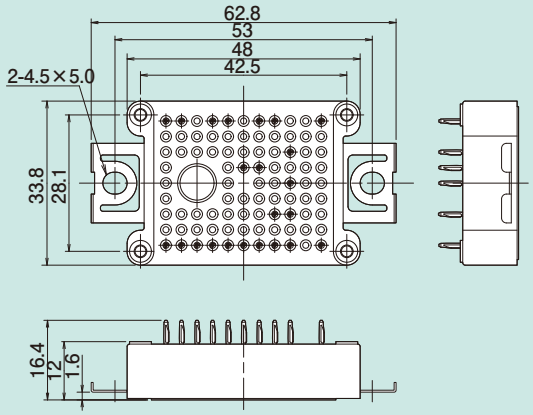
M728



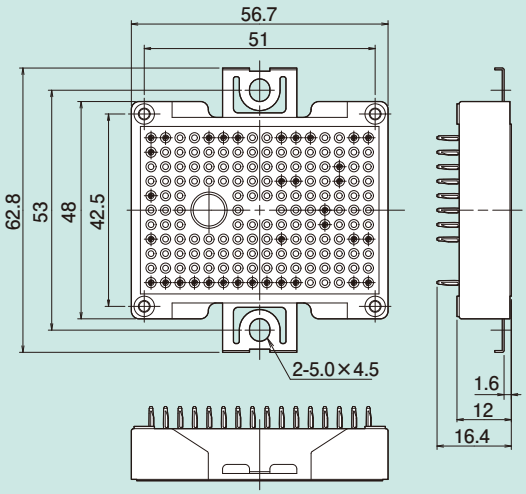
M729



M730

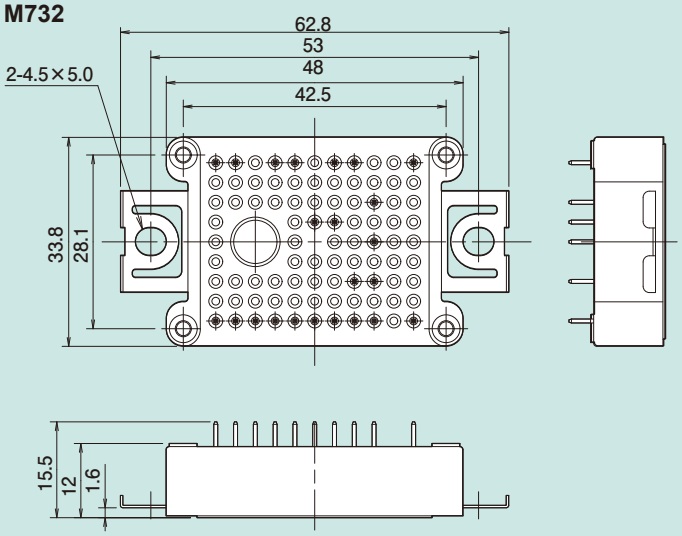


M731

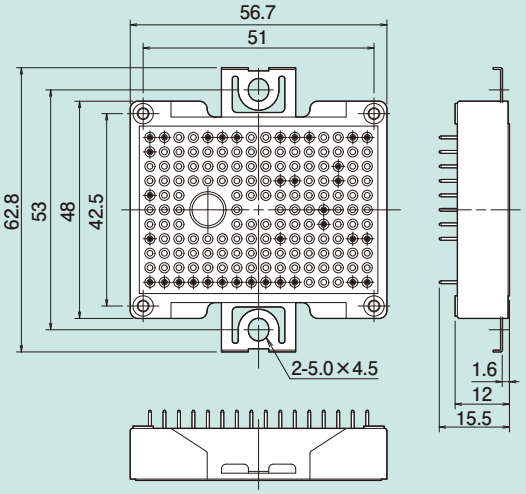


Unit: mm

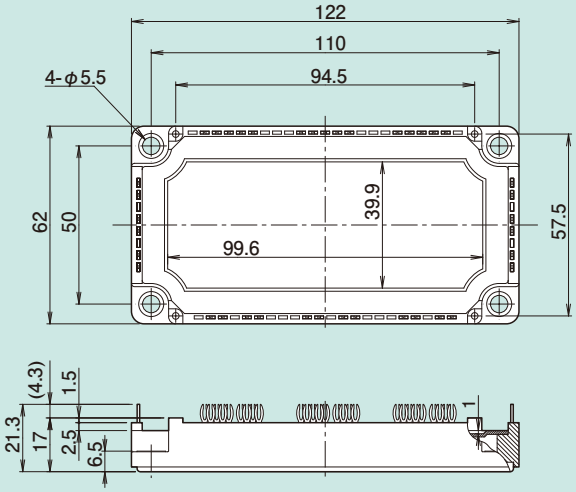
M732



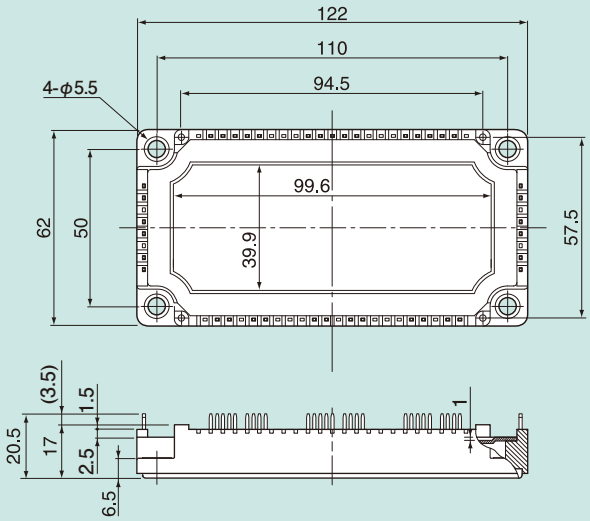
M733



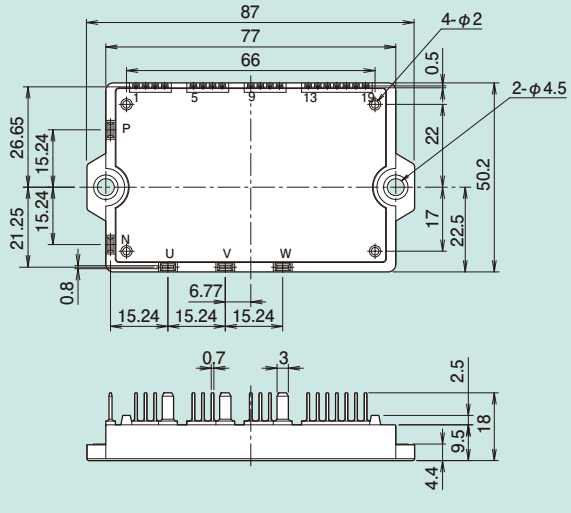
M1202



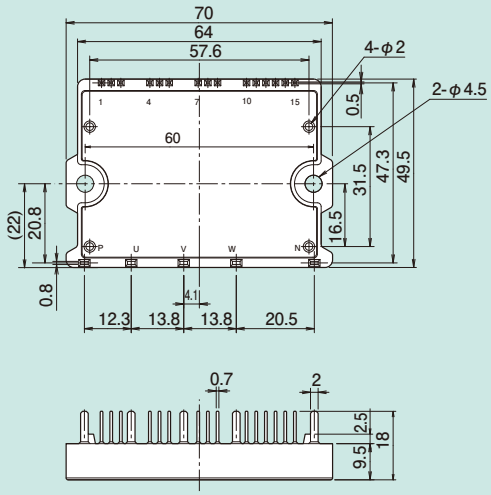
M1203



P626



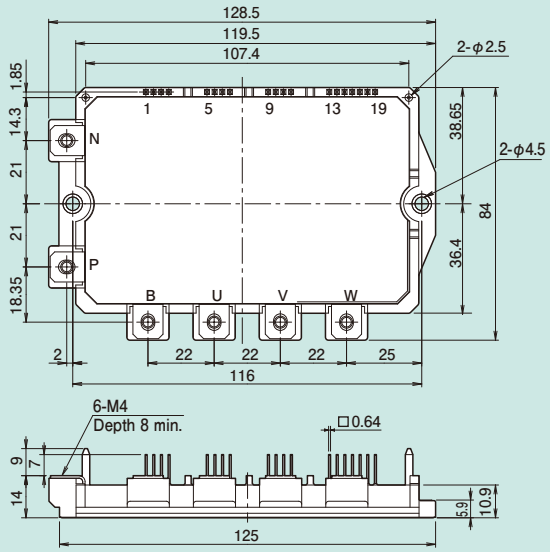
P629



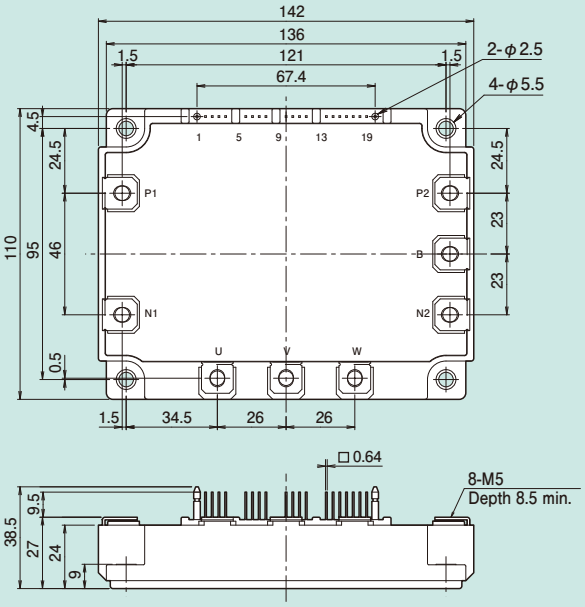
Outline

Unit: mm

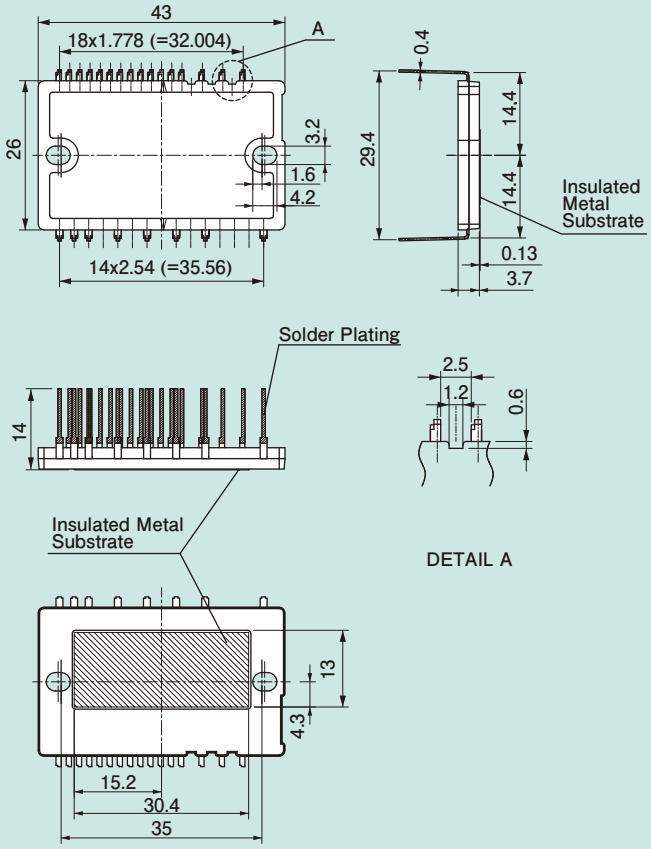
P630



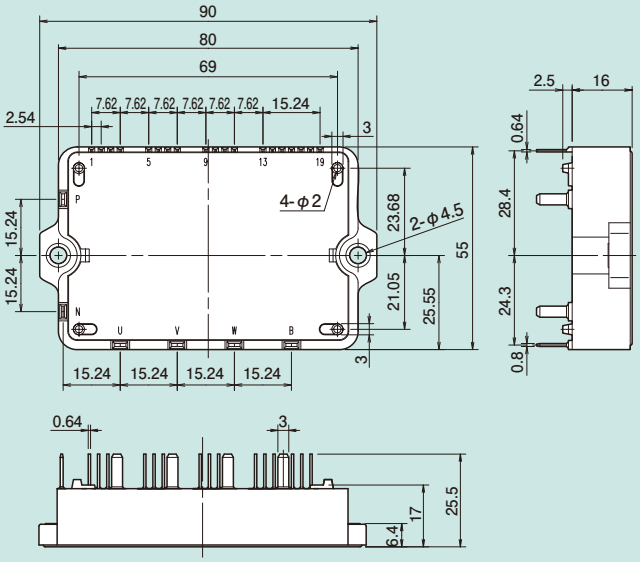
P631



P633A

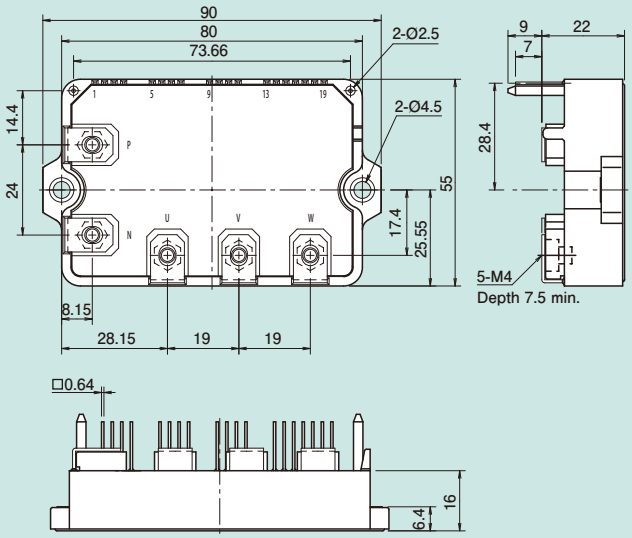


P636

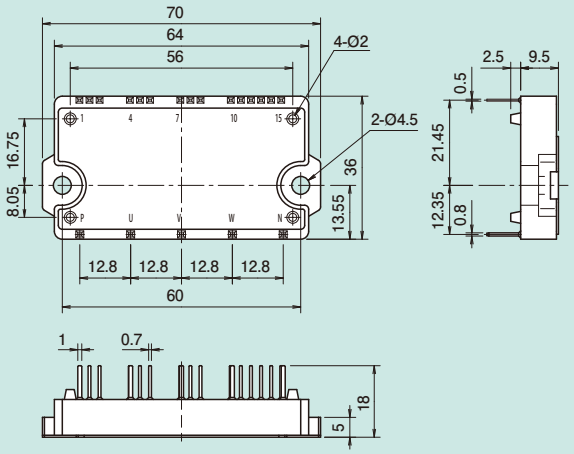


Unit: mm

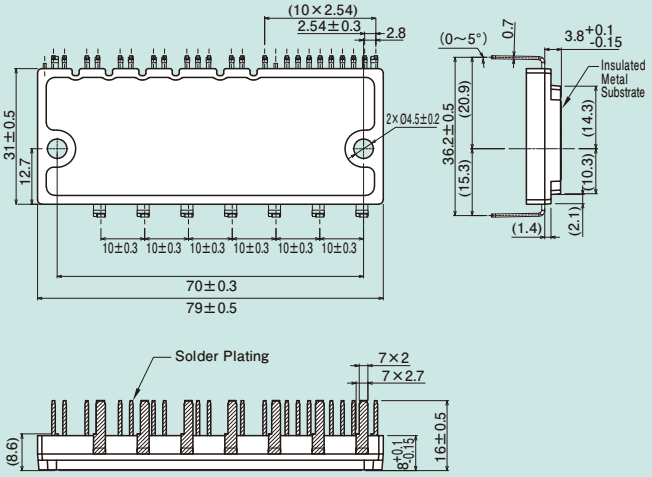
P638



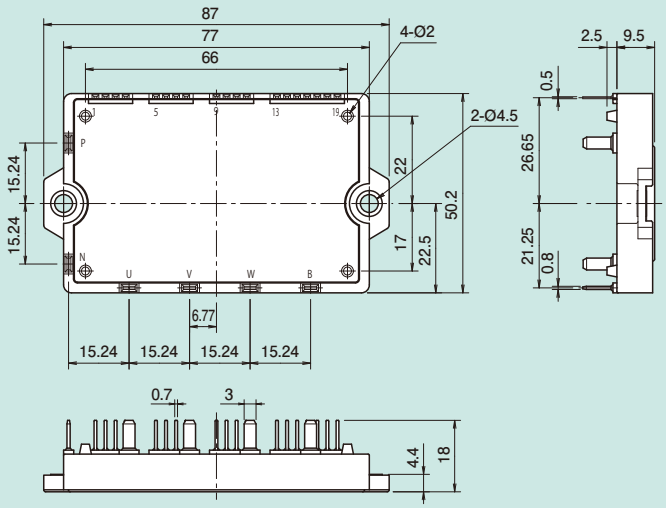
P639



P642



P644

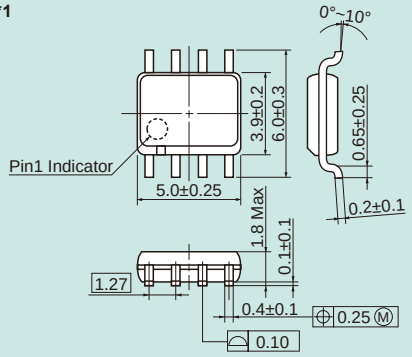


Outline

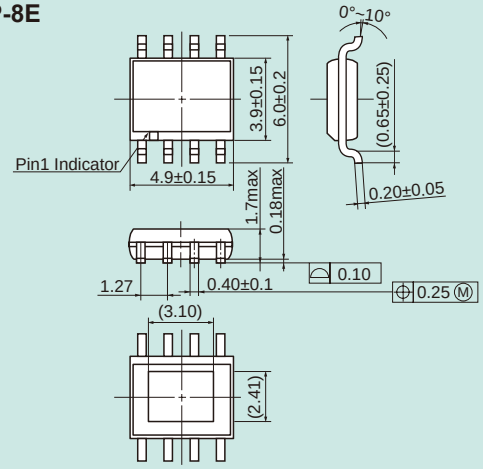
<Integrated circuits>

Unit: mm

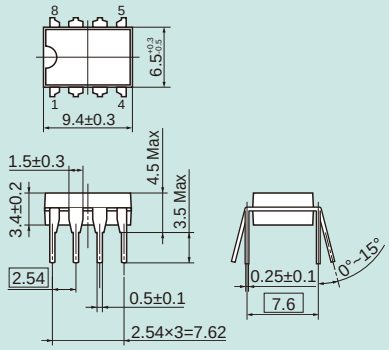
SOP-8*1



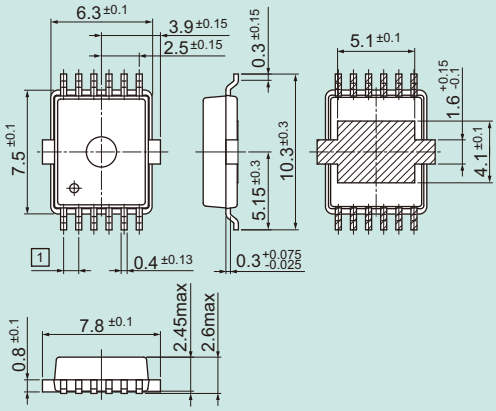
SOP-8E



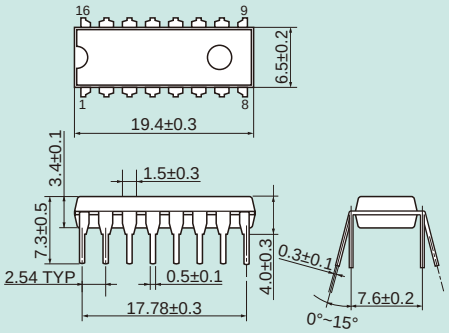
DIP-8



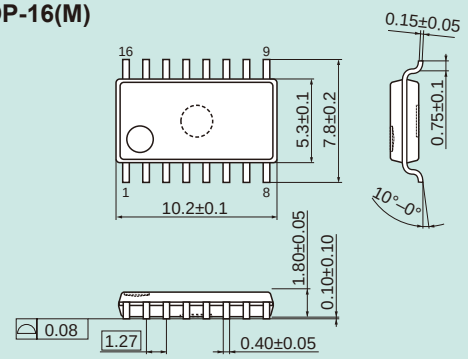
PSOP-12



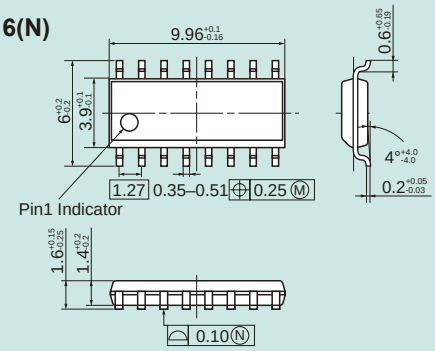
DIP-16



SOP-16(M)



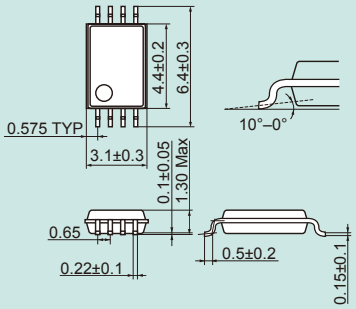
SOP-16(N)



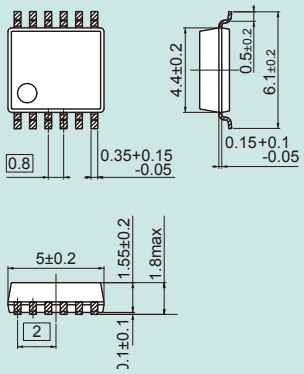
*1) This is the package size for the representative device type (FA8AxxN). For other ICs, please refer to the separate application note (specifications).

Unit: mm

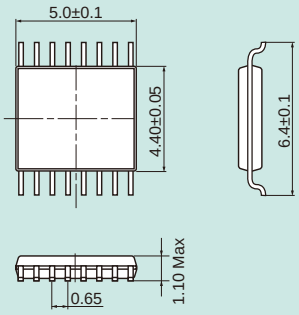
TSSOP-8



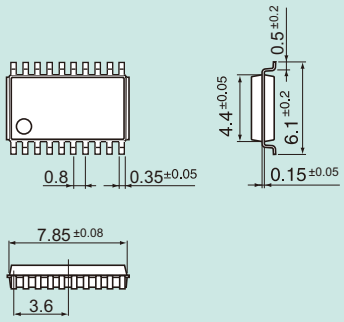
SSOP-12



TSSOP-16



SSOP-20

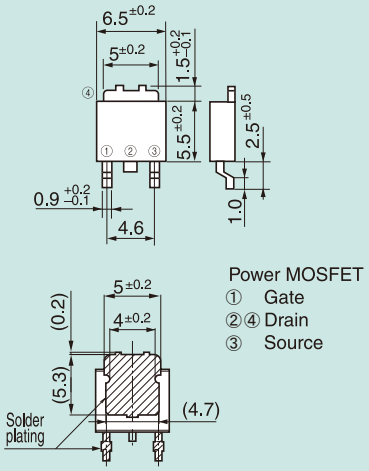


Outline

<Discrete devices>

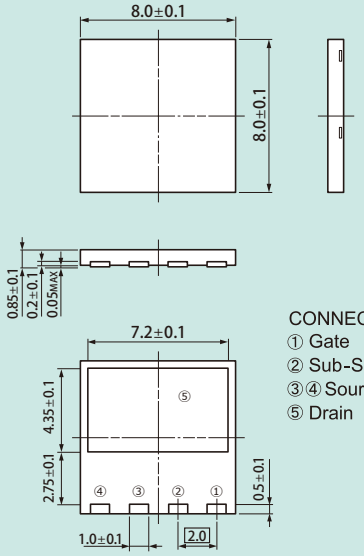
Unit: mm

K-pack(S)



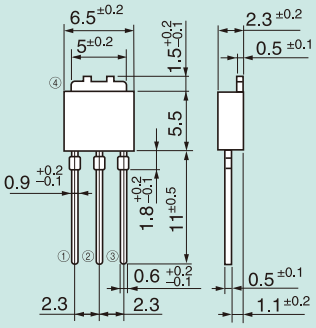
Power MOSFET
① Gate
②④ Drain
③ Source

DFN8x8



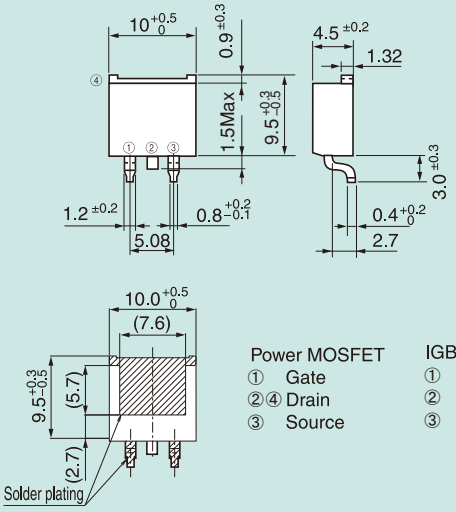
CONNECTION
① Gate
② Sub-Source for Gate Drive
③④ Source
⑤ Drain

K-pack(L)/I-pack: Power MOSFET
K-pack(P)/I-pack: Diode



Power MOSFET
① Gate
②④ Drain
③ Source

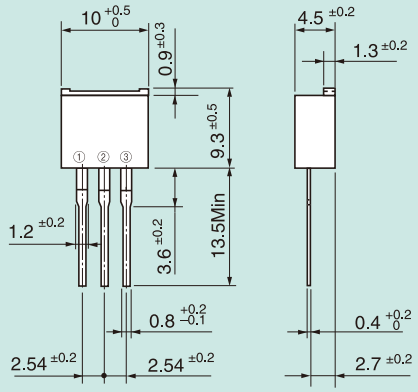
T-pack(S)



Power MOSFET
① Gate
②④ Drain
③ Source

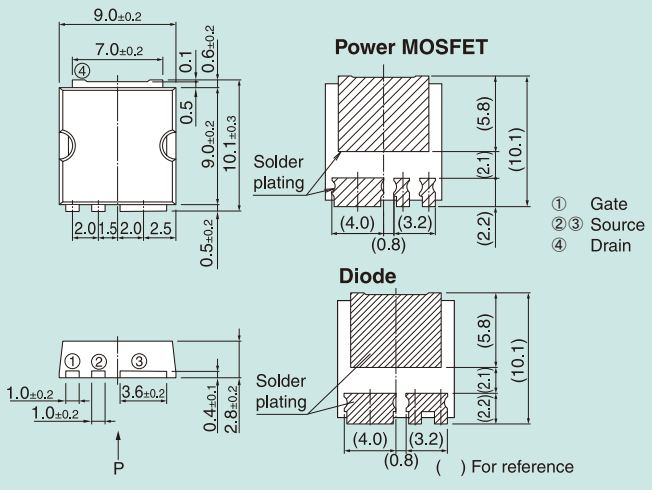
IGBT
① Gate
② Collector
③ Emitter

T-pack(L): Power MOSFET
T-pack(P): Diode



Power MOSFET
① Gate
② Drain
③ Source

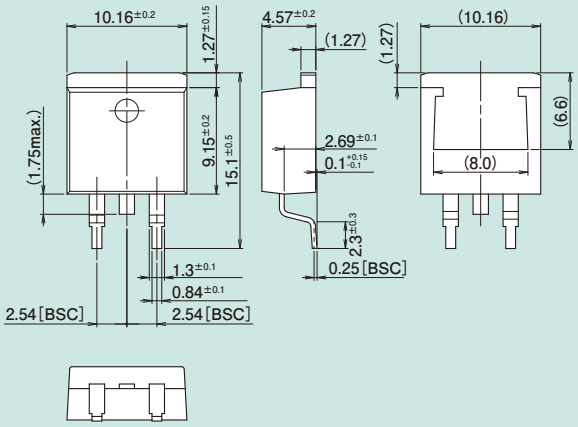
TFP



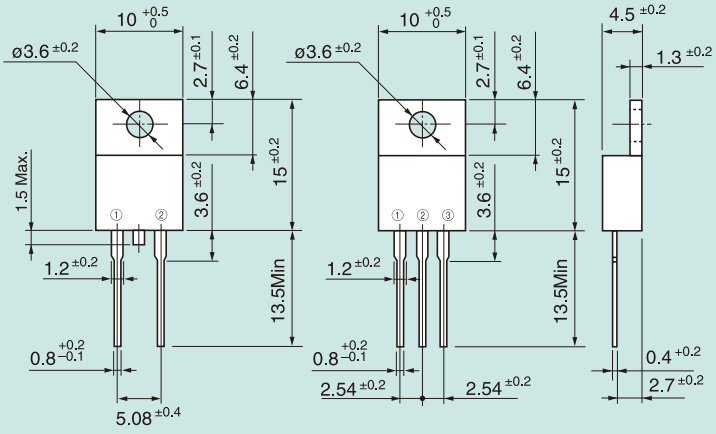
View from P

Unit: mm

D2-Pack



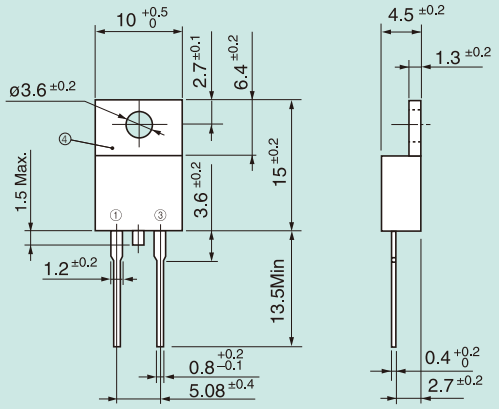
TO-220AB



Power MOSFET
① Gate
② Drain
③ Source

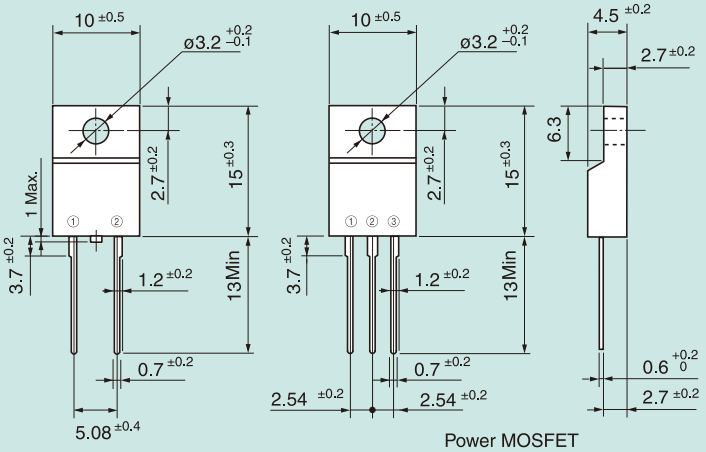
IGBT
① Gate
② Collector
③ Emitter

TO-220-2



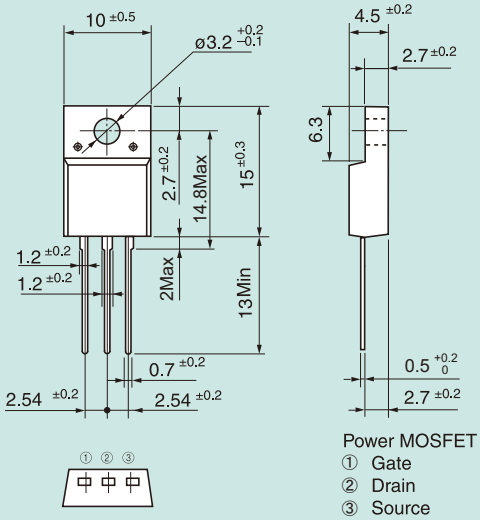
Diode
①④ CATHODE
③ ANODE

TO-220F



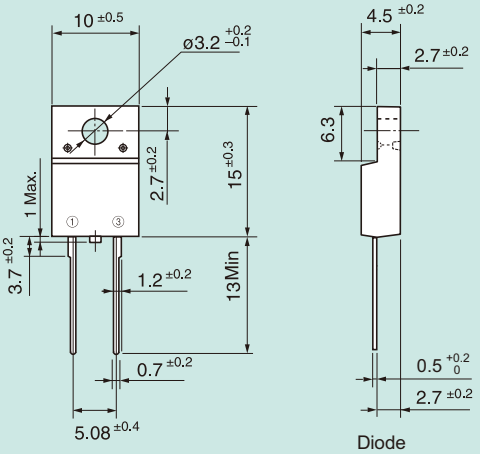
Power MOSFET
① Gate
② Drain
③ Source

TO-220F (SLS)



Power MOSFET
① Gate
② Drain
③ Source

TO-220F-2

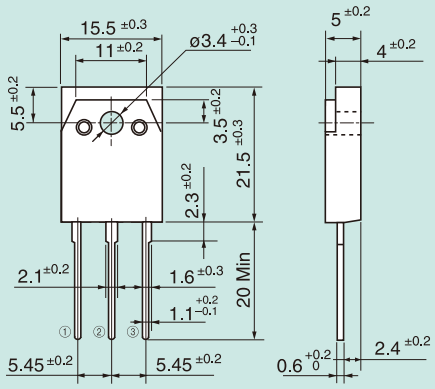


Diode
① CATHODE
③ ANODE

Outline

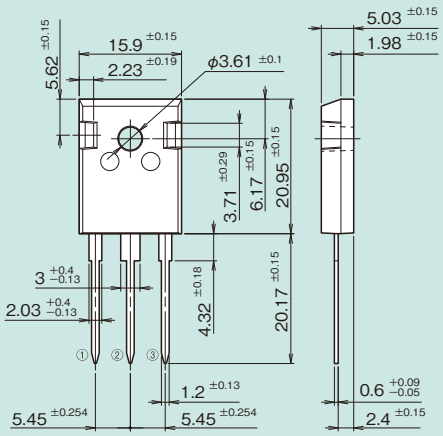
Unit: mm

TO-247



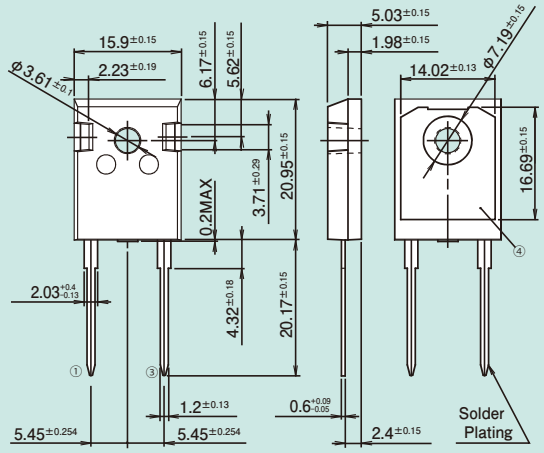
Power MOSFET
① Gate
② Drain
③ Source

TO-247-P/TO-247-P2



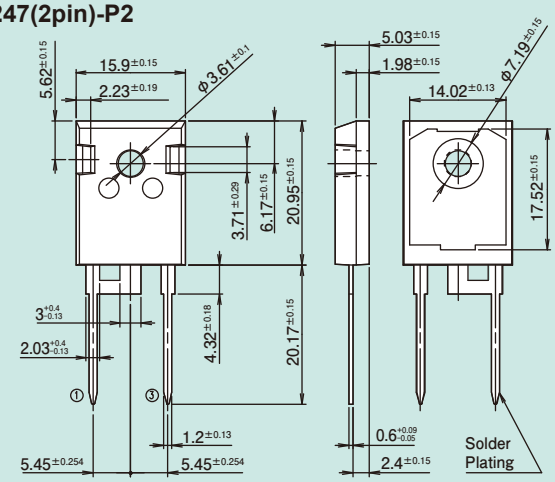
Power MOSFET	IGBT	FWD
① Gate	① Gate	① Anode
② Drain	② Collector	② Cathode
③ Source	③ Emitter	③ Anode

TO-247-2L-P2



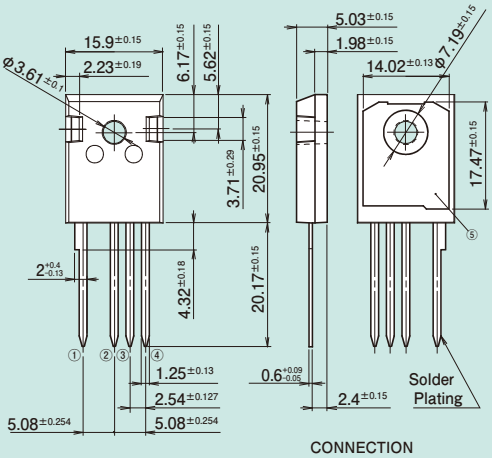
CONNECTION
①,④CATHODE
③ANODE

TO-247(2pin)-P2

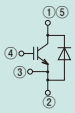


CONNECTION
①CATHODE
③ANODE

TO-247-4-P2

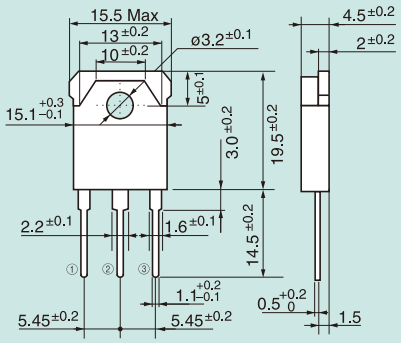


CONNECTION



① COLLECTOR
② EMITTER
③ SUB EMITTER
④ GATE

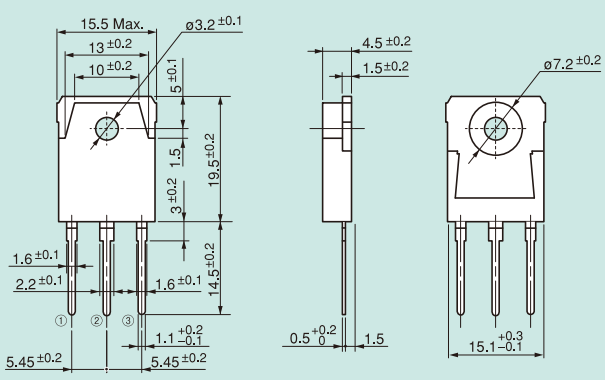
TO-3P



Power MOSFET
① Gate
② Drain
③ Source

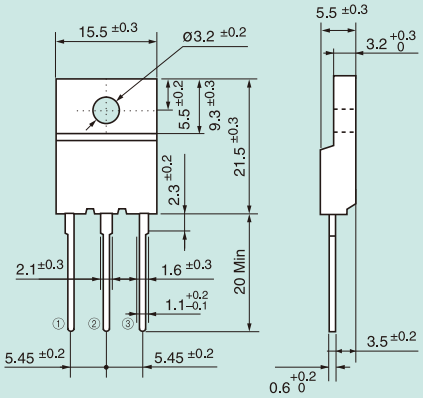
Unit: mm

TO-3P(Q)



Power MOSFET
① Gate
② Drain
③ Source

TO-3PF



Power MOSFET
① Gate
② Drain
③ Source

Order Quantity

・Order unit is the number in “Min. quantity per order” or its integral multiplication.
・This table covers single or reel package items (Except for taping items).
・Order unit of taping package is different for each specification.
Please contact us for more detail.

Products	Package	Type number	Min. quantity per order	Min. quantity per packing
Power MOSFETs Diodes	TO-220	All types	100	500
	TO-220F/TO-220F(SLS)		100	500
	TO-220F-2		1,000	1,000
	TO-247		100	500
	TO-247-2-P2		600	600
	TO-247-4-P2		600	600
	TO-247-2L-P2		600	600
	TO-3P, TO-3P(Q)		100	500
	TO-3PF		100	500
	TO-3PL		50	50
	TFP		1,500	1,500
	K-pack（S）		3,000	3,000
	T-pack（S）		1,000	1,000
	K-pack（L, P）		500	500
	T-pack（L, P）		100	500
	DFN8x8		3,000	3,000
	TO-220, TO-220F, TO-220F(SLS)	-S2□PP (Tube)	1,000	1,000
	TO-3P, TO-3P(Q)	-S3□PP (Tube)	600	600
Power MOSFETs Discrete IGBTs Diodes	TO-247-P2	All types	600	600
ICs		All types (except for below types)	2,000	2,000
		FA8A-□□, FA6A-□□, FA1A-□□	3,000	3,000
		FA5627, 28	3,000	3,000
		FA5637	3,000	3,000
		FA5641, 42, 43, 44	3,000	3,000
		FA5680, FA5681	3,000	3,000
		FA5696	3,000	3,000
		FA5651	3,000	3,000
		FA5752	3,000	3,000
		FA5760	3,000	3,000

Type Number Index

Type Number Index

Type Number Index

Type Number Index

Type Number Index

Maintenance products

・Models listed below are for maintenance products only.
・Do not use them for new designing

Products	Type number
Power Devices	2MBI100TA-060-50
	2MBI150TA-060-50
	2MBI150U2A-060-50
	2MBI200U2A-060-50
	2MBI300U2B-060-50
	2MBI400U2B-060-50
	6MBP100RA060
	6MBP100RA120
	6MBP100RTB060
	6MBP100RTB060-50
	6MBP100RTD060-50
	6MBP100RTJ060
	6MBP100TEA060
	6MBP100TEA060-50
	6MBP150RA060
	6MBP150RA120
	6MBP150RTB060
	6MBP150RTB060-50
	6MBP150RTJ060
	6MBP150TEA060-50
	6MBP15RA120
	6MBP200RA060
	6MBP20RTA060
	6MBP25RA120
	6MBP25RJ120
	6MBP25RU2A120
	6MBP25TEA120-50
	6MBP300RA060
	6MBP30RTB060
	6MBP30RTB060-50
	6MBP35RJB120-50
	6MBP50RA060
	6MBP50RA120
	6MBP50RJ120
	6MBP50RTB060
	6MBP50RTB060-50
	6MBP50RTJ060
	6MBP50RU2A120
	6MBP50TBA060-50
	6MBP50TEA060
	6MBP50TEA060-50
	6MBP50TEA120-50
	6MBP75RA060
	6MBP75RA120
	6MBP75RJ120
	6MBP75RTB060
	6MBP75RTB060-50
	6MBP75RTJ060
	6MBP75RU2A120
	6MBP75RU2A120-50
	6MBP75TBA060-50
	6MBP75TEA060-50
	6MBP75TEA120-50
	7MBP100RA060
	7MBP100RA120
	7MBP100RTA060-50
	7MBP100RTB060
	7MBP100RTB060-50
	7MBP100RTJ060
	7MBP100TEA060-50
	7MBP150RA060
	7MBP150RA120

Products	Type number
Power Devices	7MBP150RTB060
	7MBP150RTB060-50
	7MBP150RTJ060
	7MBP150TEA060-50
	7MBP160RTA060-50
	7MBP200RA060
	7MBP200RUC060
	7MBP200RUC060-50
	7MBP25RA120
	7MBP25RU2A120-50
	7MBP50RE120
	7MBP50RTA060-50
	7MBP50RTB060-50
	7MBP50RU2A120-50
	7MBP75RE120
	7MBP75RTB060-50
	7MBP75RU2A120
	7MBP75RU2A120-50
	7MBP75TEA060-50
	7MBP75TEA120-50
	7MBP80RTA060-50
Power MOSFET	FMH13N60S1
	FMH15N60S1
	FMH20N60S1
	FMH20N60S1FD
	FMH22N60S1
	FMH22N60S1FD
	FMH30N60S1
	FMH30N60S1FD
	FMH35N60S1
	FMH35N60S1FD
	FMH40N60S1
	FMH40N60S1FD
	FMH47N60S1
	FMH47N60S1FD
	FMP07N60S1
	FMP08N60S1
	FMP10N60S1
	FMP13N60S1
	FMP15N60S1
	FMP20N60S1
	FMP20N60S1FD
	FMP22N60S1
	FMP22N60S1FD
	FMP30N60S1
	FMP30N60S1FD
	FMV07N60S1
	FMV08N60S1
	FMV10N60S1
	FMV13N60S1
	FMV15N60S1
	FMV20N60S1
	FMV20N60S1FD
	FMV22N60S1
	FMV22N60S1FD
	FMV30N60S1
	FMV30N60S1FD
	FMV35N60S1
	FMV35N60S1FD
	FMV40N60S1
	FMW15N60S1

Products	Type number
Power MOSFET	FMW20N60S1
	FMW20N60S1FD
	FMW22N60S1
	FMW22N60S1FD
	FMW30N60S1
	FMW30N60S1FD
	FMW35N60S1
	FMW35N60S1FD
	FMW40N60S1
	FMW40N60S1FD
	FMW47N60S1
	FMW47N60S1FD
	FMW57N60S1
	FMW57N60S1FD
	FMW79N60S1
	FMW79N60S1FD

Discontinued products

・Models listed below are discontinued products.
・Do not use them for new designing

Products	Type number	Products	Type number	Products	Type number
Power Devices	1MBI1200U4C-120	Power Devices	2MBI200PB-140	Power Devices	2MBI75U4A-120
	1MBI1200U4C-170		2MBI200S-120		2MBI75U4A-120-50
	1MBI150NH-060		2MBI200U4B-120		2MBI75UA-120
	1MBI150NK-060		2MBI200U4B-120-50		2MBI75UA-120-50
	1MBI1600U4C-120		2MBI200U4D-120		2MBI800U4G-120
	1MBI1600U4C-170		2MBI200U4D-120-50		2MBI800U4G-170
	1MBI200N-120		2MBI200U4H-120		6MBI100S-060
	1MBI200NH-060		2MBI200U4H-120-50		6MBI100S-120
	1MBI200NK-060		2MBI200U4H-170		6MBI100S-140
	1MBI2400U4D-120		2MBI200U4H-170-50		6MBI100U4B-120-50
	1MBI2400U4D-170		2MBI200UB-120		6MBI100U4B-170-50
	1MBI300N-120		2MBI200UB-120-50		6MBI100UB-120-50
	1MBI300NN-120		2MBI200UC-120-50		6MBI10S-120
	1MBI300NP-120		2MBI200UD-120-50		6MBI150U4B-120-50
	1MBI300U4-120		2MBI200UM-120		6MBI150U4B-170-50
	1MBI3600U4D-120		2MBI200UM-120-50		6MBI150UB-120-50
	1MBI3600U4D-170		2MBI225U4J-120-50		6MBI15S-120
	1MBI400N-120		2MBI225U4N-120-50		6MBI225U4-120
	1MBI400NN-120		2MBI225U4N-170-50		6MBI225U4-120-50
	1MBI400NP-120		2MBI300N-060		6MBI25S-120
	1MBI400U4-120		2MBI300N-060-04		6MBI300U4-120
	1MBI600NN-060		2MBI300N-120		6MBI300U4-120-50
	1MBI600NP-060		2MBI300N-120-01		6MBI300U4-170
	1MBI600PX-120		2MBI300NB-060		6MBI35S-120
	1MBI600PX-140		2MBI300NB-060-01		6MBI35S-140
	1MBI600U4-120		2MBI300P-140		6MBI35U4A-120-50
	1MBI600U4B-120		2MBI300S-120		6MBI450U-120
	1MBI800U4B-120		2MBI300U4D-120		6MBI450U-170
	2FI1200U4L-120		2MBI300U4D-120-50		6MBI450U4-120
	2MBI100N-060		2MBI300U4E-120		6MBI450U4-120-50
	2MBI100N-120		2MBI300U4H-120		6MBI450U4-170
	2MBI100NB-120		2MBI300U4H-120-50		6MBI50S-060
	2MBI100NC-120		2MBI300U4H-170		6MBI50S-120
	2MBI100PC-140		2MBI300U4H-170-50		6MBI50S-140
	2MBI100SC-120		2MBI300U4J-120-50		6MBI50U4A-120-50
	2MBI100U4A-120		2MBI300U4N-120-50		6MBI50UA-120-50
	2MBI100U4A-120-50		2MBI300U4N-170-50		6MBI75S-060
	2MBI100U4H-170-50		2MBI300UC-120		6MBI75S-120
	2MBI1200U4G-120		2MBI300UC-120-50		6MBI75S-140
	2MBI1200U4G-170		2MBI300UC-170		6MBI75U4A-120-50
	2MBI150N-060		2MBI300UD-120		6MBI75U4B-120-50
	2MBI150N-120		2MBI300UD-120-50		6MBI75UA-120-50
	2MBI150NB-120		2MBI300UE-120		6MBP15RH060-50
	2MBI150NC-060		2MBI400N-060		6MBP20RH060-50
	2MBI150NC-120		2MBI400N-060-01		6MBP30RH060-50
	2MBI150PC-140		2MBI400U4H-120		7MBR100SB060
	2MBI150SC-120		2MBI400U4H-120-50		7MBR100SD060
	2MBI150U4A-120		2MBI400U4H-170		7MBR100SD060-50
	2MBI150U4A-120-50		2MBI400U4H-170-50		7MBR100U4B120-50
	2MBI150U4B-120		2MBI450U4E-120		7MBR100UB120-50
	2MBI150U4B-120-50		2MBI450U4J-120-50		7MBR10SA120
	2MBI150U4H-120		2MBI450U4N-120-50		7MBR10SA140
	2MBI150U4H-120-50		2MBI450U4N-170-50		7MBR10SC120
	2MBI150U4H-170		2MBI450UE-120		7MBR10SC120-50
	2MBI150U4H-170-50		2MBI50N-060		7MBR10UF120
	2MBI150UA-120		2MBI50N-120		7MBR15SA120
	2MBI150UA-120-50		2MBI50P-140		7MBR15SA140
	2MBI150UB-120-50		2MBI600NT-060		7MBR15SC060-50
	2MBI200N-060		2MBI600U4G-120		7MBR15SC120
	2MBI200N-060-03		2MBI600U4G-170		7MBR15SC120-50
	2MBI200N-120		2MBI75N-060		7MBR15UF060
	2MBI200NB-120		2MBI75N-120		7MBR15UF120
	2MBI200NB-120-01		2MBI75P-140		7MBR20SC060

Discontinued products

Products	Type number
Power Devices	7MBR20SC060-50
	7MBR20UF060
	7MBR25SA120
	7MBR25SA140
	7MBR25SC120
	7MBR25SC120-50
	7MBR25U4P120-50
	7MBR25UA120-50
	7MBR30SA060
	7MBR30SC060
	7MBR30SC060-50
	7MBR30UF060
	7MBR35SB120
	7MBR35SB140
	7MBR35SD120
	7MBR35SD120-50
	7MBR35U4A120-50
	7MBR35U4P120-50
	7MBR35UA120-50
	7MBR35UB120-50
	7MBR50SA060
	7MBR50SB060
	7MBR50SB120
	7MBR50SB140
	7MBR50SC060
	7MBR50SC060-50
	7MBR50SD060-50
	7MBR50SD120
	7MBR50SD120-50
	7MBR50U4P120-50
	7MBR50UA120-50
	7MBR50UB120-50
	7MBR75SB060
	7MBR75SD060
	7MBR75SD060-50
	7MBR75U4B120-50
	7MBR75U4R120-50
	7MBR75UB120-50
Integrated Circuits	FA3630V-H1
	FA3635S-H1
	FA3675F-H1
	FA3686V-H1
	FA3702AV-H1
	FA5316P
	FA5317S
	FA5701P-A2
	FA5705AP-A2
	FA5707AP-A2
	FA5708AP-A2
	FA7709R-H1
	FA7711V-H1
	FA7716R-H4
	FA7723R-H4
	FA7724AR-H4
	FA7724R-H4
	FA7728F-D1
	FA7729R-H1
	FA7730F-D1
	FA7731F-D1
	FA7743N-D1
	FA7761R-R1
	FA7763AR-R1

Products	Type number
Integrated Circuits	FA7763R-R1
Hybrid ICs for IGBT Drive	EXB840
	EXB841
IPS (Intelligent Power switch)	F5016H
	F5017H
	F5021H
	F5022
	F5038H
Rectifier Diodes	CB803-03
	CB863-06
	CB863-12
	CB863-15
	CB903-4
	ERA81-004
	ERA82-004
	ERA83-004
	ERA83-006
	ERA84-009
	ERA85-009
	ERA91-02
	ERA92-02
	ERB81-004
	ERB83-004
	ERB83-006
	ERB84-009
	ERB91-02
	ERB93-02
	ERC81-004
	ERC81-006
	ERC81S-004
	ERC84-009
	ERC91-02
	FD867-12
	FD867-15
	FD868-12
	FD868-15
	FDLA20C20
	FDLC20C20
	FDLH20C20
	FDLP20C20
	FDLR20C20
	KP823C03
	KP823C04
	KP823C09
	PA955C6R
	PG985C6R
	SC802-04
	SC802-06
	SC802-09
	SC902-2
	SD832-03
	SD832-04
	SD833-03
	SD833-04
	SD833-06
	SD833-09
	SD834-03
	SD834-04
	SD862-04
	SD863-04

Products	Type number
Rectifier Diodes	SD863-06
	SD863-10
	SD882-02
	SD883-02
	SD883-04
	TP858C12R
	TP869C04R
	TS862C04R
	TS906C3R
	TS952C6R
	TS955C6R
	YA852C12R
	YA852C15R
	YA855C12R
	YA855C15R
	YA858C12R
	YA858C15R
	YA862C04R
	YA869C04R
	YA951S6R
	YA952C6R
	YA952S6R
	YA955C6R
	YG801C09R
	YG802C03R
	YG802C09R
	YG803C04R
	YG811S09R
	YG831C03R
	YG831C04R
	YG832C03R
	YG832C04R
	YG835C03R
	YG835C04R
	YG838C03R
	YG852C12R
	YG852C15R
	YG855C12R
	YG855C15R
	YG858C12R
	YG858C15R
	YG862C04R
	YG864S06R
	YG869C04R
	YG881C02R
	YG882C02R
	YG885C02R
	YG906C3R
	YG951S6R
	YG952C6R
	YG952S6R
	YG955C6R
Power MOSFET	2SJ314-01L, S
	2SJ472-01L, S
	2SJ473-01L, S
	2SJ474-01L, S
	2SJ475-01
	2SJ476-01L, S
	2SJ477-01MR
	2SK2687-01
	2SK2688-01L, S
	2SK2689-01MR

Discontinued products

Products	Type number	Products	Type number
Power MOSFET	2SK2690-01	Power MOSFET	2SK3781-01R
			2SK3788-01
	2SK2691-01R		2SK3789-01R
	2SK2806-01		2SK3870-01
	2SK2807-01L, S		2SK3871-01MR
	2SK2808-01MR		2SK3872-01L, S
	2SK2809-01MR		2SK3873-01
	2SK2890-01MR		2SK3874-01R
	2SK2891-01		2SK3875-01
	2SK2892-01R		2SK3876-01R
	2SK2893-01		2SK3883-01
	2SK2894-01R		2SK3884-01
	2SK2895-01		2SK3885-01
	2SK2896-01L, S		2SK3913-01MR
	2SK2897-01MR		2SK3914-01
	2SK2898-01		2SK3915-01MR
	2SK2899-01R		2SK3923-01
	2SK2900-01		2SK3924-01L, S
	2SK2901-01L, S		2SK3925-01
	2SK2902-01MR		2SK3926-01MR
	2SK2903-01MR		2SK3927-01L, S
	2SK2904-01		2SK4005-01MR
	2SK2905-01R		2SK4006-01L, S
	2SK2906-01		FMA18N25G
	2SK2907-01R		
	2SK3362-01		
	2SK3363-01		
	2SK3364-01		
	2SK3517-01		
	2SK3518-01MR		
	2SK3529-01		
	2SK3530-01MR		
	2SK3531-01		
	2SK3532-01MR		
	2SK3533-01		
	2SK3534-01MR		
	2SK3549-01		
	2SK3550-01R		
	2SK3586-01		
	2SK3587-01MR		
	2SK3588-01L, S		
	2SK3589-01		
	2SK3601-01		
	2SK3605-01		
	2SK3613-01		
	2SK3644-01		
	2SK3645-01MR		
	2SK3646-01L, S		
	2SK3647-01		
	2SK3673-01MR		
	2SK3674-01L, S		
	2SK3675-01		
	2SK3677-01MR		
	2SK3678-01		
	2SK3679-01MR		
	2SK3690-01		
	2SK3691-01MR		
	2SK3769-01MR		
	2SK3770-01MR		
	2SK3771-01MR		
	2SK3776-01		
	2SK3777-01R		
	2SK3780-01		

Global semiconductor website

We will continue to keep our global semiconductor website updated and fulfilled with new information on our semiconductor products including new products release, search function, data sheets, and the related exhibition for our customers all over the world.
We hope it will be of much use to our customers. Thank you.

Japanese: www.fujielectric.co.jp/products/semiconductor/
English: www.fujielectric.com/products/semiconductor/
Chinese: www.fujielectric.com/products/semiconductor/cn/

We would like to thank you for your continued patronage and further support for our semiconductor products.

WARNING

1. This Catalog contains the product specifications, characteristics, data, materials, and structures as of March 2020.
   The contents are subject to change without notice for specification changes or other reasons. When using a product listed in this Catalog, be sure to obtain the latest specifications.

2. All applications described in this Catalog exemplify the use of Fuji's products for your reference only. No right or license, either express or implied, under any patent, copyright, trade secret or other intellectual property right owned by Fuji Electric Co., Ltd. is (or shall be deemed) granted. Fuji Electric Co., Ltd. makes no representation or warranty, whether express or implied, relating to the infringement or alleged infringement of other's intellectual property rights which may arise from the use of the applications described herein.

3. Although Fuji Electric Co., Ltd. is enhancing product quality and reliability, a small percentage of semiconductor products may become faulty. When using Fuji Electric semiconductor products in your equipment, you are requested to take adequate safety measures to prevent the equipment from causing a physical injury, fire, or other problem if any of the products become faulty. It is recommended to make your design fail-safe, flame retardant, and free of malfunction.

4. The products introduced in this Catalog are intended for use in the following electronic and electrical equipment which has normal reliability requirements.
   • Computers • OA equipment • Communications equipment (terminal devices) • Measurement equipment
   • Machine tools • Audiovisual equipment • Electrical home appliances • Personal equipment • Industrial robots etc.

5. If you need to use a product in this Catalog for equipment requiring higher reliability than normal, such as for the equipment listed below, it is imperative to contact Fuji Electric Co., Ltd. to obtain prior approval. When using these products for such equipment, take adequate measures such as a backup system to prevent the equipment from malfunctioning even if a Fuji's product incorporated in the equipment becomes faulty.
   • Transportation equipment (mounted on cars and ships)
   • Trunk communications equipment
   • Traffic-signal control equipment
   • Gas leakage detectors with an auto-shut-off feature
   • Emergency equipment for responding to disasters and anti-burglary devices
   • Safety devices
   • Medical equipment

6. Do not use products in this Catalog for the equipment requiring strict reliability such as the following and equivalents to strategic equipment (without limitation).
   • Space equipment • Aeronautic equipment • Nuclear control equipment
   • Submarine repeater equipment

7.

8. If you have any question about any portion in this Catalog, ask Fuji Electric Co., Ltd. or its sales agents before using the product.
   Neither Fuji Electric Co., Ltd. nor its agents shall be liable for any injury caused by any use of the products not in accordance with instructions set forth herein.

Fuji Electric Co., Ltd.

Power Semiconductors Group
URL www.fujielectric.com/products/semiconductor/

Head Office:
Gate City Ohsaki, East Tower, 11-2 Osaki 1-chome,
Shinagawa-ku, Tokyo 141-0032, Japan

Fuji Electric Hong Kong Co., Ltd.
Suites 1911-13, 19/F., Tower 6, The Gateway, Harbour City,
Tsim Sha Tsui, Kowloon, Hong Kong
Tel: +852-2664-8699

Fuji Electric Taiwan Co., Ltd.
10F. No.168, Song Jiang Road, Taipei, Taiwan
Tel: +886-2-2515-1850

Fuji Electric Asia Pacific Pte. Ltd.
151 Lorong Chuan, #03-01/01A New Tech Park, SINGAPORE 556741
Tel: +65-6533-0014

Fuji Electric India Private Ltd.
409-410, Meadows, Sahar Plaza, J.B. Nagar Andheri-Kurla Road,
Andheri (E), Mumbai, India 400059
Tel: +91-22-4010-4870

Fuji Electric (China) Co., Ltd.
26F, Global Harbor Tower B,
1188 North KaiXuan Road, PuTuo District,
Shanghai 200062, P.R.China
Tel: +86-21-5496-1177

Fuji Electric Corp. of America
50 Northfield Avenue
Edison, NJ 08837, USA
Tel: +1-732-560-9410

Fuji Electric Europe GmbH
Goethering 58, 63067 Offenbach, am Main, F.R. GERMANY
Tel: +49-69-6690290