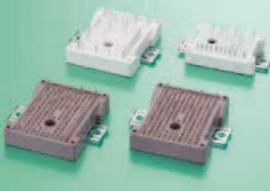
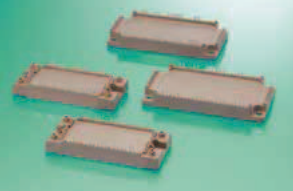
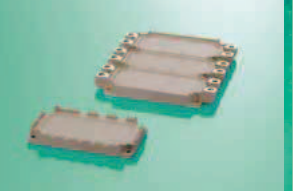
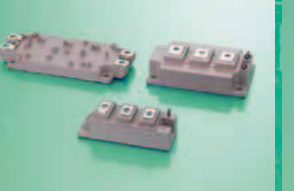
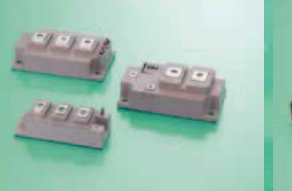




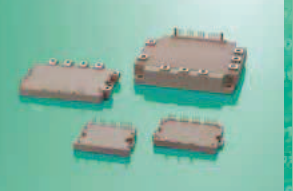

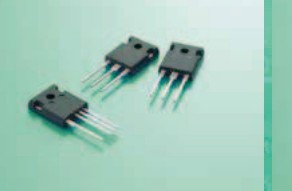
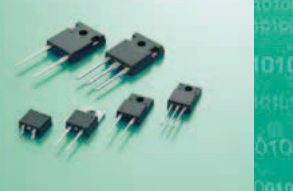


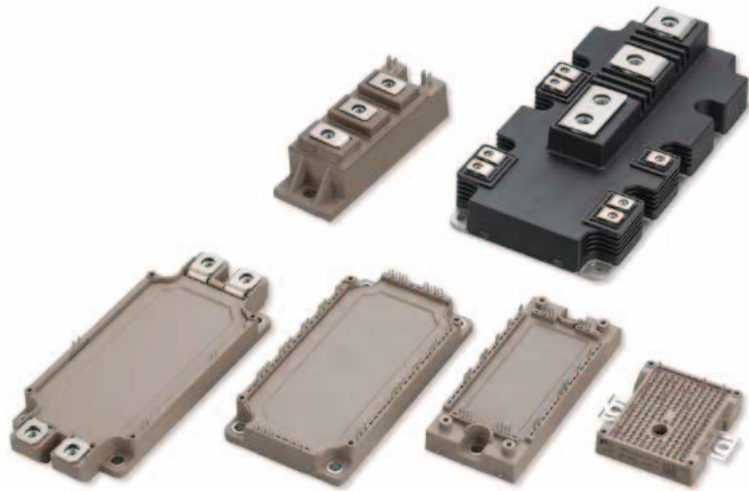
FUJI Power Semiconductors

IGBT/SiC Devices Selection Guide

| | | | | | | |
|--|---|---|--|---|---|---|
|  |  |  |  |  |  |  |
| Small PIM PAGE 8 | PIM PAGE 9 | 6-Pack PAGE 11 | Standard 2-Pack PAGE 13 | Standard 1-Pack/ Chopper PAGE 15 | High Power Module PAGE 17 | PrimePACK™ PAGE 19 |
|  |  |  |  |  |  | |
| T/I-type NPC 3-level PAGE 21 | Small IPM PAGE 22 | IPM PAGE 23 | Hybrid SiC Module PAGE 27 | Discrete IGBT PAGE 29 | Rectifier Diode / SiC-SBD PAGE 30 | |

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

Features of IGBT Module X Series

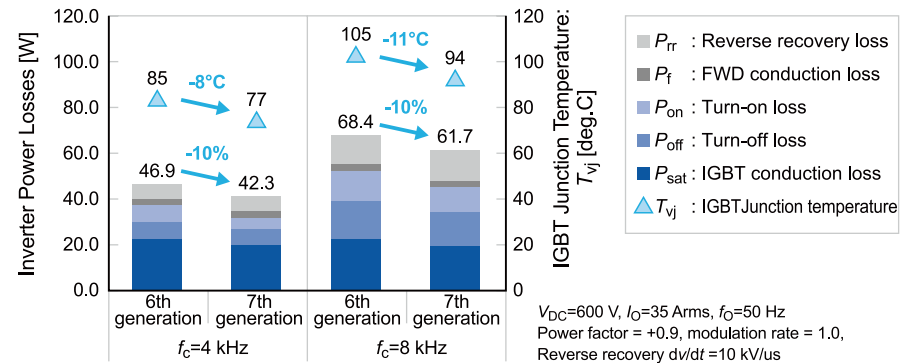


1. Low loss

The module has been optimized by thinning the thickness and miniaturizing the structure of the IGBT chip and diode chip that makes up the module. This reduces power losses during inverter operation compared with previous products (our 6th generation V series).



Reduces inverter power loss by 10% and IGBT junction temperature by 11°C (Comparison with the 6th Generation V Series (75 A), at $f_c = 8$ kHz)

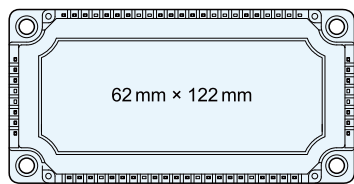


2. Miniaturization

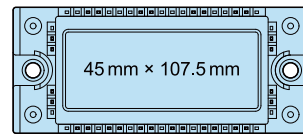
The application of the newly developed insulating substrate has improved the heat dissipation of the module. A smaller footprint of about 36% has been achieved by reducing power loss and suppressing heat generation compared with the previous product.

Application example)

36% reduction



75 A (6th Generation V Series)



75 A (7th Generation X Series)

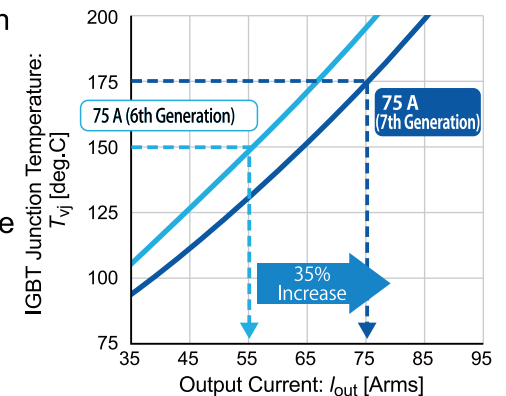
3. High-temperature operation

Achieves continuous operation at 175 °C through chip optimization and improved reliability and heat resistance of package.



- 35% more output current than the previous generation
- ΔT_{vj} power cycle capability improvement (twice as high as before)

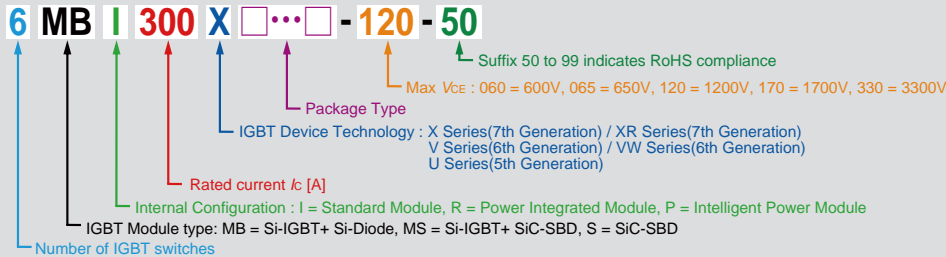
Increased output current by $T_{vj(op)} = 175^\circ\text{C}$



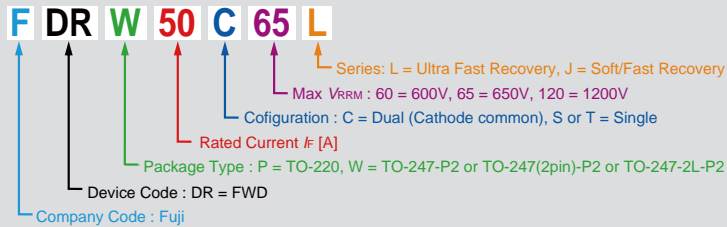
| Number of IGBT Switches | Products Category | Page | Internal Configuration | | | Discrete IGBT | Rectifier Diode | Discrete SiC-SBD | Max V_{CE} (V_{RRM}) | | | | | Rated Current | | | | | |
|-------------------------|-------------------------------|-------|-----------------------------|--|--------------------------|---------------|-----------------|------------------|----------------------------|------|-------|-------|-------|---------------|------------|-------------|-------------|--------------|--------|
| | | | IGBT Module Standard Module | Power Integrated Module | Intelligent Power Module | | | | 600V | 650V | 1200V | 1700V | 3300V | ≤50A | >50A ≤150A | >150A ≤300A | >300A ≤600A | >600A ≤1200A | >1200A |
| 7 | Small-PIM | 8 | | ✓ | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | |
| | PIM EconoPIM™ | 9 | | ✓ | | | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | | |
| | | 10 | | | ✓ | | | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| 6 | 6-Pack EconoPACK™ EconoPACK™+ | 11 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | | |
| | | 12 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 13 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 2 | Standard 2-Pack | 14 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 15 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 1 | Standard 1-Pack | 15 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 15 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 1,2 | High Speed Module | 16 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 16 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 1,2 | High Power Module | 17,18 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 17,18 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 1,2 | PrimePACK™ | 19,20 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 19,20 | ✓ | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 4,12 | T/I-type NPC 3-level | 21 | | Reverse-Blocking IGBTs are integrated. | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 6,7 | IPM | 22 | | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 23,24 | | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 25 | | | | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| | | 26 | | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | |
| 1,2,6,7 | Hybrid SiC Module | 27,28 | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | ✓ | |
| 1 | Discrete IGBT | 29 | | | | ✓ | | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | | | |
| - | Rectifier Diode | 30 | | | | | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | | | |
| - | SiC-SBD | 30 | | | | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |

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

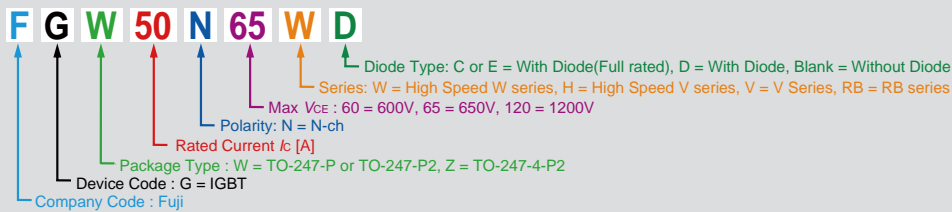
IGBT Module Production Number



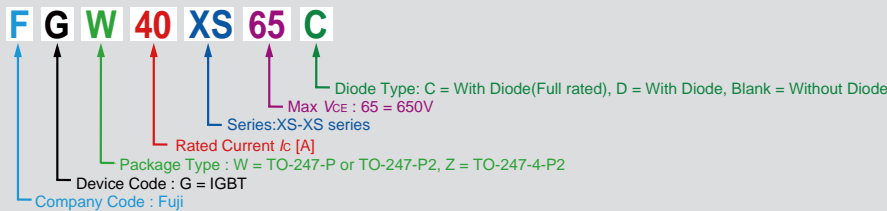
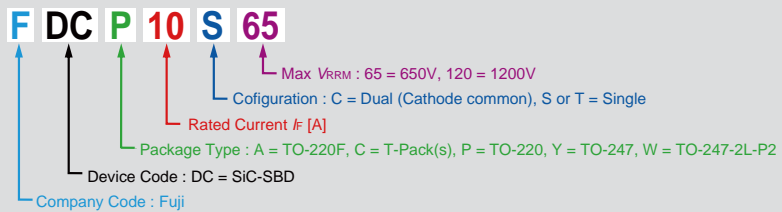
Rectifier Diode Production Number



Discrete IGBT Production Number



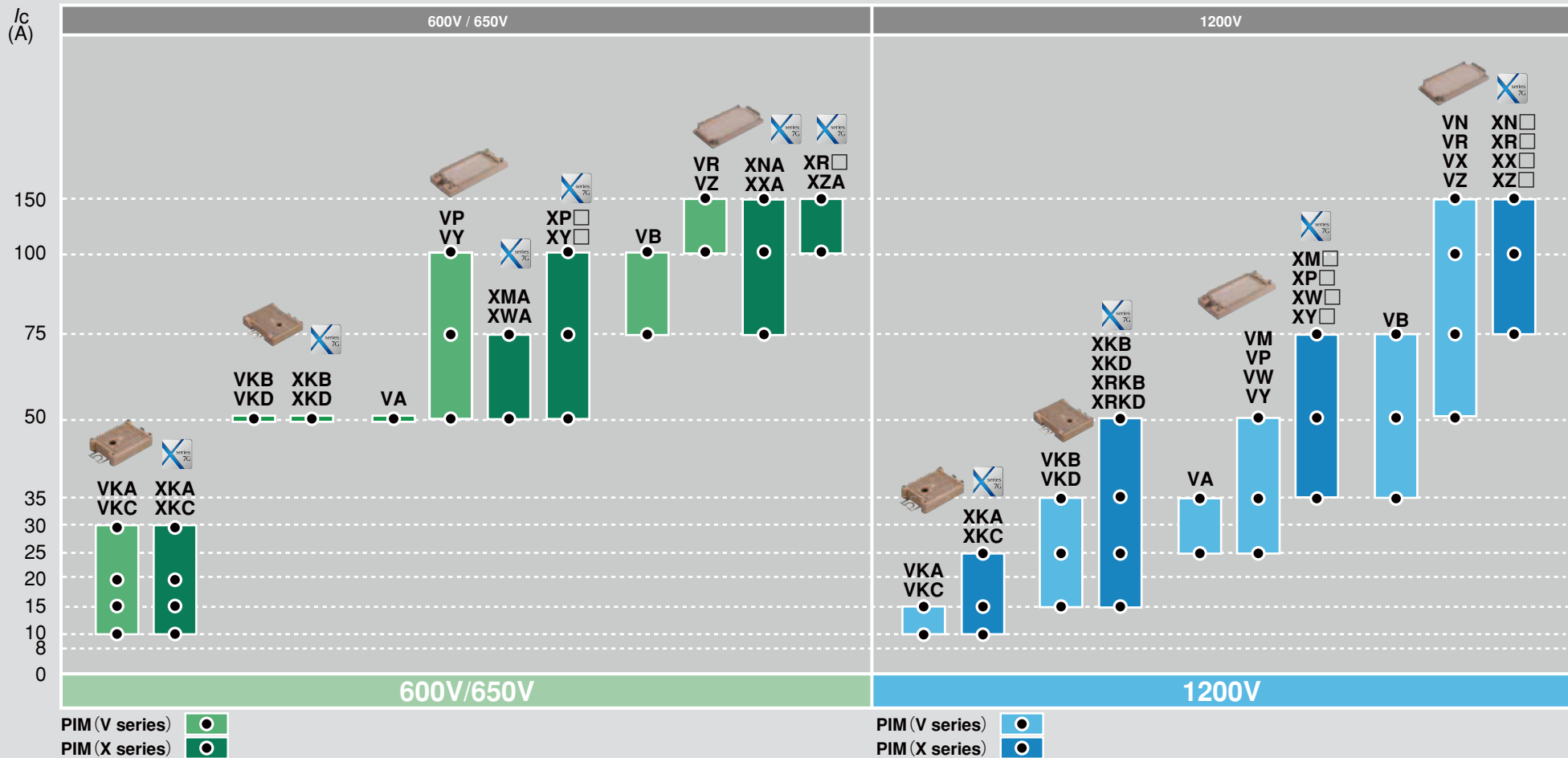
SiC Schottky-Barrier Diode Production Number



PIM (Power Integrated Modules) Products Map

| 7MBR | Ic | IGBT series & Package type | | | | Size | Page | EconoPIM™ |
|------|----|----------------------------|----------------|-------------|----------------|-------------|------|-----------|
| | | V series | | X series | | | | |
| | | Solder pins | Press fit pins | Solder pins | Press fit pins | | | |
| | | VKC | VKA | XKC | XKA | | | |
| | | VKD | VKB | XKD, XRKD | XKB, XRKB | 33.8×62.8mm | 8 | |
| | | VA, VM, VP | VW, VY | XM□, XP□ | XW□, XY□ | 56.7×62.8mm | 8 | |
| | | VB, VN, VR | VX, VZ | XN□, XR□ | XX□, XZ□ | 45×107.5mm | 9,10 | |
| | | | | | | 62×122mm | 9,10 | |

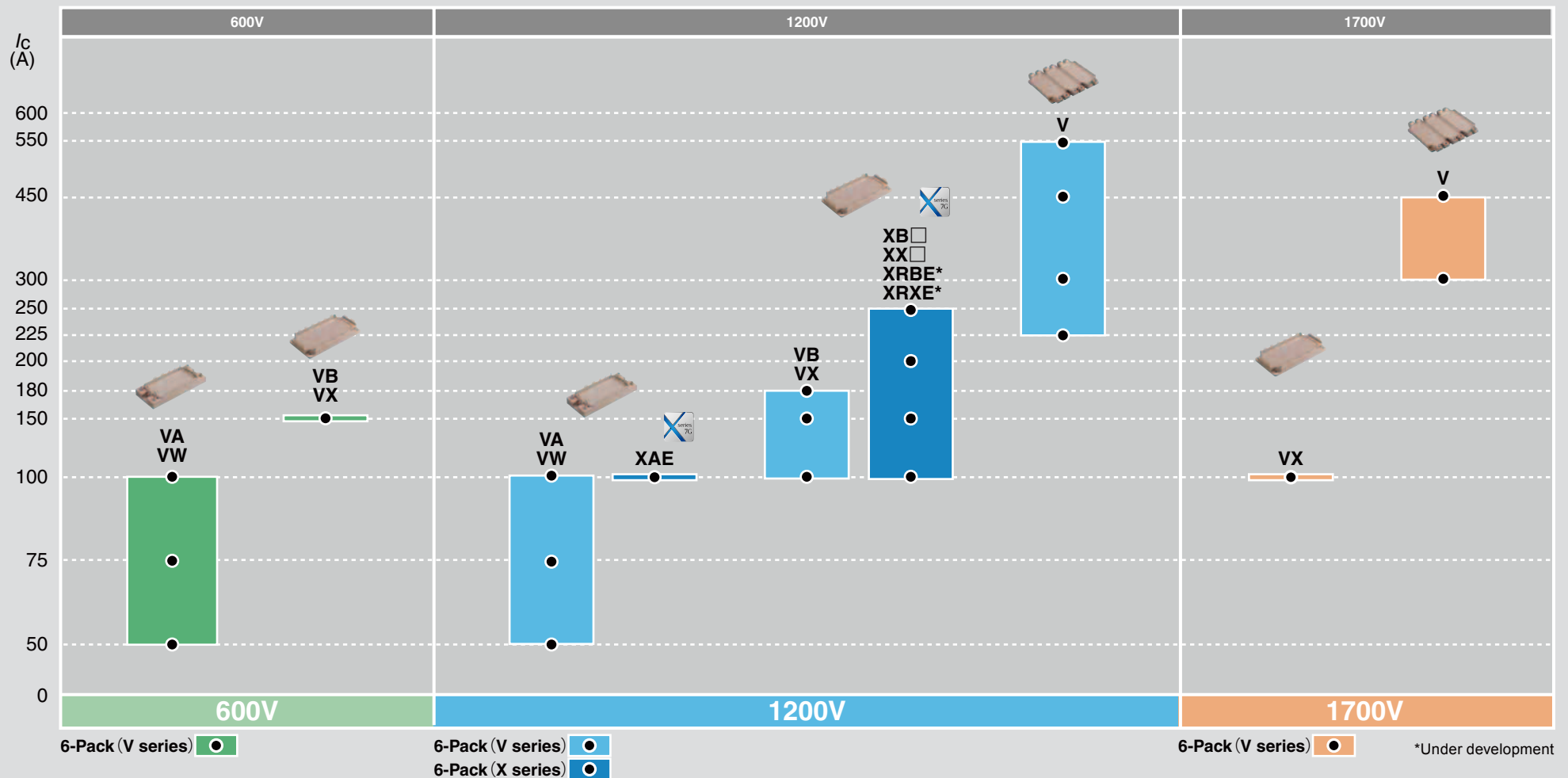
Note:
EconoPIM™ is registered trademark of
Infineon Technologies AG, Germany.



6-Pack Products Map

| 6MBI | Ic | IGBT series & Package type | | | | Size | Page | |
|------|----|----------------------------|----------------|------------------|------------------|------------|-------|-------------|
| | | V series | | X series | | | | |
| | | Solder pins | Press fit pins | Solder pins | Press fit pins | | | |
| | | VA | VW | XAE | | 45×107.5mm | 11,12 | EconoPACK™ |
| | | VB | VX | XB□, XRBE | XX□, XRXE | 62×122mm | 11,12 | EconoPACK™ |
| | | V | | | | 150×162mm | 12 | EconoPACK™+ |

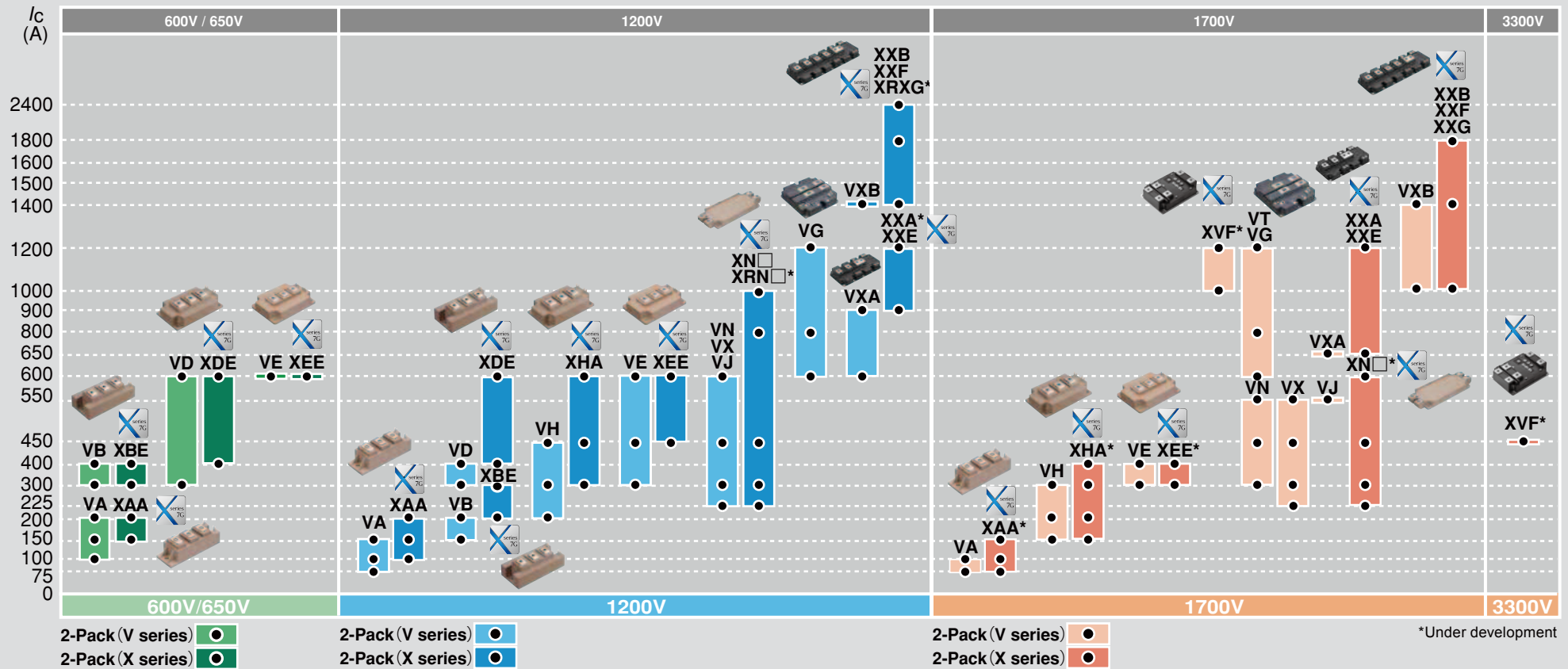
Note:
EconoPACK™ and EconoPACK™+ are registered trademarks of Infineon Technologies AG, Germany.



2-Pack Products Map

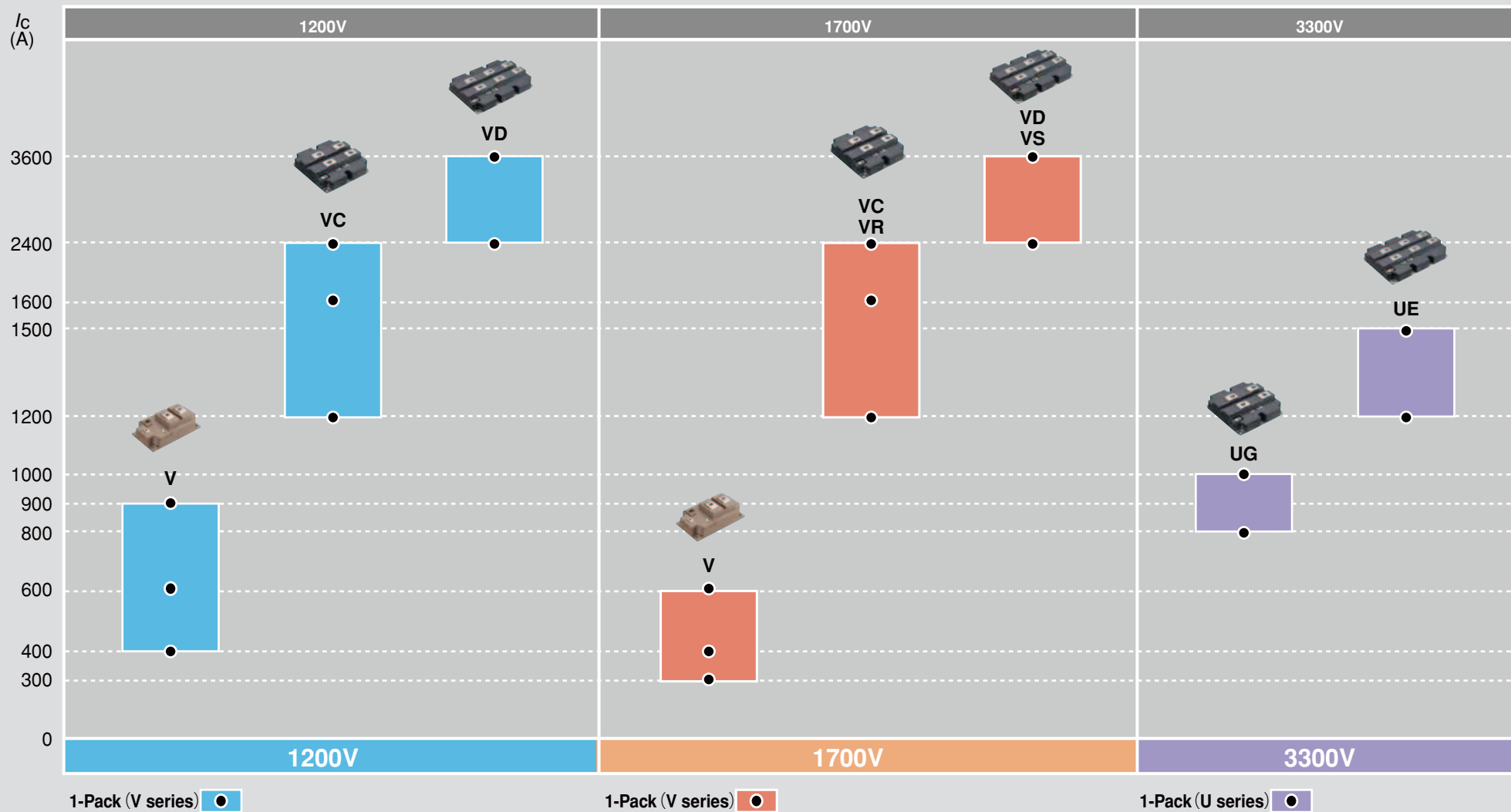
| 2MBI | Ic | IGBT series & Package type | | Size | Page | |
|------|------------|----------------------------|----------|-----------|------|-------------------|
| | | V series | X series | | | |
| | VA | XAA | | 34×94mm | 13 | Standard Pack |
| | VB | XBE | | 45×92mm | 13 | |
| | VD | XDE | | 62×108mm | 13 | |
| | VE | XEE | | 80×110mm | 13 | |
| | VH | XHA | | 62×108mm | 13 | |
| | VJ, VN, VX | XN□, XRN□ | | 62×150mm | 14 | |
| | - | XVF | | 100×140mm | 18 | |
| | VG, VT | - | | 140×130mm | 17 | High Power Module |
| | VXA | XXA, XXE | | 89×172mm | 19 | PrimePACK™ |
| | VXB | XXB, XXF, XXG, XRXG | | 89×250mm | 19 | |

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany



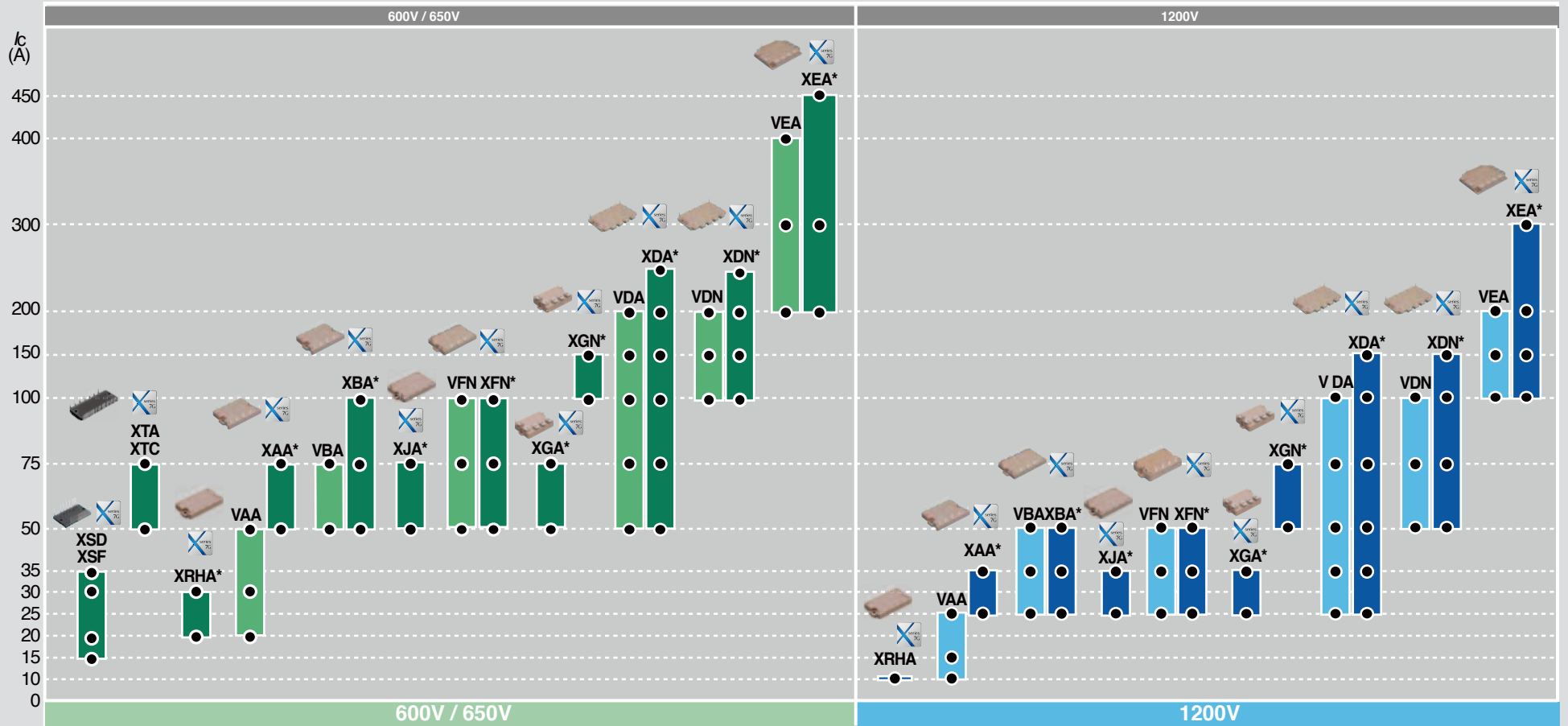
1-Pack Products Map

| 1MBI | Ic | IGBT series & Package type | Size | Page | |
|------|----|----------------------------|-----------|------|---------------|
| | | V/U series | | | |
| | | V | 62×108mm | 15 | Standard Pack |
| | | VC, VR, UG | 140×130mm | 17 | |
| | | VD, VS, UE | 140×190mm | 17 | |



IPM (Intelligent Power Modules) Products Map

| 6/7MBP | Ic | IGBT series & PacZkage type | | V series | | X series | | Page |
|--------|----------|-----------------------------|----------|------------|--------|----------|--------|------|
| | | V series | X series | 7 in 1 | 6 in 1 | 7 in 1 | 6 in 1 | |
| - | - | - | XSD, XSF | 26×43mm | - | - | - | 22 |
| - | - | - | XTA, XTC | 79×31mm | - | - | - | 22 |
| - | - | - | XRHA | 36×70mm | - | - | - | 23 |
| - | VAA | - | XAA | 49.5×70mm | - | ✓ | - | 23 |
| - | VBA | - | XBA | 50.2×87mm | - | ✓ | - | 23 |
| - | - | - | XJA | 50.2×87mm | - | - | ✓ | 23 |
| - | VFN | - | XFN | 55×90mm | ✓ | ✓ | ✓ | 24 |
| - | - | - | XGA, XGN | 55×90mm | - | - | - | 24 |
| - | VDA, VDN | - | XDA, XDN | 84×128.5mm | ✓ | ✓ | ✓ | 25 |
| - | VEA | - | XEN | 110×142mm | ✓ | ✓ | ✓ | 26 |



*Under development

Small PIM (Power Integrated Modules)

mm

Ic

650V



600V

1200V



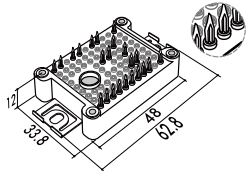
X series

V series

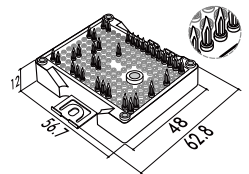
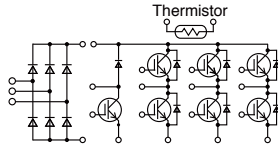
X series

V series

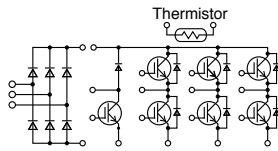
With NTC, press fit pins



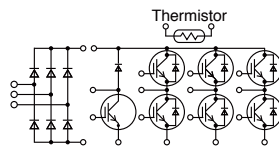
V: M726, X: M730



V: M727, X: M731

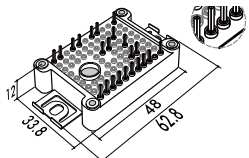


XKB, VKB

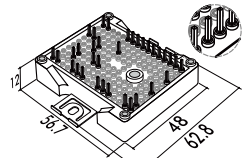
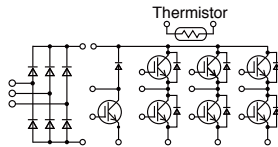


XRKB

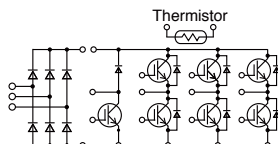
With NTC, solder pins



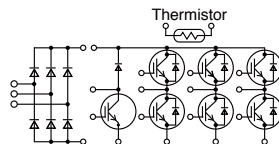
V: M728, X: M732



V: M729, X: M733



XKD, VKD

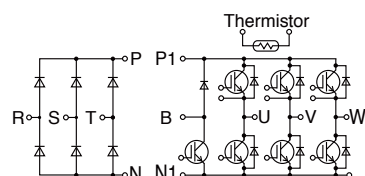
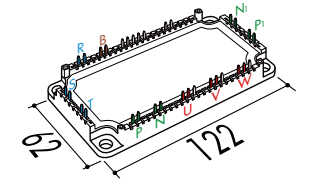
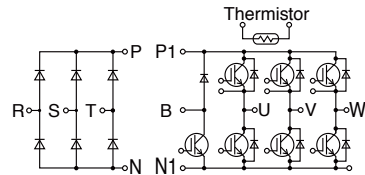
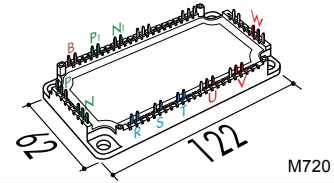
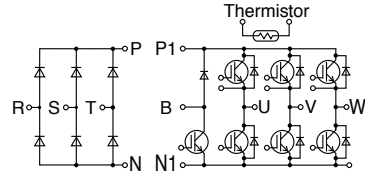
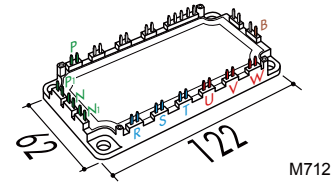
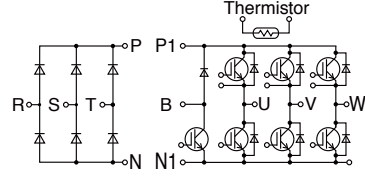
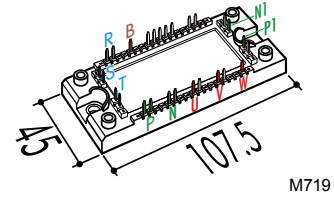
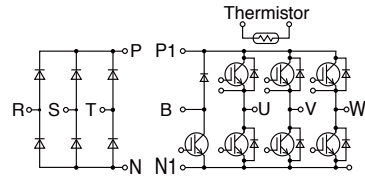
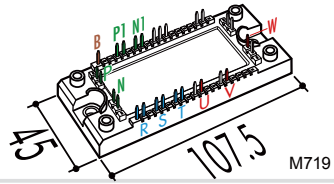
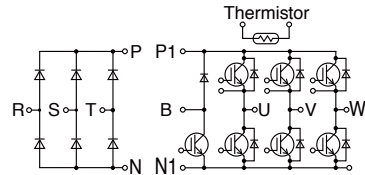
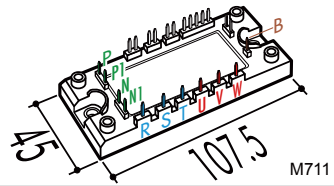


XRKD

| | 650V X series | 600V V series | 1200V X series | 1200V V series |
|-----|-----------------|-----------------|------------------|-----------------|
| 10A | 7MBR10XKA065-50 | 7MBR10VKA060-50 | 7MBR10XKA120-50 | 7MBR10VKA120-50 |
| 15A | 7MBR15XKA065-50 | 7MBR15VKA060-50 | 7MBR15XKA120-50 | 7MBR15VKA120-50 |
| 20A | 7MBR20XKA065-50 | 7MBR20VKA060-50 | | |
| 25A | | | 7MBR25XKA120-50 | |
| 30A | 7MBR30XKA065-50 | 7MBR30VKA060-50 | | |
| 15A | | | 7MBR15XKB120-50 | 7MBR15VKB120-50 |
| 25A | | | 7MBR25XKB120-50 | 7MBR25VKB120-50 |
| 35A | | | 7MBR35XKB120-50 | 7MBR35VKB120-50 |
| 50A | 7MBR50XKB065-50 | 7MBR50VKB060-50 | 7MBR50XRKB120-50 | |
| 10A | 7MBR10XKC065-50 | 7MBR10VKC060-50 | 7MBR10XKC120-50 | 7MBR10VKC120-50 |
| 15A | 7MBR15XKC065-50 | 7MBR15VKC060-50 | 7MBR15XKC120-50 | 7MBR15VKC120-50 |
| 20A | 7MBR20XKC065-50 | 7MBR20VKC060-50 | | |
| 25A | | | 7MBR25XKC120-50 | |
| 30A | 7MBR30XKC065-50 | 7MBR30VKC060-50 | | |
| 15A | | | 7MBR15XKD120-50 | 7MBR15VKD120-50 |
| 25A | | | 7MBR25XKD120-50 | 7MBR25VKD120-50 |
| 35A | | | 7MBR35XKD120-50 | 7MBR35VKD120-50 |
| 50A | 7MBR50XKD065-50 | 7MBR50VKD060-50 | 7MBR50XRKD120-50 | |

PIM (Power Integrated Modules) EconoPIM™

With NTC, solder pins, PIM

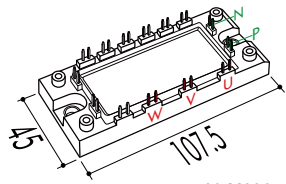


| Ic | 650V | | 600V | | 1200V | |
|------|------------------|--|-----------------|--|------------------|-----------------|
| | X series | | V series | | X series | V series |
| 25A | | | | | | 7MBR25VA120-50 |
| 35A | | | | | | 7MBR35VA120-50 |
| 50A | | | 7MBR50VA060-50 | | | |
| 25A | | | | | | 7MBR25VM120-50 |
| 35A | | | | | 7MBR35XMA120-50 | 7MBR35VM120-50 |
| 50A | 7MBR50XMA065-50 | | | | 7MBR50XMA120-50 | 7MBR50VM120-50 |
| 75A | 7MBR75XMA065-50 | | | | 7MBR75XME120-50 | |
| 25A | | | | | | 7MBR25VP120-50 |
| 35A | | | | | 7MBR35XPA120-50 | 7MBR35VP120-50 |
| 50A | 7MBR50XPA065-50 | | 7MBR50VP060-50 | | 7MBR50XPA120-50 | 7MBR50VP120-50 |
| 75A | 7MBR75XPA065-50 | | 7MBR75VP060-50 | | 7MBR75XPE120-50 | |
| 100A | 7MBR100XPE065-50 | | 7MBR100VP060-50 | | 7MBR75XPE120-50 | |
| 35A | | | | | | 7MBR35VB120-50 |
| 50A | | | | | | 7MBR50VB120-50 |
| 75A | | | 7MBR75VB060-50 | | | 7MBR75VB120-50 |
| 100A | | | 7MBR100VB060-50 | | | |
| 50A | | | | | | 7MBR50VN120-50 |
| 75A | 7MBR75XNA065-50 | | | | 7MBR75XNA120-50 | 7MBR75VN120-50 |
| 100A | 7MBR100XNA065-50 | | | | 7MBR100XNA120-50 | 7MBR100VN120-50 |
| 150A | 7MBR150XNA065-50 | | | | 7MBR150XNE120-50 | 7MBR150VN120-50 |
| 50A | | | | | | 7MBR50VR120-50 |
| 75A | | | | | 7MBR75XRA120-50 | 7MBR75VR120-50 |
| 100A | 7MBR100XRA065-50 | | 7MBR100VR060-50 | | 7MBR100XRA120-50 | 7MBR100VR120-50 |
| 150A | 7MBR150XRA065-50 | | 7MBR150VR060-50 | | 7MBR100XRE120-50 | |
| | 7MBR150XRE065-50 | | | | 7MBR150XRE120-50 | 7MBR150VR120-50 |

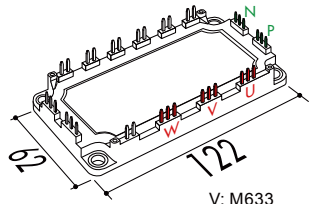
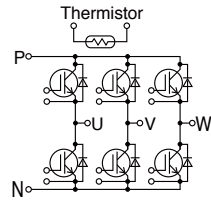
Note1: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

6-Pack EconoPACK™

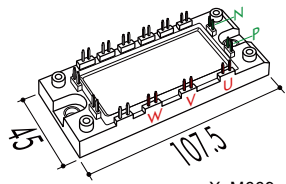
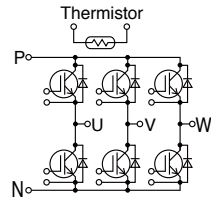
With NTC, solder pins



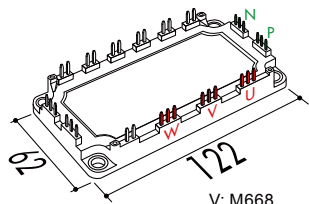
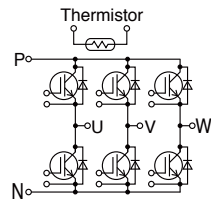
V: M636



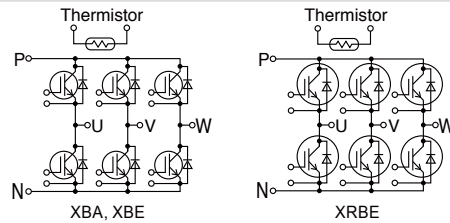
V: M633



X: M669



V: M668



mm

Ic

600V

V series

1200V

X series



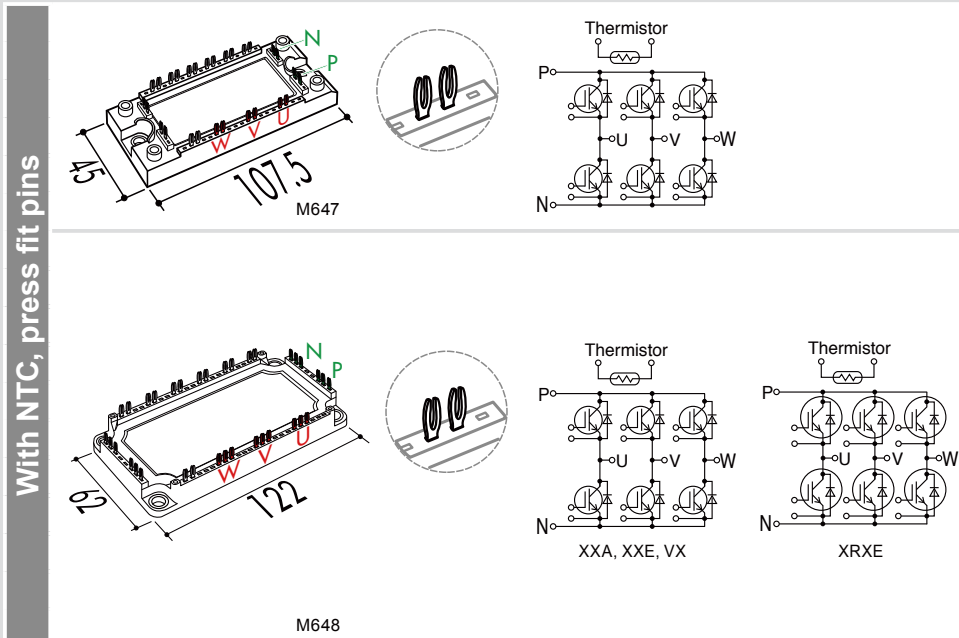
V series

| Ic | 600V V series | 1200V X series | 1200V V series |
|------|------------------|--------------------|------------------|
| 50A | 6MBI50VA-060-50 | | 6MBI50VA-120-50 |
| 75A | 6MBI75VA-060-50 | | 6MBI75VA-120-50 |
| 100A | 6MBI100VA-060-50 | | 6MBI100VA-120-50 |
| 100A | | | 6MBI100VB-120-50 |
| 150A | 6MBI150VB-060-50 | | 6MBI150VB-120-50 |
| 180A | | | 6MBI180VB-120-50 |
| | | | 6MBI180VB-120-55 |
| 100A | | 6MBI100XAE120-50 | |
| 100A | | 6MBI100XBA120-50 | |
| 150A | | 6MBI150XBA120-50 | |
| 200A | | 6MBI200XBA120-50 | |
| | | 6MBI200XBE120-50 | |
| 250A | | 6MBI250XRBE120-50* | |

Note1: 6MBI180VB-120-55; Premium type (Low Thermal Impedance Version)
 Note2: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

*Under development

6-Pack EconoPACK™

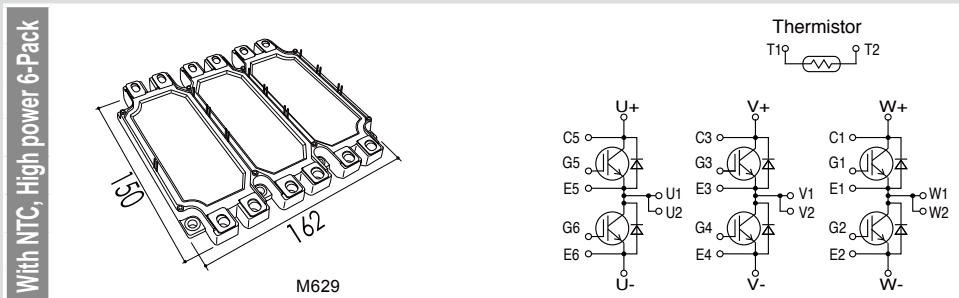


| Ic | 600V | 1200V | | 1700V |
|------|------------------|--------------------|------------------|------------------|
| | V series | X series | V series | V series |
| 50A | 6MBI50VW-060-50 | | 6MBI50VW-120-50 | |
| 75A | 6MBI75VW-060-50 | | 6MBI75VW-120-50 | |
| 100A | 6MBI100VW-060-50 | | 6MBI100VW-120-50 | |
| 100A | | 6MBI100XXA120-50 | 6MBI100VX-120-50 | 6MBI100VX-170-50 |
| | | | 6MBI100VX-120-80 | 6MBI100VX-170-80 |
| 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* | | |

Note1: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
 Note2: "-80", "-85": High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate for "-50", "-55" type.
 Note3: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

*Under development

6-Pack EconoPACK™+

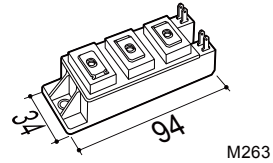


| Ic | 1200V | 1700V |
|------|-----------------|-----------------|
| | V series | V series |
| 225A | 6MBI225V-120-50 | |
| 300A | 6MBI300V-120-50 | 6MBI300V-170-50 |
| | 6MBI300V-120-80 | |
| 450A | 6MBI450V-120-50 | 6MBI450V-170-50 |
| | | 6MBI450V-170-80 |
| 550A | 6MBI550V-120-50 | |

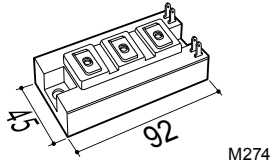
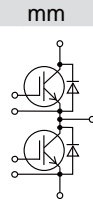
Note1: EconoPACK™+ is registered trademark of Infineon Technologies AG, Germany.
 Note2: "-80": High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate of "-50" type.

Standard 2-Pack

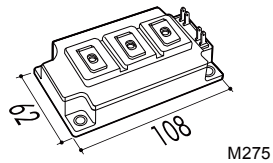
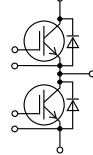
2-Pack



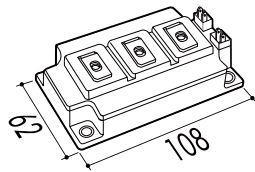
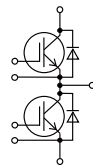
M263



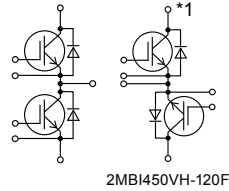
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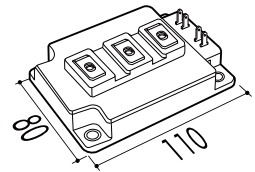
M275



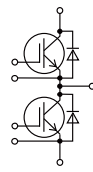
M276



2MBI450VH-120F





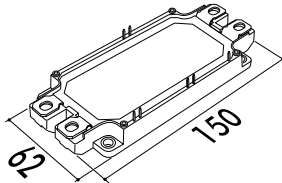
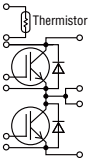
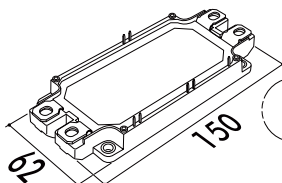
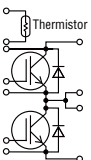
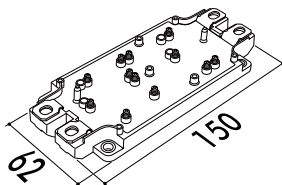
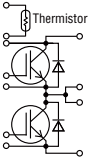
M277



| Ic | 650V | | 600V | | 1200V | | 1700V | |
|------|------------------|------------------|------------------|---------------------------------|------------------|------------------|------------------|------------------|
| | X series | V series | X series | V series | X series | V series | X series | V series |
| 75A | | | | | | | | |
| 100A | | 2MBI100VA-060-50 | 2MBI100XAA120-50 | 2MBI100VA-120-50 | 2MBI100XAA170-50 | 2MBI100VA-170-50 | 2MBI100XAA170-50 | 2MBI100VA-170-50 |
| 150A | 2MBI150XAA065-50 | 2MBI150VA-060-50 | 2MBI150XAA120-50 | 2MBI150VA-120-50 | 2MBI150XAA170-50 | 2MBI150VA-170-50 | 2MBI150XAA170-50 | |
| 200A | 2MBI200XAA065-50 | 2MBI200VA-060-50 | 2MBI200XAA120-50 | | | | | |
| 150A | | | | | | 2MBI150VB-120-50 | | |
| 200A | | | | | 2MBI200XBE120-50 | 2MBI200VB-120-50 | | |
| 300A | 2MBI300XBE065-50 | 2MBI300VB-060-50 | 2MBI300XBE120-50 | | | | | |
| 400A | 2MBI400XBE065-50 | 2MBI400VB-060-50 | | | | | | |
| 300A | | | | | | 2MBI300VD-120-50 | | |
| 400A | 2MBI400XDE065-50 | 2MBI400VD-060-50 | 2MBI400XDE120-50 | 2MBI400VD-120-50 | | | | |
| 600A | 2MBI600XDE065-50 | 2MBI600VD-060-50 | 2MBI600XDE120-50 | | | | | |
| 150A | | | | | | | 2MBI150XHA170-50 | 2MBI150VH-170-50 |
| 200A | | | | | | | 2MBI200XHA170-50 | 2MBI200VH-170-80 |
| 300A | | | | | | 2MBI200VH-120-50 | 2MBI200VH-120-80 | 2MBI200VH-170-80 |
| 300A | | | 2MBI300XHA120-50 | 2MBI300VH-120-50 | 2MBI300XHA170-50 | 2MBI300VH-120-80 | 2MBI300XHA170-50 | 2MBI300VH-170-50 |
| 400A | | | | | | | 2MBI300VH-120-80 | 2MBI300VH-170-80 |
| 450A | | | 2MBI450XHA120-50 | 2MBI450VH-120-50 | 2MBI400XHA170-50 | | | |
| | | | | 2MBI450VH-120-80 | | | | |
| | | | | 2MBI450VH-120F-50 ^{*1} | | | | |
| | | | | 2MBI450VH-120F-80 ^{*1} | | | | |
| 600A | | | 2MBI600XHA120-50 | | | | | |
| 300A | | | | | | 2MBI300VE-120-50 | 2MBI300XEE170-50 | 2MBI300VE-170-50 |
| | | | | | | 2MBI300VE-120-80 | | 2MBI300VE-170-80 |
| 400A | | | | | | | 2MBI400XEE170-50 | 2MBI400VE-170-50 |
| | | | | | | | | 2MBI400VE-170-80 |
| 450A | | | 2MBI450XEE120-50 | 2MBI450VE-120-50 | | | | |
| | | | | 2MBI450VE-120-80 | | | | |
| 600A | 2MBI600XEE065-50 | 2MBI600VE-060-50 | 2MBI600XEE120-50 | 2MBI600VE-120-50 | | | | |
| | | 2MBI600VE-060-80 | | 2MBI600VE-120-80 | | | | |

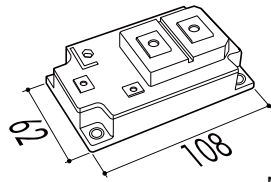
Note: "-80" : High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate of "-50" type.

Standard 2-Pack

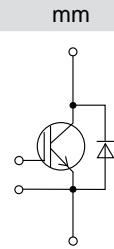
| | mm | Ic | 1200V | | | 1700V | | |
|---------------------------|--|-------|---|--------------------------------------|--|--|--------------------------------------|--------------------------------------|
| | | | X series  | V series | V series With SiN substrate *1 | X series  | V series | V series With SiN substrate *1 |
| With NTC, solder pins |  M254  | 225A | 2MBI225XNA120-50 | 2MBI225VN-120-50 2MBI225VN-120-80 | 2MBI225VN-120S-50 | 2MBI225XNA170-50 | | |
| | | 300A | 2MBI300XNA120-50 | 2MBI300VN-120-50 2MBI300VN-120-80 | 2MBI300VN-120S-50 2MBI300VN-120S-80 | 2MBI300XNA170-50 | 2MBI300VN-170-50 2MBI300VN-170-80 | |
| | | 450A | 2MBI450XNA120-50 | 2MBI450VN-120-50 2MBI450VN-120-80 | 2MBI450VN-120S-50 2MBI450VN-120S-80 | 2MBI450XNA170-50 | 2MBI450VN-170-50 2MBI450VN-170-80 | |
| | | 550A | | | | | | 2MBI550VN-170-50 2MBI550VN-170-80 |
| | | 600A | 2MBI600XNG120-50 | | 2MBI600VN-120-50 2MBI600VN-120-80 | 2MBI600XNG170-50 | | |
| | | 600A | 2MBI600XNE120-50 | | | 2MBI600XNE170-50 | | |
| | | 800A | 2MBI800XNE120-50 | | | | | |
| | | 1000A | 2MBI1000XRNE120-50 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| With NTC, press fit pins |  M282  | 225A | 2MBI225XNB120-50 | 2MBI225VX-120-50 2MBI225VX-120-80 | | 2MBI225XNB170-50 | 2MBI225VX-170-50 2MBI225VX-170-80 | |
| | | 300A | 2MBI300XNB120-50 | 2MBI300VX-120-50 2MBI300VX-120-80 | | 2MBI300XNB170-50 | 2MBI300VX-170-50 2MBI300VX-170-80 | |
| | | 450A | 2MBI450XNB120-50 | 2MBI450VX-120-50 2MBI450VX-120-80 | | 2MBI450XNB170-50 | 2MBI450VX-170-50 2MBI450VX-170-80 | |
| | | 550A | | | | | | 2MBI550VX-170-50 2MBI550VX-170-80 |
| | | 600A | 2MBI600XNH120-50 | | 2MBI600VX-120-50 2MBI600VX-120-80 | 2MBI600XNH170-50 | | |
| | | 600A | 2MBI600XNF120-50 | | | 2MBI600XNF170-50 | | |
| | | 800A | 2MBI800XNF120-50 | | | | | |
| | | 1000A | 2MBI1000XRNF120-50 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| With NTC, spring contacts |  M260  | 225A | | 2MBI225VJ-120-50 2MBI225VJ-120-80 | | | | |
| | | 300A | | 2MBI300VJ-120-50 2MBI300VJ-120-80 | | | | |
| | | 450A | | 2MBI450VJ-120-50 2MBI450VJ-120-80 | | | | |
| | | 550A | | | | | 2MBI550VJ-170-50 2MBI550VJ-170-80 | |
| | | 600A | | | 2MBI600VJ-120-50 2MBI600VJ-120-80 | | | |
| | | | | | | | | |

Note1: * -80° : High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate of *-50° type. Note2: *1 Low Thermal Impedance Version Note3: *2 Low thermal impedance and high tracking capability type Note4: The products with 'XNE, XNF, XNG, XNH, XRNE, XRNF': Low Thermal Impedance Version

Standard 1-Pack

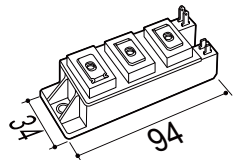


M153

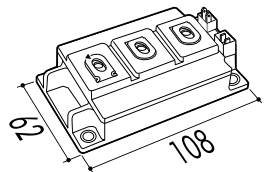
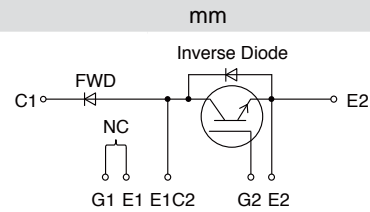


| Ic | 1200V | | 1700V |
|------|-----------------|-----------------------------|-----------------|
| | V series | V series with AlN substrate | V series |
| 300A | | | 1MBI300V-170-50 |
| 400A | 1MBI400V-120-50 | 1MBI400VF-120-50 | 1MBI400V-170-50 |
| 600A | 1MBI600V-120-50 | 1MBI600VF-120-50 | 1MBI600V-170-50 |
| 900A | 1MBI900V-120-50 | | |

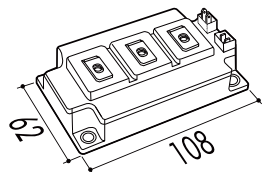
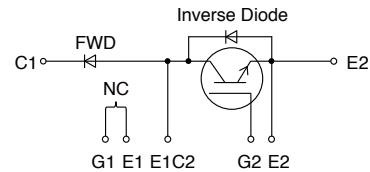
Chopper



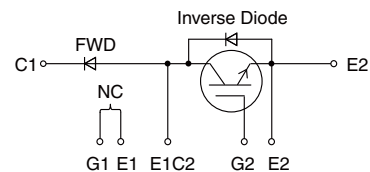
M262



M259



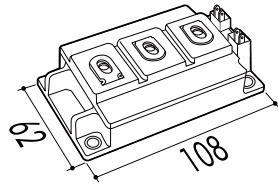
M283



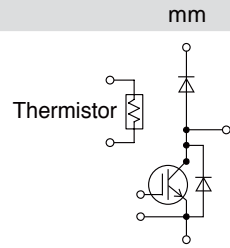
| Ic | 600V | | 1200V | |
|------|--------------------|-------------------|--------------------|-------------------|
| | U series | V series | U series | V series |
| 50A | | | 1MBI50U4F-120L-50 | |
| 75A | | | 1MBI75U4F-120L-50 | |
| 100A | | | 1MBI100U4F-120L-50 | |
| 150A | | | | 1MBI150VA-120L-50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

High Speed Modules

Chopper



M249



mm

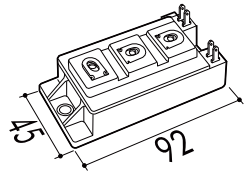
I_c

1200V

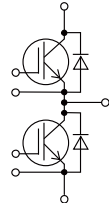
High Speed IGBT

- 200A** 1MBI200HH-120L-50
- 300A** 1MBI300HH-120L-50
- 400A** 1MBI400HH-120L-50

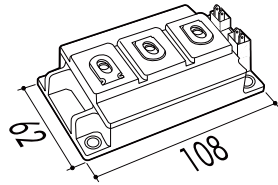
2-Pack



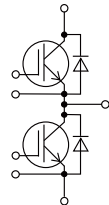
M233



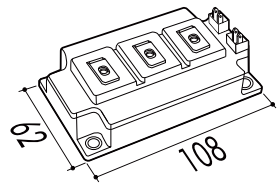
- 100A** 2MBI100HB-120-50



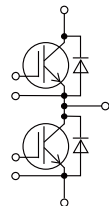
M249



- 150A** 2MBI150HH-120-50
- 200A** 2MBI200HH-120-50

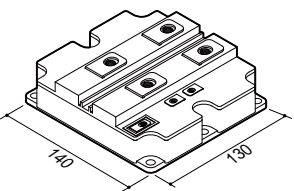
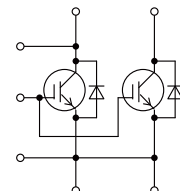
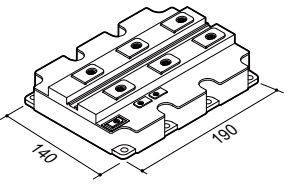
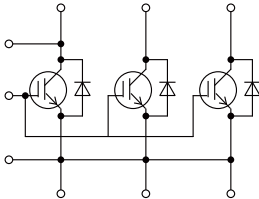
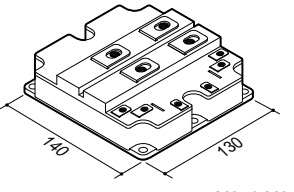
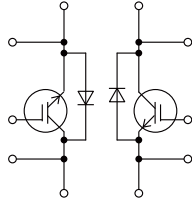


M276



- 100A** 2MBI100HJ-120-50
- 150A** 2MBI150HJ-120-50
- 200A** 2MBI200HJ-120-50
- 300A** 2MBI300HJ-120-50

High Power Modules

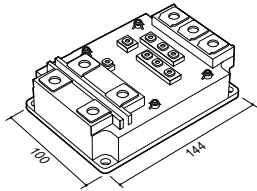
| | | 1200V | 1700V | | 3300V | | |
|--------|--|--------------------|--------------------|-----------------|--------------------|------------------------------------|--|
| | | V series Trench-FS | V series Trench-FS | | U series Trench-FS | | |
| | | Cu-baseplate | Cu-baseplate | AlSiC-baseplate | AlSiC-baseplate | AlSiC-baseplate Low switching loss | |
| | mm | lc | | | | | |
| 1-Pack |  M151, M155  | 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 | | |
| 1-Pack |  M152, M156  | 1200A | | | 1MBI1200UE-330 | | |
| | | 1500A | | | 1MBI1500UE-330 | 1MBI1500UE-330B | |
| | | 2400A | 1MBI2400VD-120P | 1MBI2400VD-170E | 1MBI2400VS-170E | | |
| | | 3600A | 1MBI3600VD-120P | 1MBI3600VD-170E | 1MBI3600VS-170E | | |
| | | | | | | | |
| 2-Pack |  M256, M278  | 600A | 2MBI600VG-120P | 2MBI600VG-170E | 2MBI600VT-170E | | |
| | | 800A | 2MBI800VG-120P | 2MBI800VG-170E | 2MBI800VT-170E | | |
| | | 1200A | 2MBI1200VG-120P | 2MBI1200VG-170E | 2MBI1200VT-170E | | |
| | | | | | | | |

Note: M151, M152, M256: Cu-baseplate M155, M156, M278: AlSiC-baseplate

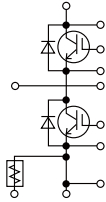
High Power Modules

mm

2-Pack HPnC



M292



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

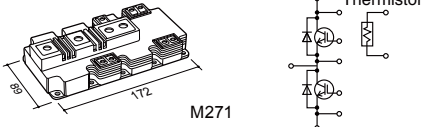
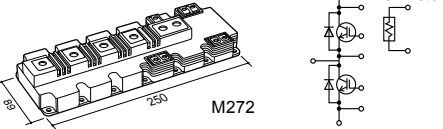
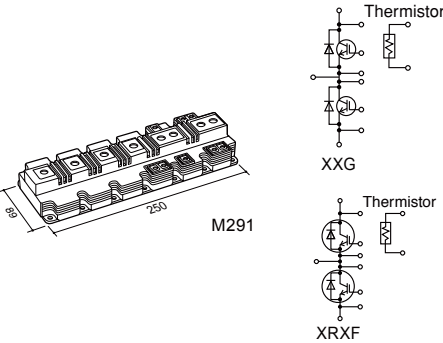
*Under development

PrimePACK™

2-Pack

mm

Ic

| | X series | 1200V | | | X series | 1700V | | | |
|---|--|--------------------|---------------------|---------------------|-------------------|---------------------|---------------------|---------------|--------------------|
| | | V series | Low switching loss | Soft turn off | | V series | Low switching loss | Soft turn off | |
| | | | | | | | | | Low switching loss |
|  <p>M271</p> | 600A | | 2MBI600VXA-120E-50 | | | | | | |
| | | | 2MBI600VXA-120E-80 | | | | | | |
| | | | 2MBI600VXA-120E-54 | | | | | | |
| | 650A | | | | | 2MBI650XXA170-50 | 2MBI650VXA-170E-50 | | |
| | | | | | | | 2MBI650VXA-170E-80 | | |
| | | | | | | | 2MBI650VXA-170E-54 | | |
| | | | | | | | 2MBI650VXA-170EA-50 | | |
| | | | | | | | 2MBI650VXA-170EA-80 | | |
| | 900A | 2MBI900XXA120P-50* | 2MBI900VXA-120E-50 | 2MBI900VXA-120P-50 | | | | | |
| | | | 2MBI900VXA-120E-80 | 2MBI900VXA-120P-80 | | | | | |
| 2MBI900VXA-120E-54 | | | 2MBI900VXA-120P-54 | | | | | | |
| | | | | | | | | | |
| 1200A | 2MBI1200XXE120P-50 | | | 2MBI1200XXE170-50 | | | | | |
|  <p>M272</p> | 1000A | | | | 2MBI1000XXB170-50 | 2MBI1000VXB-170E-50 | | | |
| | | | | | | | 2MBI1000VXB-170E-80 | | |
| | | | | | | | 2MBI1000VXB-170E-54 | | |
| | 1400A | 2MBI1400XXB120P-50 | 2MBI1400VXB-120E-50 | 2MBI1400VXB-120P-50 | 2MBI1400XXB170-50 | 2MBI1400VXB-170E-50 | 2MBI1400VXB-170P-50 | | |
| | | | 2MBI1400VXB-120E-80 | 2MBI1400VXB-120P-80 | | 2MBI1400VXB-170E-80 | 2MBI1400VXB-170P-80 | | |
| | | | 2MBI1400VXB-120E-54 | 2MBI1400VXB-120P-54 | | 2MBI1400VXB-170E-54 | 2MBI1400VXB-170P-54 | | |
| | | | | | | | | | |
| | 1800A | 2MBI1800XXF120P-50 | | | 2MBI1800XXF170-50 | | | | |
| |  <p>M291</p> | 1800A | | | 2MBI1800XXG170-50 | | | | |
| | | 2400A | 2MBI2400XRXG120-50* | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |

Note1: The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_F.
 Note2: "-80": High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate for "-54" type.

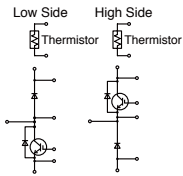
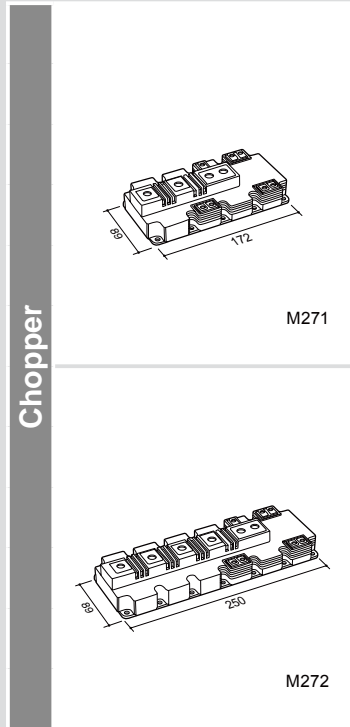
Note3: The products with 'EA' on this page have large FWD.
 Note4: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
 Note5: The products with 'P' on this page are 'soft turn off' type.
 *Under development

PrimePACK™

Chopper

mm

I_c

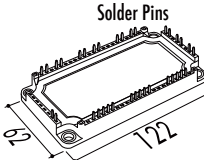
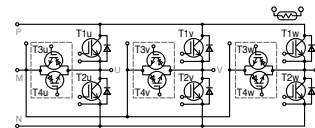
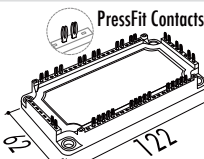
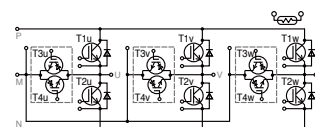
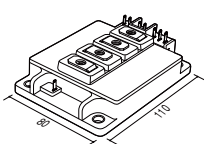
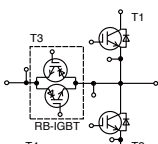
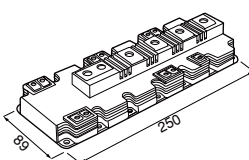
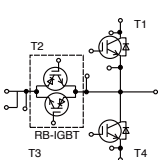


| | | 1200V | | 1700V | |
|---------|-------|------------------------|-------------------------|------------------------|-------------------------|
| | | V series | | V series | |
| | | Low side configuration | High side configuration | Low side configuration | High side configuration |
| Chopper | 650A | | | 1MBI650VXA-170EL-50 | 1MBI650VXA-170EH-50 |
| | | | | 1MBI650VXA-170EL-80 | 1MBI650VXA-170EH-80 |
| | | | | 1MBI650VXA-170EL-54 | 1MBI650VXA-170EH-54 |
| | 900A | 1MBI900VXA-120PD-50 *1 | 1MBI900VXA-120PC-50 *1 | | |
| | | 1MBI900VXA-120PD-54 *1 | 1MBI900VXA-120PC-54 *1 | | |
| | | 1MBI900VXA-120PD-80 *1 | 1MBI900VXA-120PC-80 *1 | | |
| | 1000A | | | 1MBI1000VXB-170EL-50 | 1MBI1000VXB-170EH-50 |
| | | | | 1MBI1000VXB-170EL-80 | 1MBI1000VXB-170EH-80 |
| | | | | 1MBI1000VXB-170EL-54 | 1MBI1000VXB-170EH-54 |
| | 1400A | | | 1MBI1400VXB-170PL-50 | 1MBI1400VXB-170PH-50 |
| | | 1MBI1400VXB-120PL-54 | 1MBI1400VXB-120PH-54 | 1MBI1400VXB-170PL-54 | 1MBI1400VXB-170PH-54 |
| | | 1MBI1400VXB-120PL-80 | 1MBI1400VXB-120PH-80 | 1MBI1400VXB-170PL-80 | 1MBI1400VXB-170PH-80 |

Note1: The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_F.
 Note2: "-80" : High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate for "-54" type.

Note3: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.
 Note4: *1: Antiparallel diode current rating is 120A. Application circuit is Boost/Buck chopper only.

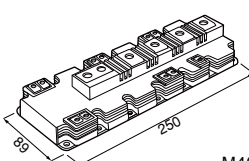
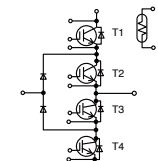
Advanced T-type NPC 3-level Modules

| | | mm | Ic | 600V | | 1200V | | 1700V | |
|----------------------------------|---|---|--------------------|-------------------|---------|------------------------|---------|--------------------|---------|
| | | | | V series | RB-IGBT | V series | RB-IGBT | V series | RB-IGBT |
| 3 Phase With NTC, solder pins |  Solder Pins M1203 |  | 50A | | | 12MBI50VN-120-50 | 600V | | |
| | | | 75A | | | 12MBI75VN-120-50 | 600V | | |
| | | | 100A | | | 12MBI100VN-120-50 | 600V | | |
| | | | | | | | | | |
| 3 Phase With NTC, press fit pins |  PressFit Contacts M1202 |  | 50A | | | 12MBI50VX-120-50 | 600V | | |
| | | | 75A | | | 12MBI75VX-120-50 | 600V | | |
| | | | 100A | | | 12MBI100VX-120-50 | 600V | | |
| | | | | | | | | | |
| 1 Phase |  M403 |  | 220A | | | | | 4MBI220VG-170R2-50 | 1200V |
| | | | 300A | | | 4MBI300VG-120R-50 | 600V | | |
| | | | 340A | | | 4MBI300VG-120R1-50 | 900V | | |
| | | | 400A | 4MBI400VG-060R-50 | 600V | 4MBI340VF-120R-50 | 600V | | |
| | | | 450A | | | 4MBI400VF-120R-50*1 | 600V | | |
| | | | | | | 4MBI450VF-120RD-50*2*3 | 600V | | |
| 1 Phase |  M404 |  | 450A | | | 4MBI450VB-120R1-50 | 900V | 4MBI450VB-170R2-50 | 1200V |
| | | | 600A | | | 4MBI450VB-120R1-60 | 900V | 4MBI450VB-170R2-60 | 1200V |
| | | | 650A | | | | | 4MBI600VB-170R2-50 | 1200V |
| | | | 900A | | | 4MBI600VB-170R2-60 | 1200V | | |
| | | | | | | 4MBI650VB-120R1-50 | 900V | | |
| | | | | | | 4MBI650VB-120R1-60 | 900V | | |
| | | | | | | 4MBI900VB-120R1-50 | 900V | | |
| | | | | | | 4MBI900VB-120R1-60 | 900V | | |
| | | | 4MBI900VB-120RA-50 | 600V | | | | | |
| | | | 4MBI900VB-120RA-60 | 600V | | | | | |

Note: AT-NPC (Advanced T-type Neutral-Point-Clamped) 3-level Module integrates RB-IGBT (Reverse Blocking-IGBT) in addition to ordinary IGBT and FWD in single package.

*1: Particular for Inverter of UPS or PCS *2: Particular for Converter of UPS *3: Under development

I-type NPC 3-level Module

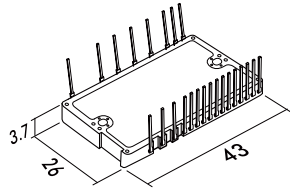
| | | mm | Ic | 600V | 1200V | 1700V |
|---------|---|---|------|----------|------------------|----------|
| | | | | V series | V series | V series |
| 1 Phase |  M404 |  | 600A | | 4MBI600VC-120-50 | |
| | | | | | 4MBI600VC-120-60 | |
| | | | | | | |

Small IPM (Intelligent Power Modules)

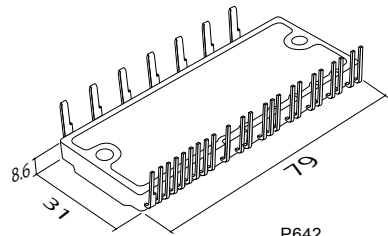
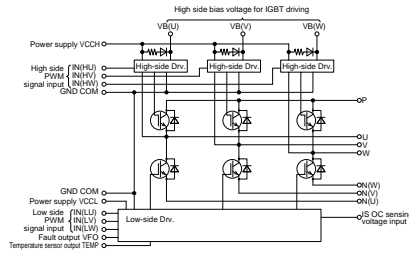
Small IPM with High Voltage Driver-IC without Brake-Chopper

Built-in protection functions

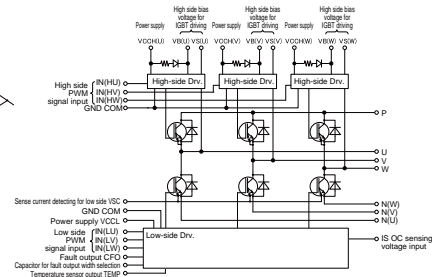
- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)



P633A



P642



| | | 600 / 650V | | X series | |
|---|---|------------|---|----------|---|
| | | mm | | Ic | |
| ✓ | — | ✓ | ✓ | ✓ | — |
| ✓ | ✓ | ✓ | ✓ | ✓ | — |
| ✓ | — | ✓ | ✓ | ✓ | — |
| ✓ | ✓ | ✓ | ✓ | ✓ | — |
| ✓ | — | ✓ | ✓ | ✓ | — |
| ✓ | ✓ | ✓ | ✓ | ✓ | — |

- 15A 6MBP15XSD060-50
- 20A 6MBP20XSD060-50
- 30A 6MBP30XSD060-50
- 35A 6MBP35XSD060-50

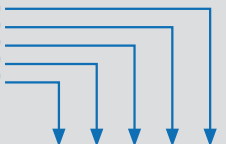
- 15A 6MBP15XSF060-50
- 20A 6MBP20XSF060-50
- 30A 6MBP30XSF060-50
- 35A 6MBP35XSF060-50

- 50A 6MBP50XTA065-50
- 75A 6MBP75XTA065-50

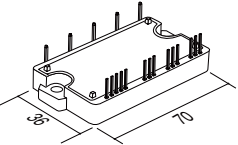
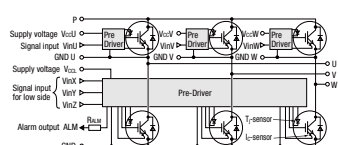
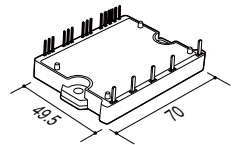
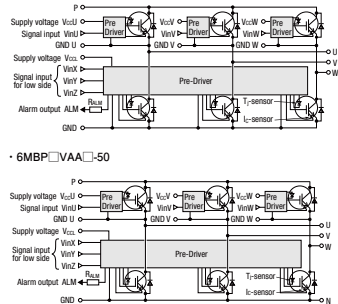
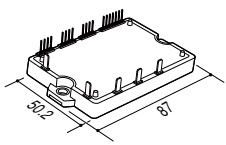
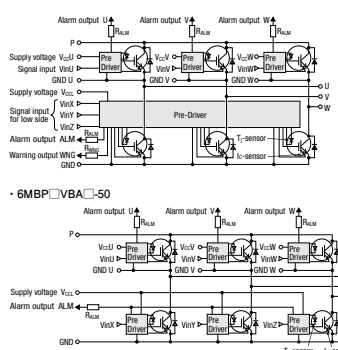
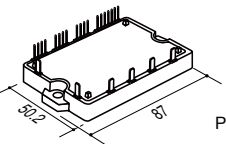
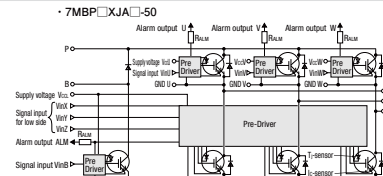
- 50A 6MBP50XTC065-50
- 75A 6MBP75XTC065-50

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)



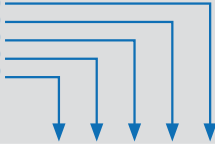
IPM (Intelligent Power Modules)

| | | mm | | 650V | | 600V | | 1200V | | | |
|---|--|--|--|-----------|-----|----------|------|-----------|-----|-----|-----|
| | | | | X series | | V series | | X series | | | |
| | | | | series 7G | | | | series 7G | | | |
| | | | | Ic | | | | Ic | | | |
| Without Brake-Chopper |  <p>P639</p> |  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | | | <ul style="list-style-type: none"> 6MBP□XAA□-50 | 10A | 20A | 30A | | | | | |
| | | | | | | | | | | | |
| |  <p>P629</p> |  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | | | <ul style="list-style-type: none"> 6MBP□VAA□-50 | 10A | 15A | 20A | 25A | 30A | 35A | 50A | 75A |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| |  <p>P626</p> |  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <ul style="list-style-type: none"> 6MBP□XBA□-50 | | | 25A | 35A | 50A | 75A | 100A | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
|  <p>P644</p> |  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | | <ul style="list-style-type: none"> 7MBP□XJA□-50 | 25A | 35A | 50A | 75A | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

*Under development

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)



IPM (Intelligent Power Modules)

mm

| | mm | Diagram | 650V | | 600V | | 1200V | |
|-----------------------|------|---------|----------|-------------------|------------------|------------------|-----------------|--|
| | | | X series | V series | X series | V series | | |
| Without Brake-Chopper | P636 | | 25A | | | 6MBP25XFN120-50* | 6MBP25VFN120-50 | |
| | | | 35A | | | 6MBP35XFN120-50* | 6MBP35VFN120-50 | |
| | | | 50A | 6MBP50XFN065-50* | 6MBP50VFN060-50 | 6MBP50XFN120-50* | 6MBP50VFN120-50 | |
| | | | 75A | 6MBP75XFN065-50* | 6MBP75VFN060-50 | | | |
| | | | 100A | 6MBP100XFN065-50* | 6MBP100VFN060-50 | | | |
| With Brake-Chopper | P638 | | 25A | | | 7MBP25XFN120-50* | 7MBP25VFN120-50 | |
| | | | 35A | | | 7MBP35XFN120-50* | 7MBP35VFN120-50 | |
| | | | 50A | 7MBP50XFN065-50* | 7MBP50VFN060-50 | 7MBP50XFN120-50* | 7MBP50VFN120-50 | |
| | | | 75A | 7MBP75XFN065-50* | 7MBP75VFN060-50 | | | |
| | | | 100A | 7MBP100XFN065-50* | 7MBP100VFN060-50 | | | |
| Without Brake-Chopper | P638 | | 25A | | | 6MBP25XGA120-50* | | |
| | | | 35A | | | 6MBP35XGA120-50* | | |
| | | | 50A | 6MBP50XGA065-50* | | 6MBP50XGN120-50* | | |
| | | | 75A | 6MBP75XGA065-50* | | 6MBP75XGN120-50* | | |
| | | | 100A | 6MBP100XGN065-50* | | | | |
| | | | 150A | 6MBP150XGN065-50* | | | | |

*Under development

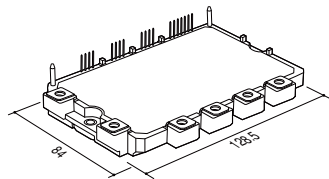
Built-in protection functions

- 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)

IPM (Intelligent Power Modules)

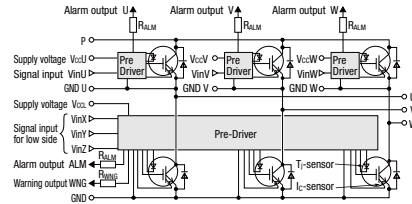
Without Brake-Chopper

With Brake-Chopper

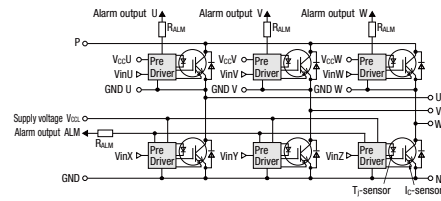


P630

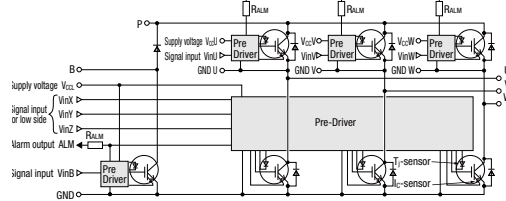
- 6MBP□XDA□-50
- 6MBP□XDN□-50



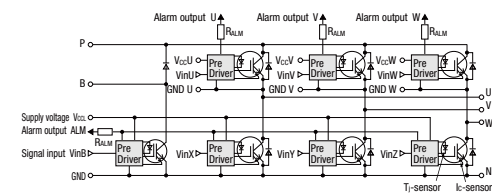
- 6MBP□VDA□-50
- 6MBP□VDN□-50



- 7MBP□XDA□-50
- 7MBP□XDN□-50



- 7MBP□VDA□-50
- 7MBP□VDN□-50






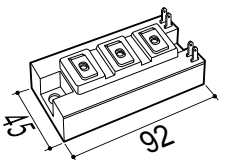
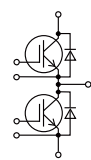
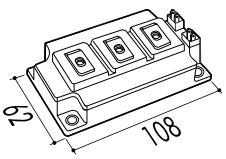
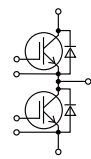
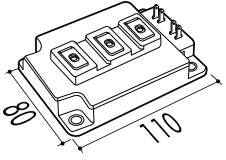
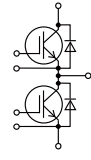
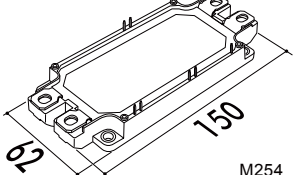
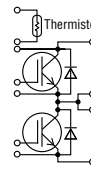
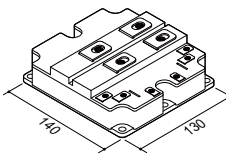
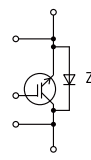
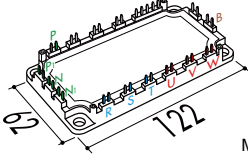
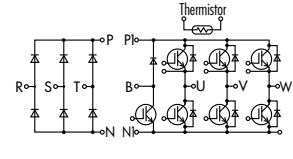
mm

| Ic | 650V | | 600V | | 1200V | |
|------|-------------------|---|------------------|---|-------------------|------------------|
| | X series | | V series | | X series | V series |
| 25A | | | | | 6MBP25XDA120-50* | 6MBP25VDA120-50 |
| 35A | | | | | 6MBP35XDA120-50* | 6MBP35VDA120-50 |
| 50A | 6MBP50XDA065-50* | | 6MBP50VDA060-50 | | 6MBP50XDA120-50* | 6MBP50VDA120-50 |
| | | | | | 6MBP50XDN120-50* | 6MBP50VDN120-50 |
| 75A | 6MBP75XDA065-50* | | 6MBP75VDA060-50 | | 6MBP75XDA120-50* | 6MBP75VDA120-50 |
| | | | | | 6MBP75XDN120-50* | 6MBP75VDN120-50 |
| 100A | 6MBP100XDA065-50* | ✓ | 6MBP100VDA060-50 | ✓ | 6MBP100XDA120-50* | 6MBP100VDA120-50 |
| | 6MBP100XDN065-50* | ✓ | 6MBP100VDN060-50 | ✓ | 6MBP100XDN120-50* | 6MBP100VDN120-50 |
| 150A | 6MBP150XDA065-50* | | 6MBP150VDA060-50 | | 6MBP150XDA120-50* | |
| | 6MBP150XDN065-50* | | 6MBP150VDN060-50 | | 6MBP150XDN120-50* | |
| 200A | 6MBP200XDA065-50* | | 6MBP200VDA060-50 | | | |
| | 6MBP200XDN065-50* | | 6MBP200VDN060-50 | | | |
| 250A | 6MBP250XDA065-50* | | | | | |
| | 6MBP250XDN065-50* | | | | | |
| 25A | | | | | 7MBP25XDA120-50* | 7MBP25VDA120-50 |
| 35A | | | | | 7MBP35XDA120-50* | 7MBP35VDA120-50 |
| 50A | 7MBP50XDA065-50* | | 7MBP50VDA060-50 | | 7MBP50XDA120-50* | 7MBP50VDA120-50 |
| | | | | | 7MBP50XDN120-50* | 7MBP50VDN120-50 |
| 75A | 7MBP75XDA065-50* | | 7MBP75VDA060-50 | | 7MBP75XDA120-50* | 7MBP75VDA120-50 |
| | | | | | 7MBP75XDN120-50* | 7MBP75VDN120-50 |
| 100A | 7MBP100XDA065-50* | ✓ | 7MBP100VDA060-50 | ✓ | 7MBP100XDA120-50* | 7MBP100VDA120-50 |
| | 7MBP100XDN065-50* | ✓ | 7MBP100VDN060-50 | ✓ | 7MBP100XDN120-50* | 7MBP100VDN120-50 |
| 150A | 7MBP150XDA065-50* | | 7MBP150VDA060-50 | | 7MBP150XDA120-50* | |
| | 7MBP150XDN065-50* | | 7MBP150VDN060-50 | | 7MBP150XDN120-50* | |
| 200A | 7MBP200XDA065-50* | | 7MBP200VDA060-50 | | | |
| | 7MBP200XDN065-50* | | 7MBP200VDN060-50 | | | |
| 250A | 7MBP250XDA065-50* | | | | | |
| | 7MBP250XDN065-50* | | | | | |

Note1: The products with 'VDN,XDN' on this page have high heat dissipation characteristics.

*Under development

Hybrid SiC Modules

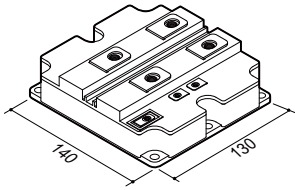
| | | 600V  | | 1200V  | | 1700V  | |
|--|---|---|--------------|--|--------------------|--|-------------------|
| | | V series | | V series | | V series | |
| 2-Pack |  M274 |  mm | 200A | | 2MSI200VAB-120-53 | | |
| |  M276 |  mm | 200A 300A | | 2MSI300VAH-120C-53 | 2MSI200VWAH-120-53* 2MSI300VWAH-120-53* | |
| |  M277 |  mm | 400A | | | | 2MSI400VAE-170-53 |
| |  M254 |  Thermistor | 300A | | 2MSI300VAN-120-53 | 2MSI300VWAN-120-53* | |
| | | | 450A | | 2MSI450VAN-120-53 | | |
| | | | 550A | | | | |
| 600A | | | | 2MSI600VAN-120-53 | | | |
|  M278 |  mm | 1200A | | | | 2MSI1200VAT-170EC *1* | |
| PIM |  M712 |  Thermistor | 35A | | 7MBR35VB120S-50 | | |
| | | | 50A | 7MBR50VB060S-50 | 7MBR50VB120S-50 | | |
| | | | 75A | 7MBR75VB060S-50 | | | |
| | | | 100A | 7MBR100VB060S-50 | | | |

*1: Low switching losses

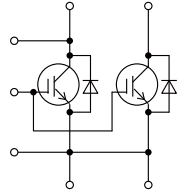
*Under development

Hybrid SiC Modules

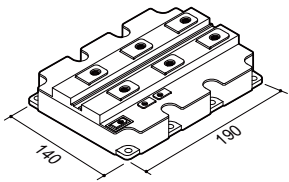
1-Pack



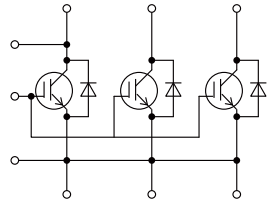
M155



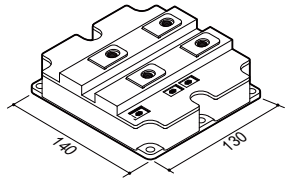
mm



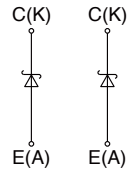
M156



Diode




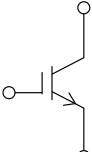

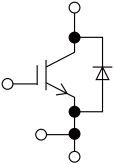

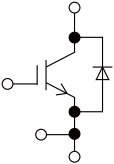

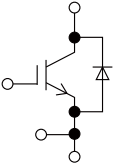
M289



| | | 3300V | |
|--------------|---------------------|--|--|
| | | X series  | SiC-SBD series  |
| 1200A | 1MSI1200XAGF330-03* | | |
| 1800A | 1MSI1800XAEF330-03* | | |
| 900A | 2SI900AGF330-03* | | |

*Under development

Discrete IGBT

| | Ic | 600V | | | 650V | 650V | 1200V | | | | | |
|--|---|----------|---------------------|---------------|---------------------|---------------|--------------|-------------|---------------------|---------------------|----------------|------------|
| | | V series | High speed V series | RB series | High speed W series | XS series | XS series | V series | High speed V series | High speed W series | | |
| TO-247-P TO-247-P2  |  | 15A | | | | | | | | | | |
| | | 25A | | | | | | | | | | |
| | | 30A | | | | FGW30N65W | FGW30XS65 | | | | | FGW25N120W |
| | | 35A | | FGW35N60H | | | | | | | | |
| | | 40A | | | | FGW40N65W | FGW40XS65 | FGW40XS120 | | | FGW40N120H | FGW40N120W |
| | | 50A | | FGW50N60H | | FGW50N65W | FGW50XS65 | | | | | |
| | | 60A | | | | FGW60N65W | | | | | | |
| | | 75A | | FGW75N60H | | FGW75N65W | FGW75XS65 | FGW75XS120 | | | | |
|  |  | 15A | | | | | | FGW15N120VD | FGW15N120HD | | | |
| | | 25A | | | | | | FGW25N120VD | | | FGW25N120WD/WE | |
| | | 30A | FGW30N60VD | | | | FGW30XS65C | | | | FGW30N120HD | |
| | | 35A | | FGW35N60HD/HC | | | | | | | | |
| | | 40A | | | | FGW40N65WD/WE | FGW40XS65C | FGW40XS120C | FGW40N120VD | FGW40N120HD | FGW40N120WD/WE | |
| | | 50A | FGW50N60VD | FGW50N60HD/HC | | FGW50N65WD/WE | FGW50XS65C/D | | | | | |
| | | 60A | | | | FGW60N65WD/WE | | | | | | |
| | | 75A | | FGW75N60HD/HC | | FGW75N65WE | FGW75XS65C/D | FGW75XS120C | | | | |
|  |  | 85A | | FGW85N60RB | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| TO-247-4-P2  |  | 40A | | | | | | | | | FGZ40N120WE | |
| | | 50A | | | | FGZ50N65WD/WE | | | | | | |
| | | 75A | | | | FGZ75N65WE | FGZ75XS65C | | | | | |

Recommended operating frequency

| 0~ | ~10 | ~20 | ~30 | ~40 | ~50 | ~60 | ~70 | ~80 | ~90 | ~100 | kHz |
|--------------|-----|-----|-----|-----|-----|--------------|-----|-----|-----|------|-----|
| V/RB | | | | | | | | | | | |
| High speed V | | | | | | | | | | | |
| XS | | | | | | | | | | | |
| | | | | | | High speed W | | | | | |

Rectifier Diode

| | | Ultra Fast Recovery Diodes | | Soft Recovery Fast Recovery Diodes | |
|----------------------|----------------------|----------------------------|------------|------------------------------------|-------------|
| | | 600V | 650V | 1200V | |
| | | | | | |
| | I_F | | | | |
| TO-220 | 15A | FDRP15S60L | | | |
| | 25A | FDRP25S60L | | | |
| | 35A | | | | |
| | 75A | | | | |
| TO-247-P2 | 40A | | | | FDRW40C120J |
| | 50A | | FDRW50C60L | | |
| | 60A | | | | FDRW60C120J |
| | 70A | | FDRW70C60L | | |
| TO-247-2L-P2 | 60A | | FDRW60T65L | | |
| | 75A | FDRW75T60L | | | |
| TO-247-(2pin)-P2 | 12A | | | FDRW12S120J | |
| | 15A | FDRW15S60L | | | |
| | 20A | | | FDRW20S120J | |
| | 25A | FDRW25S60L | | | |
| | 30A | | | FDRW30S120J | |
| | 35A | FDRW35S60L | | | |

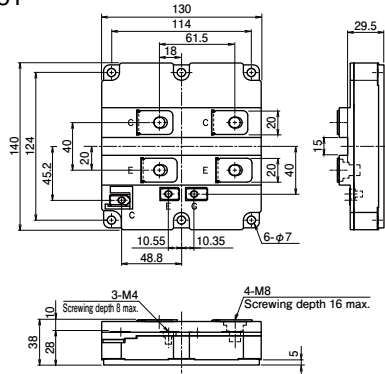
SiC-SBD



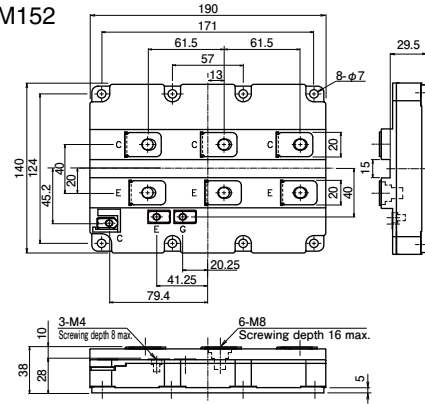
| | | 600V | | 1200V | |
|------------------|----------------------|-----------|-----------|------------|------------|
| | | | | | |
| | I_F | | | | |
| T-Pack(s) | 10A | FDCC10S65 | | | |
| | 20A | | FDCC20C65 | | |
| | 25A | FDCC25S65 | | | |
| TO-220-2 | 10A | FDCP10S65 | | | |
| | 25A | FDCP25S65 | | | |
| TO-220 | 20A | | FDCP20C65 | | |
| TO-220F | 20A | | FDCA20C65 | | |
| TO-220F-2 | 10A | FDCA10S65 | | | |
| | 18A | | | FDCA18S120 | |
| | 25A | FDCA25S65 | | | |
| TO-247 | 10A | FDCY10S65 | | | |
| | 18A | | | FDCY18S120 | |
| | 20A | | FDCY20C65 | | |
| | 25A | FDCY25S65 | | | |
| | 36A | | | | FDCY36C120 |
| TO-247-2L-P2 | 50A | | FDCY50C65 | | |
| | 18A | | | | FDCW18T120 |

Package Outlines, mm

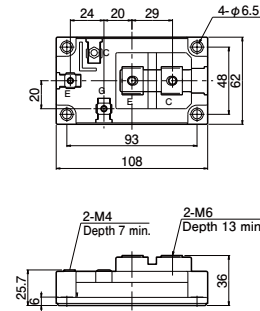
M151



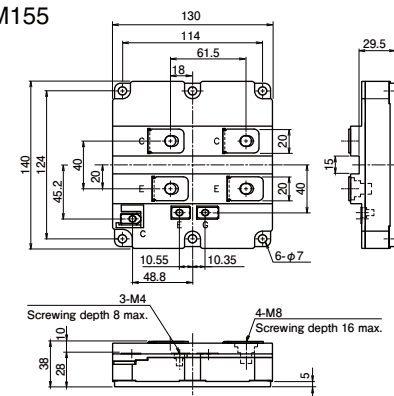
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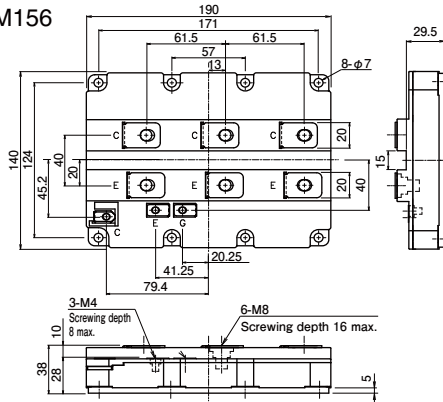
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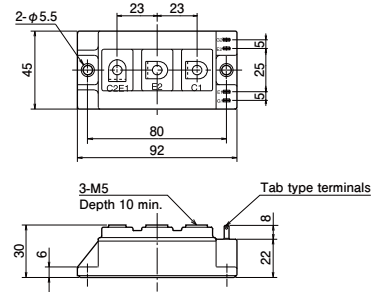
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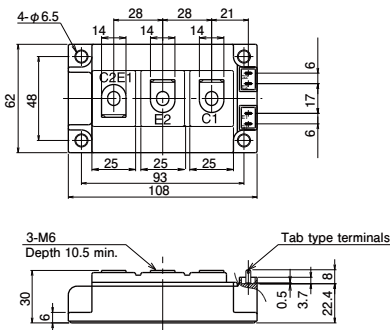
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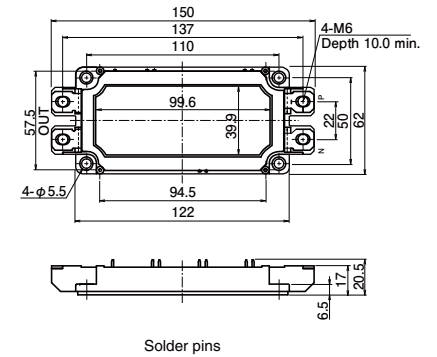
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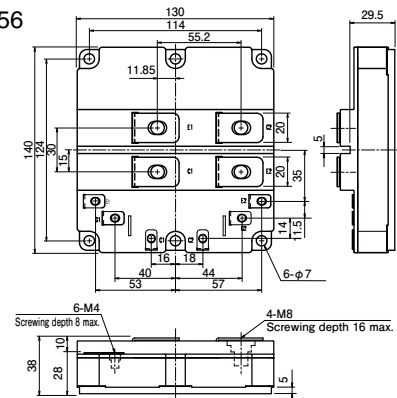
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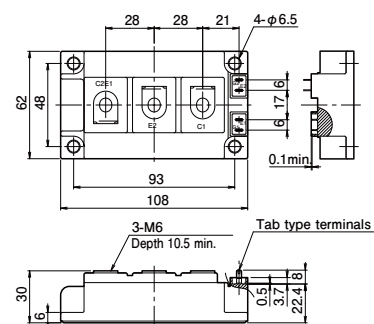
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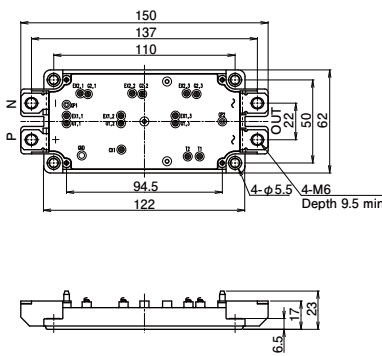
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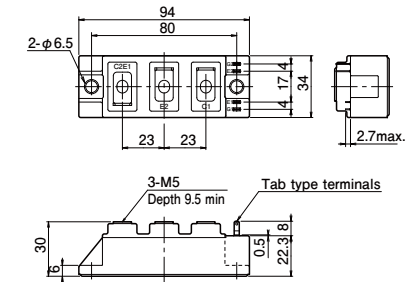
M259



M260

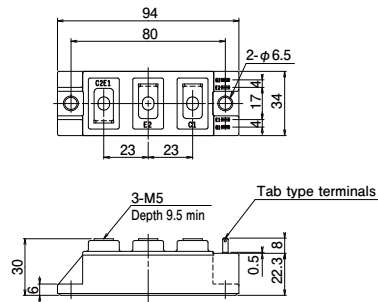


M262

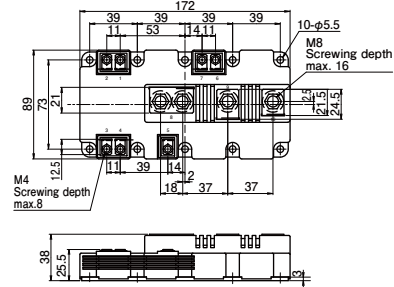


Package Outlines, mm

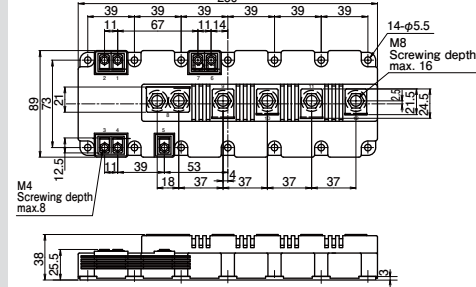
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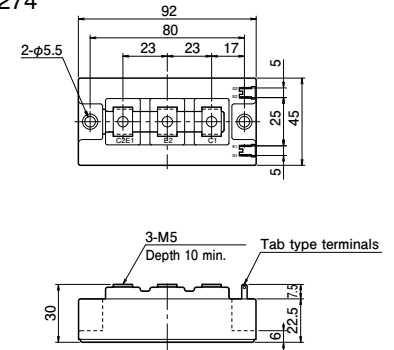
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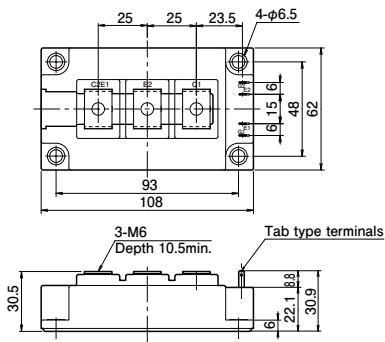
M272



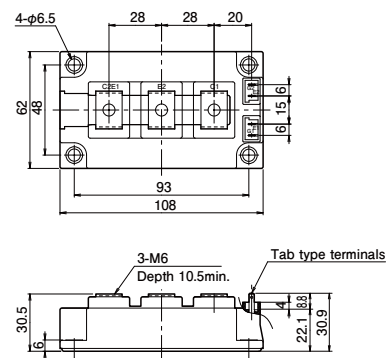
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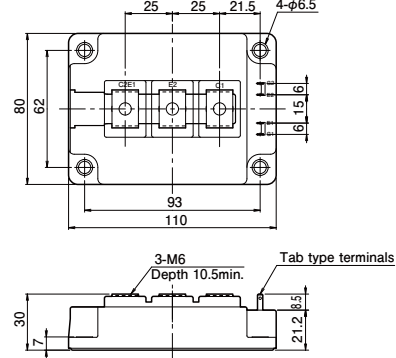
M275



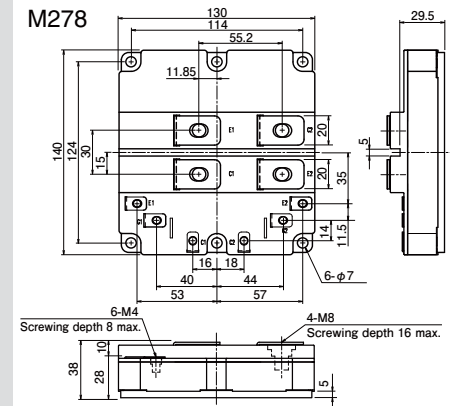
M276



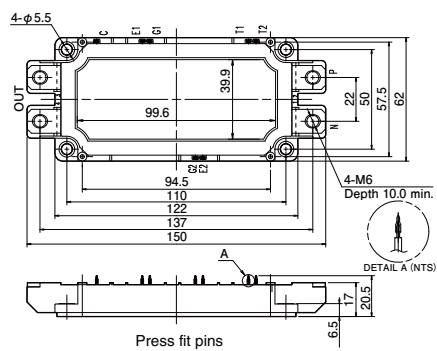
M277



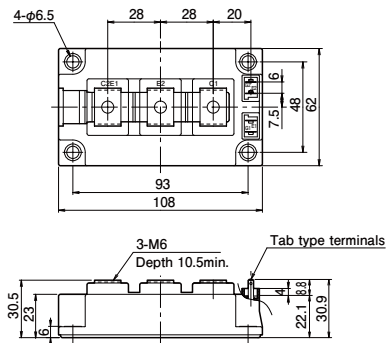
M278



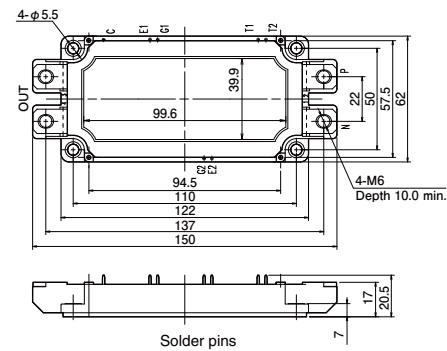
M282



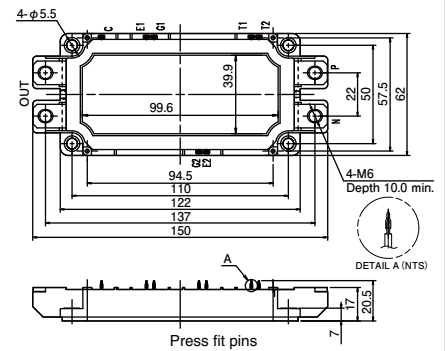
M283



M285

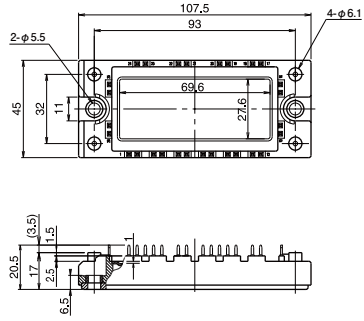


M286



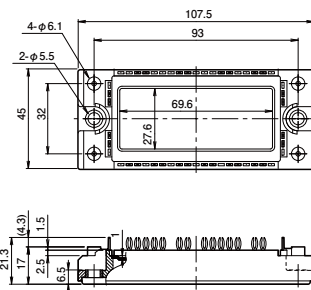
Package Outlines, mm

M636



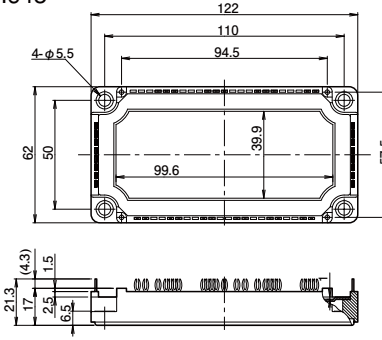
Solder pins

M647



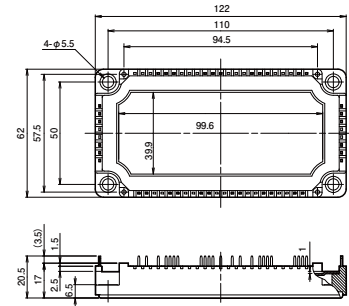
Press fit pins

M648



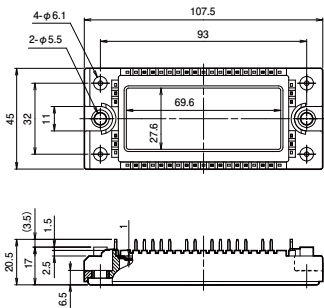
Press fit pins

M668



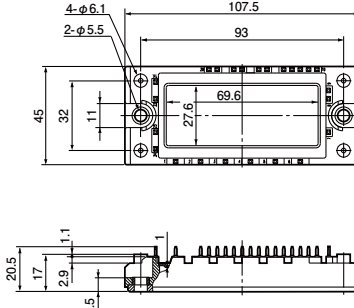
Solder pins

M669



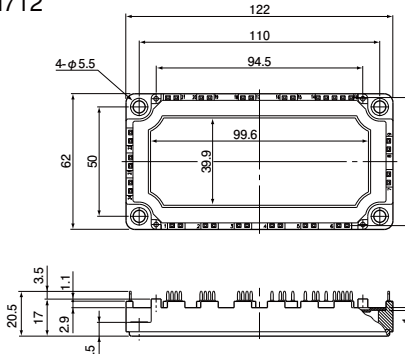
Solder pins

M711



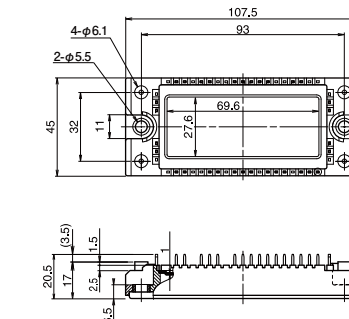
Solder pins

M712



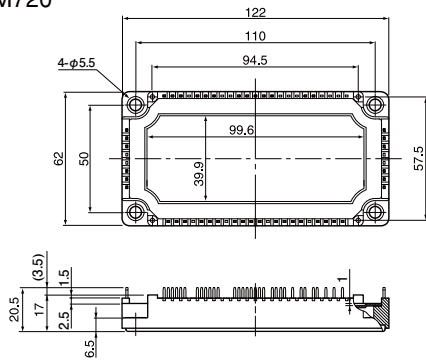
Solder pins

M719



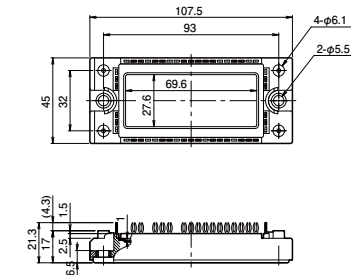
Solder pins

M720



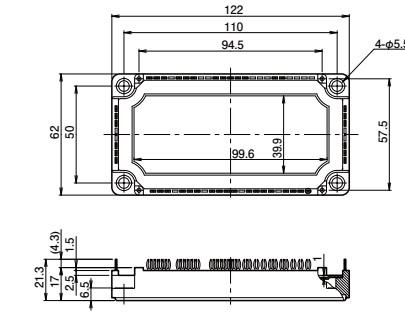
Solder pins

M721



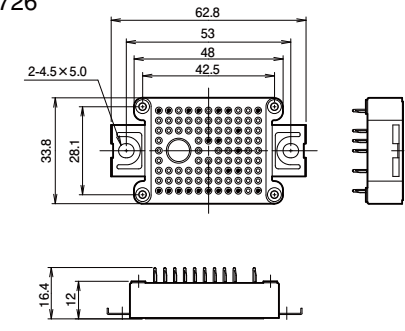
Press fit pins

M722



Press fit pins

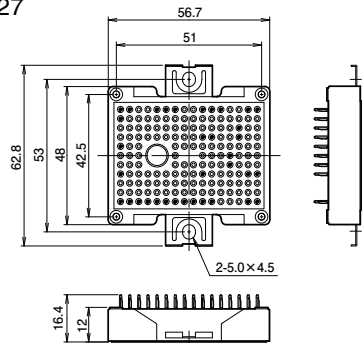
M726



Press fit pins

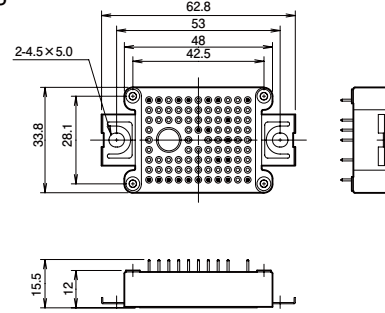
Package Outlines, mm

M727



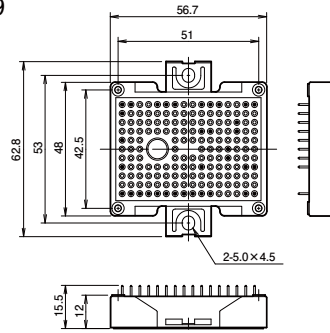
Press fit pins

M728



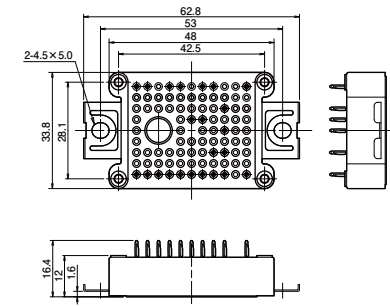
Solder pins

M729



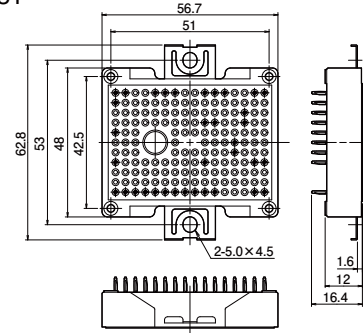
Solder pins

M730



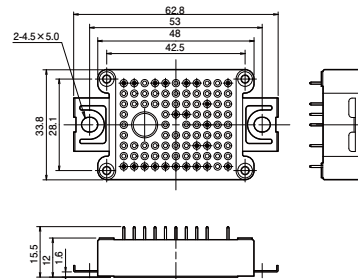
Press fit pins

M731



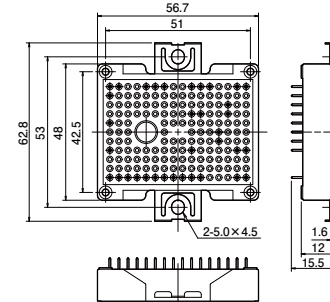
Press fit pins

M732



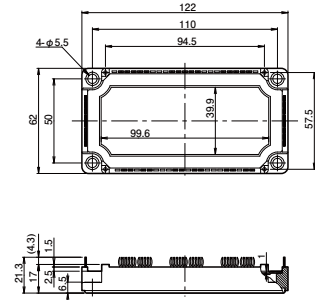
Solder pins

M733



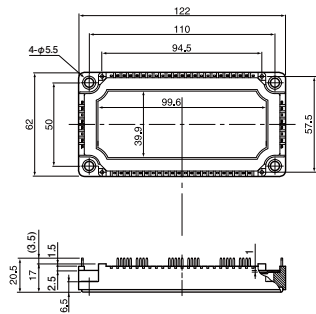
Solder pins

M1202



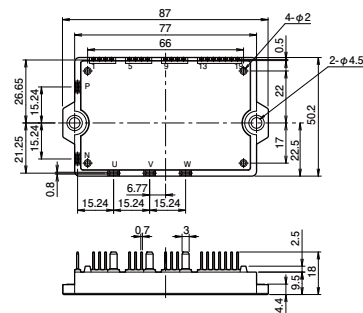
Press fit pins

M1203

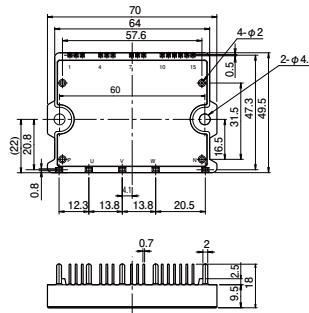


Solder pins

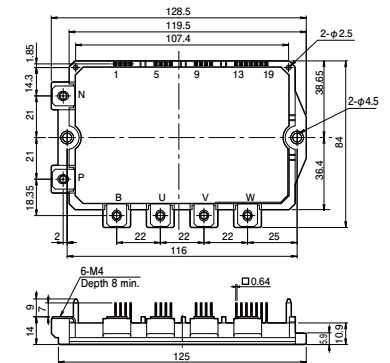
P626



P629

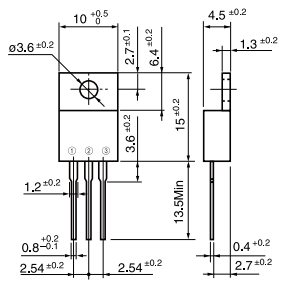


P630

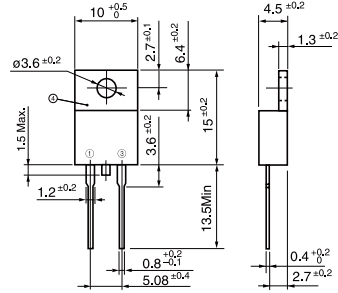


Package Outlines, mm

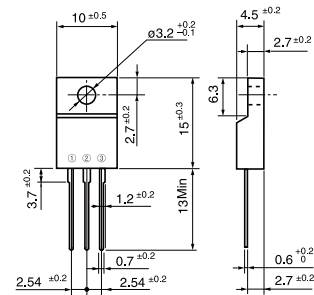
TO-220



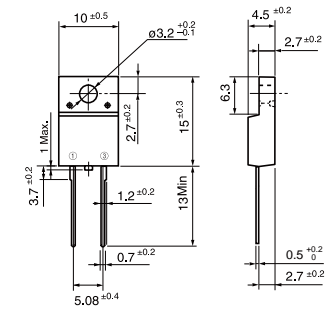
TO-220-2



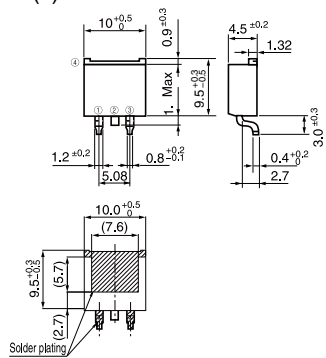
TO-220F



TO-220F-2



T-Pack(s)



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 - Safety devices
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