

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 18



**T/I-type
NPC 3-level** PAGE 19



Small IPM PAGE 20



IPM PAGE 20



Hybrid SiC Module PAGE 23



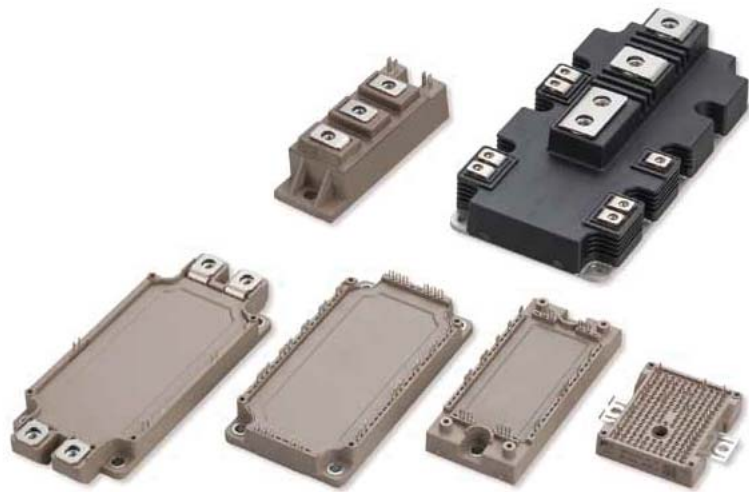
Discrete IGBT PAGE 24



**Rectifier Diode /
SiC-SBD** PAGE 25

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

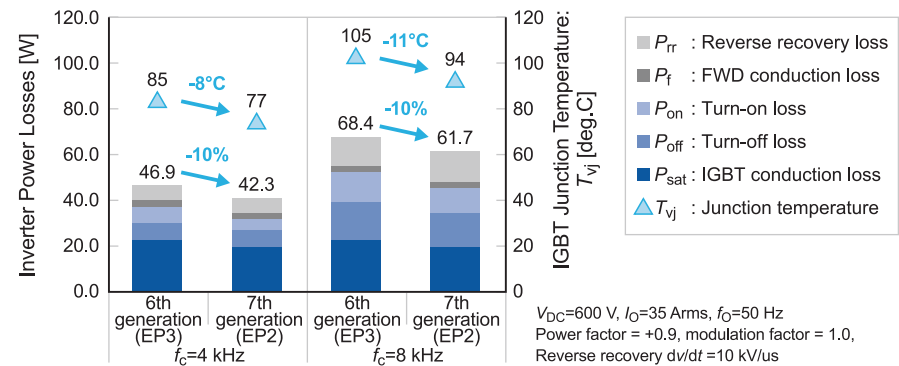
Features of IGBT Module X Series



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 loss by 10% and chip temperature by 11 °C (Comparison with the 6th Generation V Series EP3 Package (75 A), at $f_c = 8$ kHz)

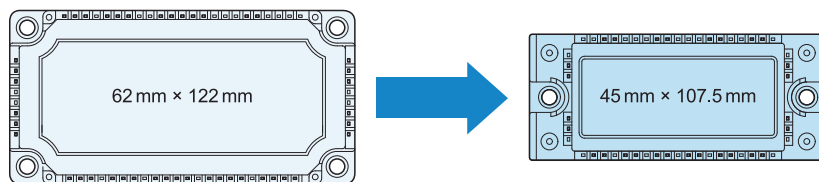


2. Miniaturization

The application of the newly developed insulating board 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



EP3 75 A (6th Generation V Series)

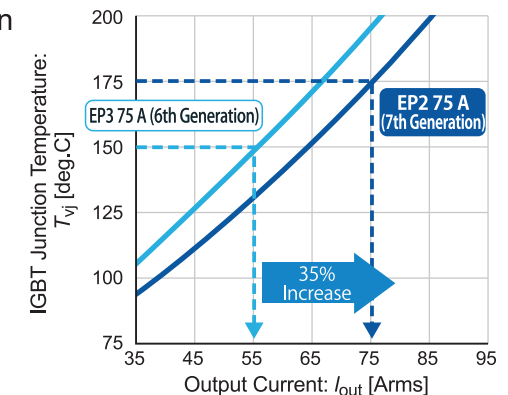
EP2 75 A (7th Generation X Series)

3. High-temperature operation

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

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

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

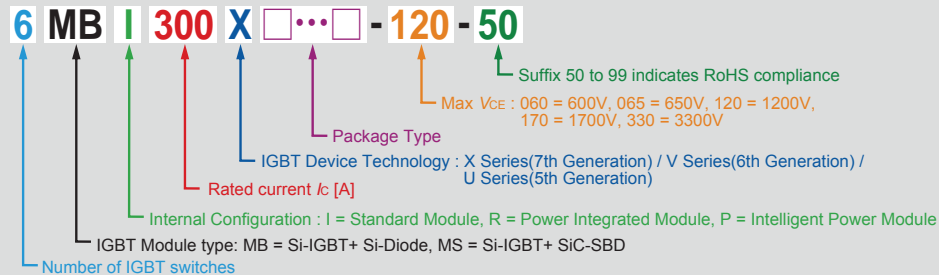


Number of IGBT Switches	Products Category	Page	Internal Configuration					Max V_{CE} (V_{RRM})					Rated Current								
			IGBT Module Standard Module	Power Integrated Module	Intelligent Power Module	Discrete IGBT	Rectifier Diode	Discrete SiC-SBD	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A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

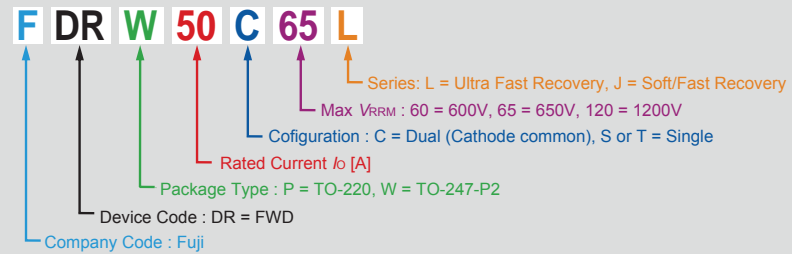
Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

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

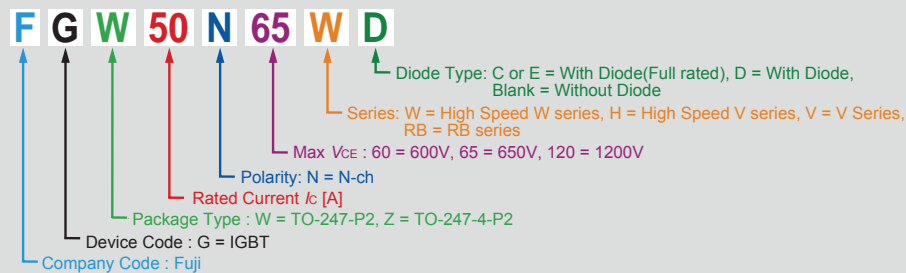
IGBT Module Production Number



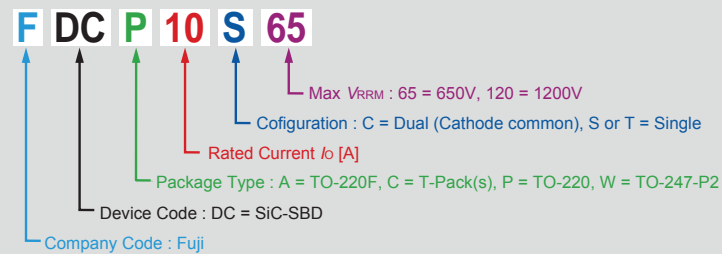
Rectifier Diode Production Number



Discrete IGBT Production Number



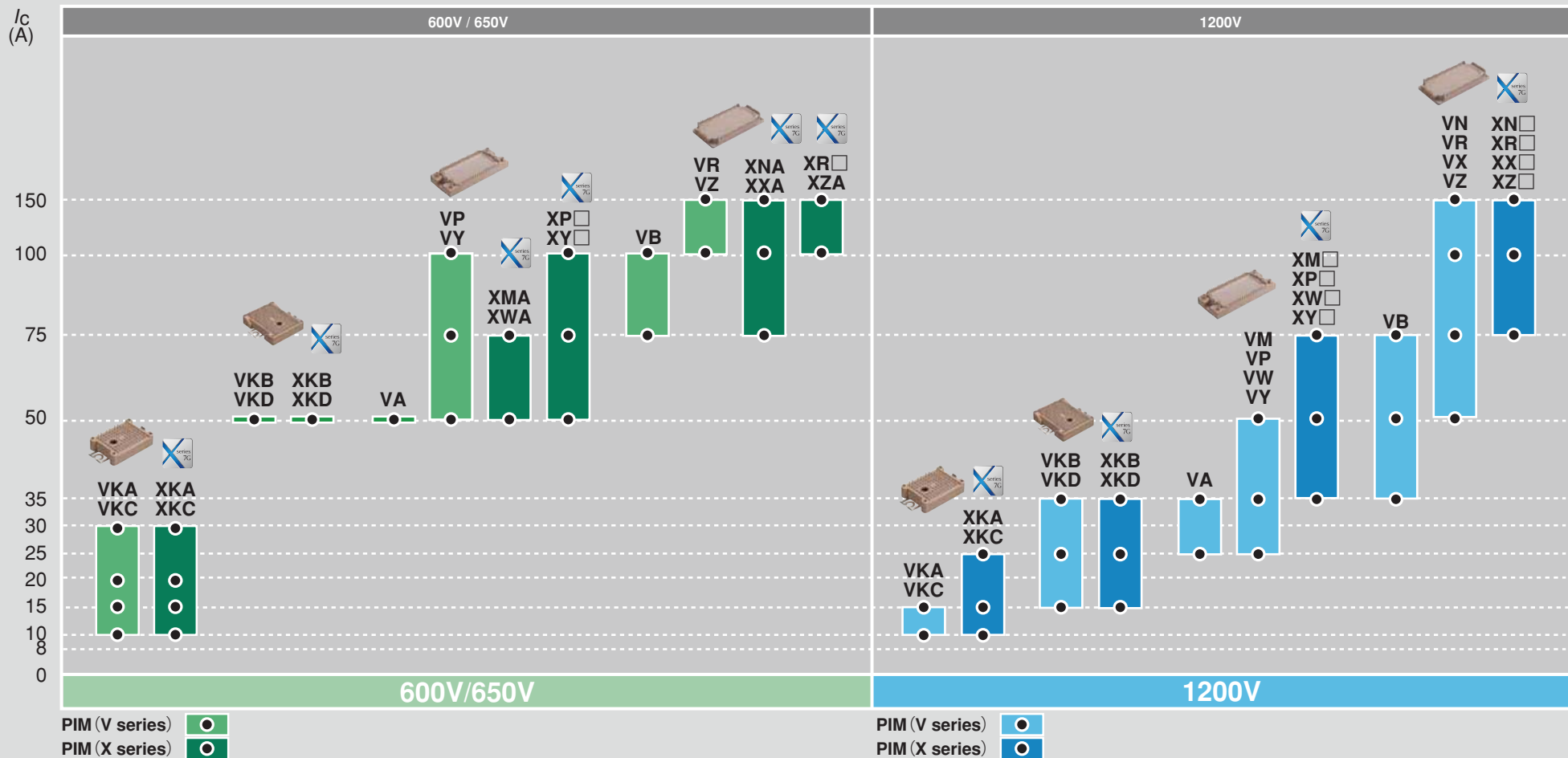
SiC Schottky-Barrier Diode Production Number



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	33.8×62.8mm	8		
	VKD	VKB	XKD	XKB	56.7×62.8mm	8		
	VA, VM, VP	VW, VY	XM□, XP□	XW□, XY□	45×107.5mm	9,10		
	VB, VN, VR	VX, VZ	XN□, XR□	XX□, XZ□	62×122mm	9,10		

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

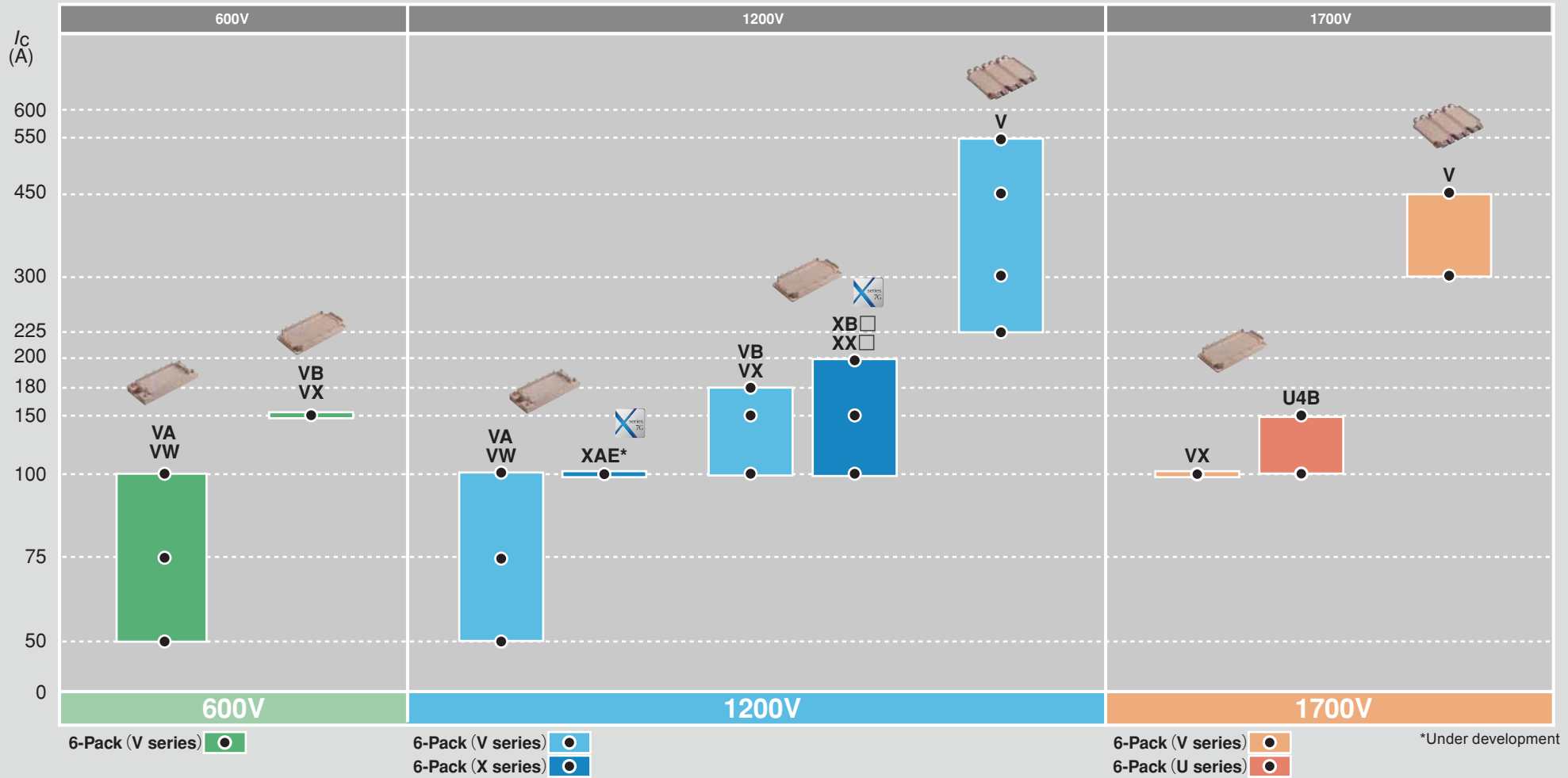


6-Pack Products Map

6MBI	Ic	IGBT series & Package type				Size	Page	
		V/U series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA, VB, U4B	VW, VX	XAE*	XB□, XX□	45×107.5mm	11	EconoPACK™
		V				62×122mm	11	EconoPACK™+
						150×162mm	12	EconoPACK™+

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

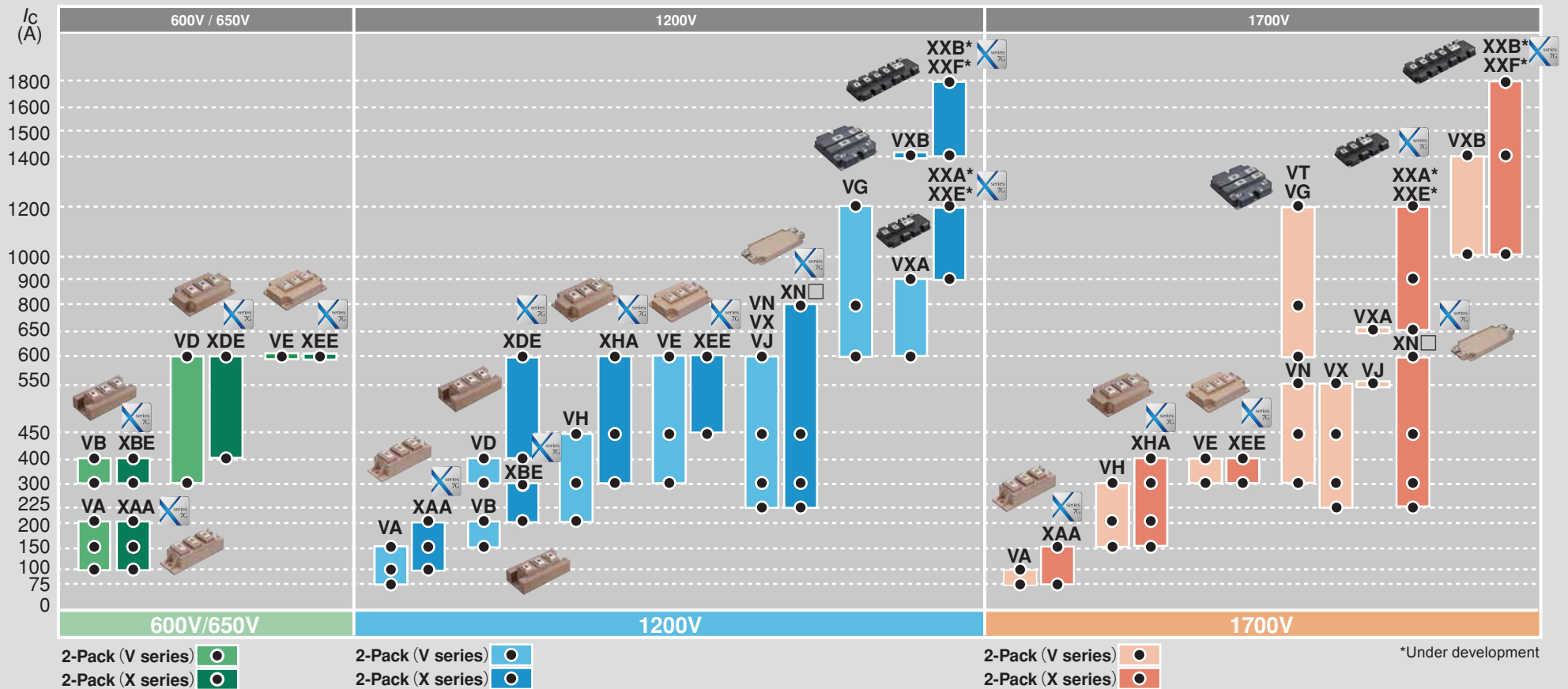
*Under development



2-Pack Products Map

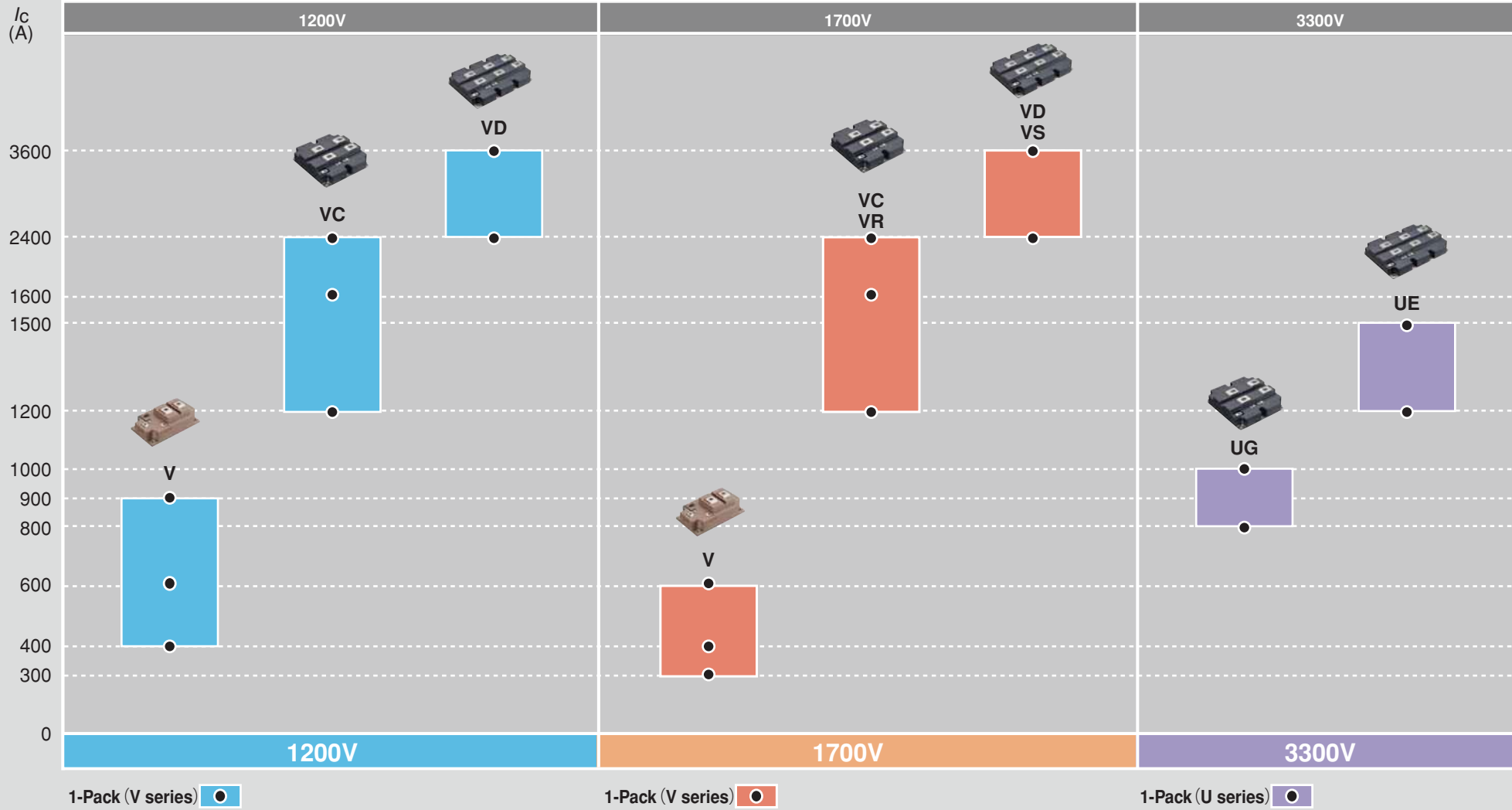
2MBI	Ic	IGBT series & Package type		Size	Page	
		V series	X series			
		VA	XAA	34×94mm	13	Standard Pack
		VB	XBE	45×92mm	13	
		VD	XDE	62×108mm	13	
		VE	XEE	80×110mm	13	
		VH	XHA	62×108mm	13	
		VJ, VN, VX	XN□	62×150mm	14	
		VG, VT	-	140×130mm	17	High Power Module
		VXA	XXA*, XXE*	89×172mm	18	PrimePACK™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

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany *Under development



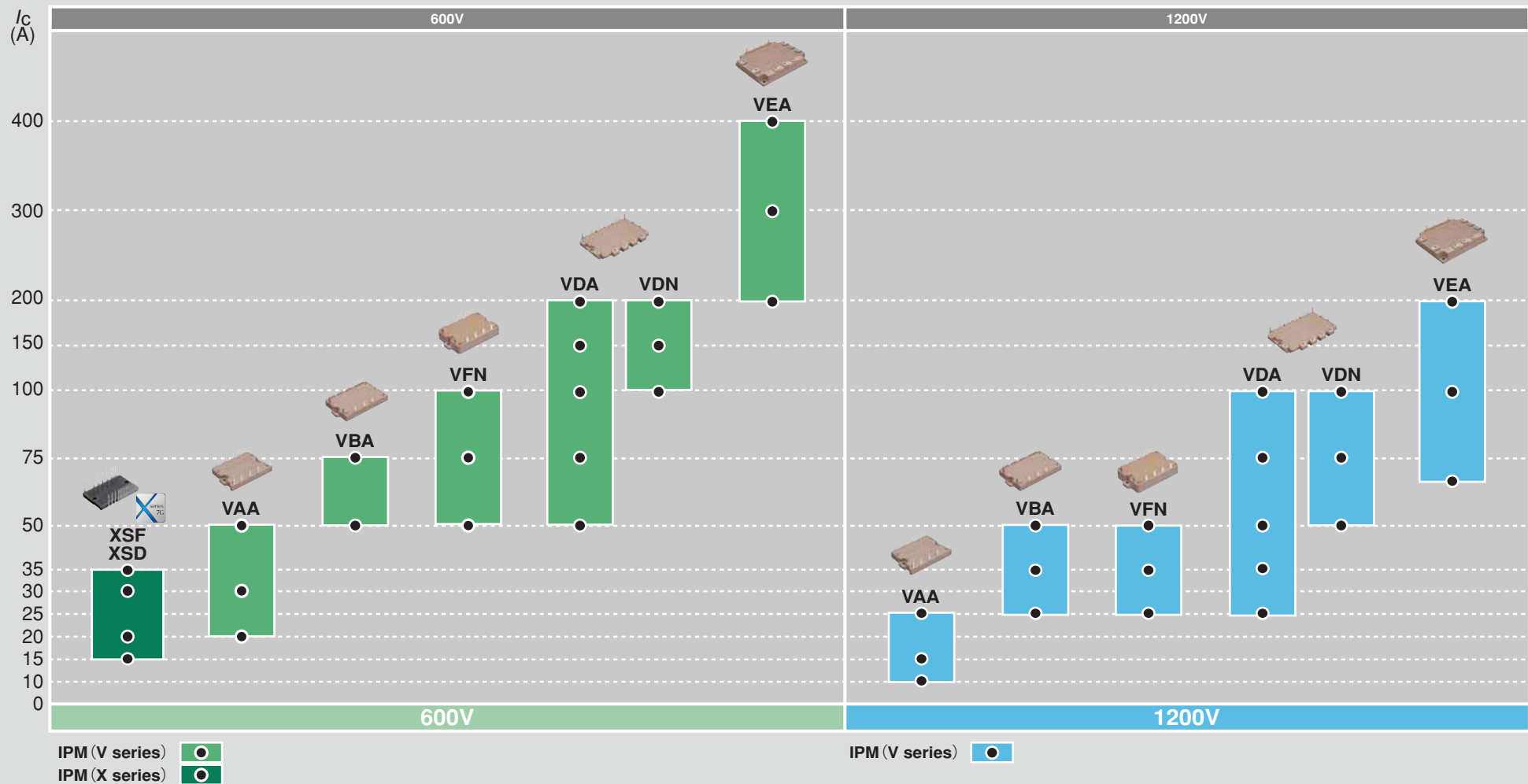
1-Pack Products Map

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



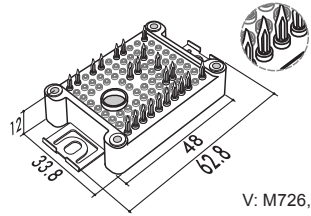
IPM (Intelligent Power Modules) Products Map

6/7MBI	Ic	IGBT series & Package type	Size	V series		X series	Page
				7 in 1	6 in 1	6 in 1	
		XSD, XSF	26×43mm	-	-	✓	20
		VAA	49.5×70mm	-	✓	-	20
		VBA	50.2×87mm	-	✓	-	20
		VFN	55×90mm	✓	✓	-	20
		VDA, VDN	84×128.5mm	✓	✓	-	21
		VEA	110×142mm	✓	✓	-	22

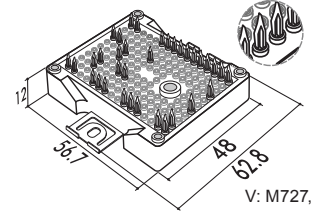
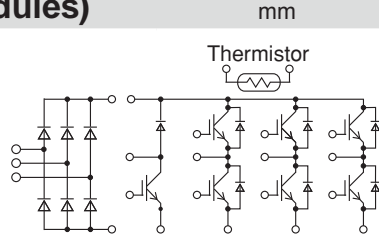


Small PIM (Power Integrated Modules)

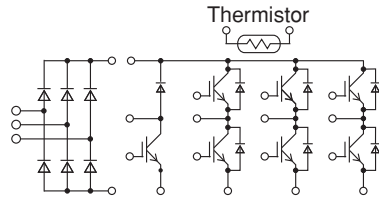
With NTC, press fit pins



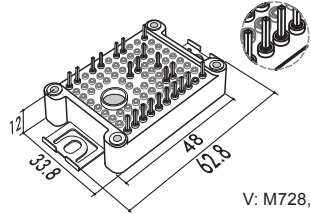
V: M726, X: M730



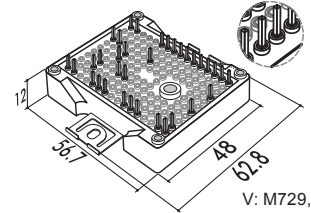
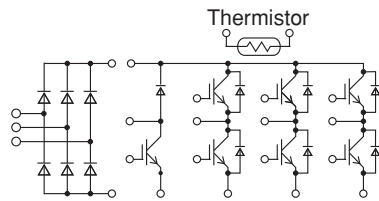
V: M727, X: M731



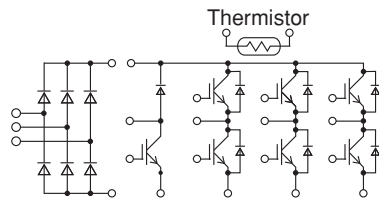
With NTC, solder pins




V: M728, X: M732



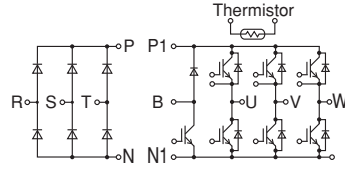
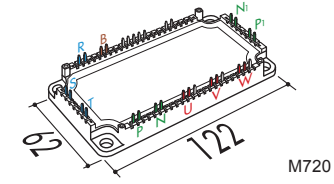
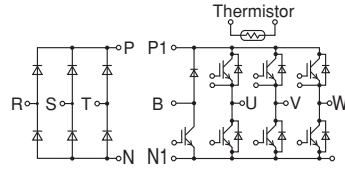
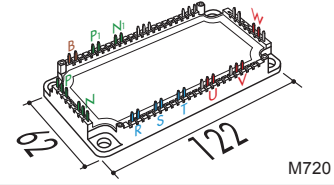
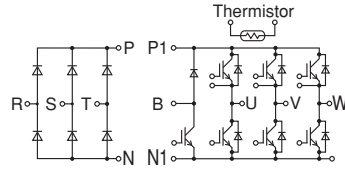
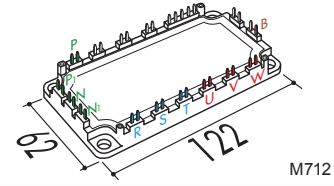
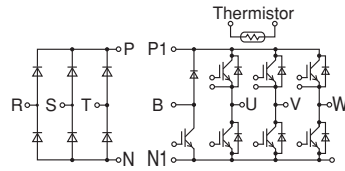
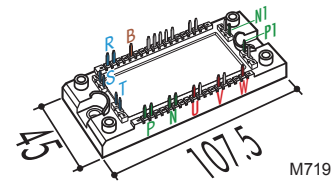
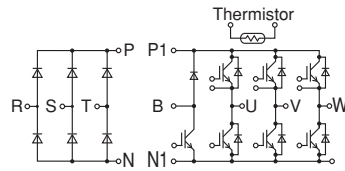
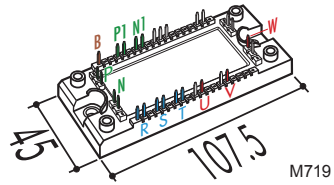
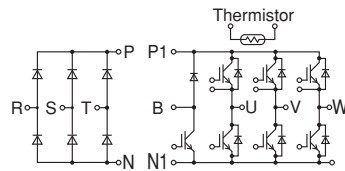
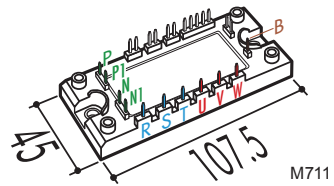
V: M729, X: M733





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

PIM (Power Integrated Modules) EconoPIM™

With NTC, solder pins, PIM



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

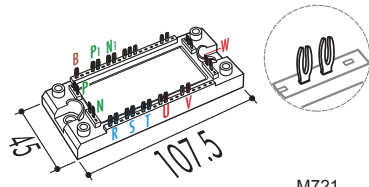
Note1: Pin assignment of output terminals changes within the range of colored position depending on output current.
 Note2: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

PIM (Power Integrated Modules) EconoPIM™

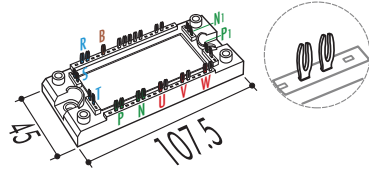
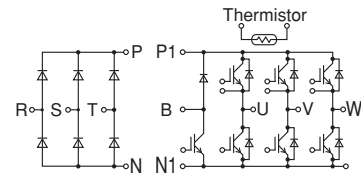
mm

Ic

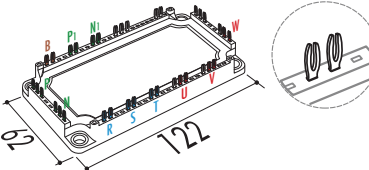
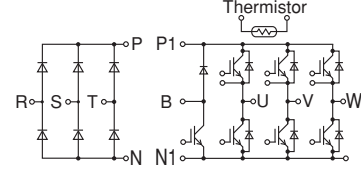
Ic	600V		650V		1200V	
	V series	X series	V series	X series	V series	X series
25A					7MBR25VW120-50	
					7MBR25VW120-80	
35A					7MBR35VW120-50	7MBR35XWA120-50
					7MBR35VW120-80	
50A				7MBR50XWA065-50	7MBR50VW120-50	7MBR50XWA120-50
					7MBR50VW120-80	
75A			7MBR75XWA065-50			7MBR75XWE120-50
25A					7MBR25VY120-50	
					7MBR25VY120-80	
35A					7MBR35VY120-50	7MBR35XYA120-50
					7MBR35VY120-80	
50A	7MBR50VY060-50		7MBR50XYA065-50		7MBR50VY120-50	7MBR50XYA120-50
	7MBR50VY060-80				7MBR50VY120-80	
75A	7MBR75VY060-50		7MBR75XYA065-50			7MBR75XYE120-50
	7MBR75VY060-80					
100A	7MBR100VY060-50		7MBR100XYE065-50			
	7MBR100VY060-80					
50A					7MBR50VX120-50	
					7MBR50VX120-80	
75A			7MBR75XXA065-50		7MBR75VX120-50	7MBR75XXA120-50
					7MBR75VX120-80	
100A			7MBR100XXA065-50		7MBR100VX120-50	7MBR100XXA120-50
					7MBR100VX120-80	
150A			7MBR150XXA065-50		7MBR150VX120-50	7MBR150XXE120-50
					7MBR150VX120-80	
50A					7MBR50VZ120-50	
					7MBR50VZ120-80	
75A					7MBR75VZ120-50	7MBR75XZA120-50
					7MBR75VZ120-80	
100A	7MBR100VZ060-50		7MBR100XZA065-50		7MBR100VZ120-50	7MBR100XZA120-50
	7MBR100VZ060-80				7MBR100VZ120-80	
150A	7MBR150VZ060-50		7MBR150XZA065-50		7MBR150VZ120-50	7MBR150XZE120-50
	7MBR150VZ060-80				7MBR150VZ120-80	



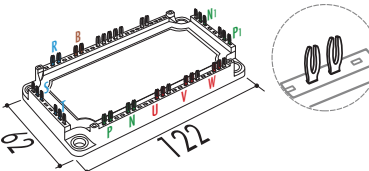
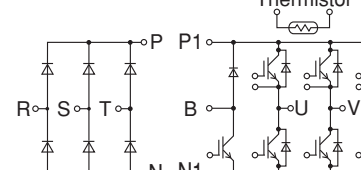
M721



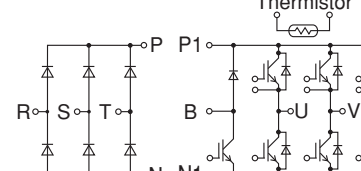
M721



M722



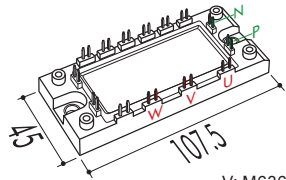
M722



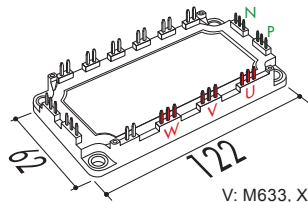
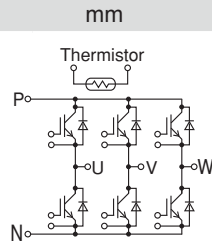
Note1: Pin assignment of output terminals changes within the range of colored position depending on output current.
 Note2: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.
 Note3: "-80" : Pre-Applied Thermal-Interface-Material for "-50"

6-Pack EconoPACK™

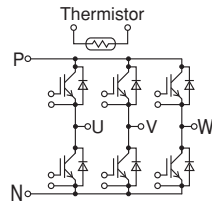
With NTC, solder pins



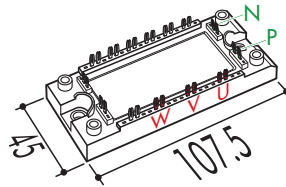
V: M636, X: M669 Solder pins



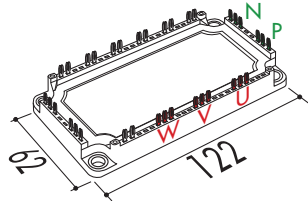
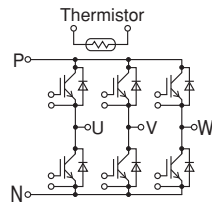
V: M633, X: M668 Solder pins



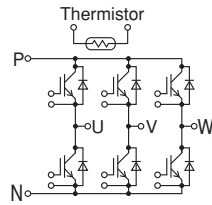
With NTC, press fit pins



M647 Press fit pins



M648 Press fit pins



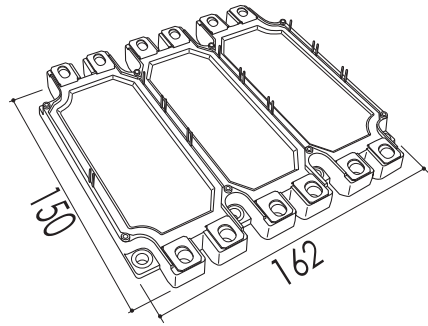
Ic	600V		1200V		1700V
	V series	V series	X series	V / U Series	
50A	6MBI50VA-060-50	6MBI50VA-120-50			
	75A	6MBI75VA-060-50	6MBI75VA-120-50		
	100A	6MBI100VA-060-50	6MBI100VA-120-50	6MBI100XAE120-50*	
100A					
150A		6MBI150VB-120-50	6MBI150XBA120-50	6MBI150U4B-170-50	
	180A	6MBI180VB-120-50	6MBI180XBA120-50	6MBI180U4B-170-50	
		6MBI180VB-120-55			
200A			6MBI200XBA120-50		
			6MBI200XBE120-50		
50A	6MBI50VW-060-50	6MBI50VW-120-50			
	75A	6MBI75VW-060-50	6MBI75VW-120-50		
	100A	6MBI100VW-060-50	6MBI100VW-120-50		
100A					
150A	6MBI150VX-060-50	6MBI150VX-120-50	6MBI150XXA120-50	6MBI150VX-170-50	
	6MBI150VX-060-80	6MBI150VX-120-80		6MBI150VX-170-80	
180A		6MBI180VX-120-50			
		6MBI180VX-120-80			
		6MBI180VX-120-55			
		6MBI180VX-120-85			
200A			6MBI200XXA120-50		
			6MBI200XXE120-50		

Note1: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
 Note2: Pin assignment of output terminals changes within the range of colored position depending on output current.
 "-80", "-85": Pre-Applied Thermal-Interface-Material for "-50", "-55"
 Note3: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

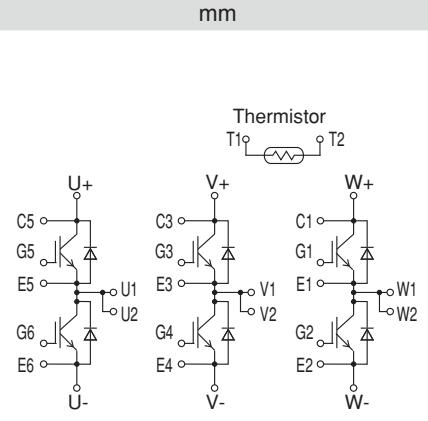
*Under development

6-Pack EconoPACK™+

With NTC, High power 6-Pack



M629

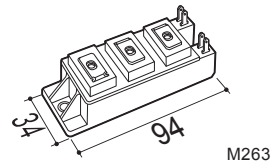


		1200V	1700V
Ic	V series	V series	V series
	225A	6MBI225V-120-50	
	300A	6MBI300V-120-50	6MBI300V-170-50
		6MBI300V-120-80	
	450A	6MBI450V-120-50	6MBI450V-170-50
			6MBI450V-170-80
	550A	6MBI550V-120-50	

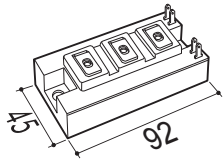
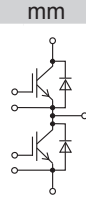
Note1: EconoPACK™+ is registered trademark of Infineon Technologies AG, Germany.
 Note2: "-80" : Pre-Applied Thermal-Interface-Material for "-50"

Standard 2-Pack

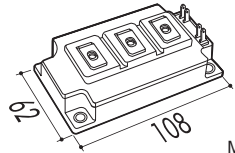
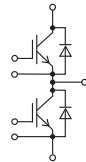
2-Pack



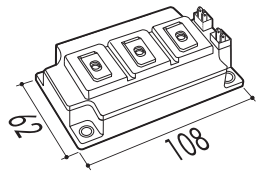
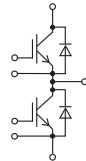
M263



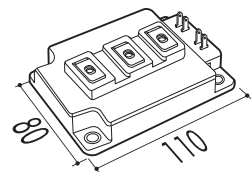
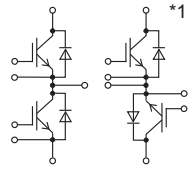
M274



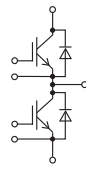
M275



M276



M277



Ic	600V		650V		1200V		1700V	
	V series	X series	V series	X series	V series	X series	V series	X series
75A					2MBI75VA-120-50		2MBI75VA-170-50	2MBI75XAA170-50
100A	2MBI100VA-060-50				2MBI100VA-120-50	2MBI100XAA120-50	2MBI100VA-170-50	2MBI100XAA170-50
150A	2MBI150VA-060-50	2MBI150XAA065-50			2MBI150VA-120-50	2MBI150XAA120-50		2MBI150XAA170-50
200A	2MBI200VA-060-50	2MBI200XAA065-50				2MBI200XAA120-50		
150A					2MBI150VB-120-50			
200A					2MBI200VB-120-50	2MBI200XBE120-50		
300A	2MBI300VB-060-50	2MBI300XBE065-50				2MBI300XBE120-50		
400A	2MBI400VB-060-50	2MBI400XBE065-50						
300A					2MBI300VD-120-50			
400A	2MBI400VD-060-50	2MBI400XDE065-50			2MBI400VD-120-50	2MBI400XDE120-50		
600A	2MBI600VD-060-50	2MBI600XDE065-50				2MBI600XDE120-50		
150A							2MBI150VH-170-50	2MBI150XHA170-50
							2MBI150VH-170-80	
200A					2MBI200VH-120-50		2MBI200VH-170-50	2MBI200XHA170-50
					2MBI200VH-120-80		2MBI200VH-170-80	
300A					2MBI300VH-120-50	2MBI300XHA120-50	2MBI300VH-170-50	2MBI300XHA170-50
					2MBI300VH-120-80		2MBI300VH-170-80	
400A								2MBI400XHA170-50
450A					2MBI450VH-120-50	2MBI450XHA120-50		
					2MBI450VH-120-80			
					2MBI450VH-120F-50*1			
					2MBI450VH-120F-80			
600A						2MBI600XHA120-50		
300A					2MBI300VE-120-50		2MBI300VE-170-50	2MBI300XEE170-50
					2MBI300VE-120-80		2MBI300VE-170-80	
400A							2MBI400VE-170-50	2MBI400XEE170-50
							2MBI400VE-170-80	
450A					2MBI450VE-120-50	2MBI450XEE120-50		
					2MBI450VE-120-80			
600A	2MBI600VE-060-50	2MBI600XEE065-50			2MBI600VE-120-50	2MBI600XEE120-50		
	2MBI600VE-060-80				2MBI600VE-120-80			

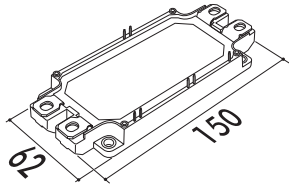
Note: "-80" : Pre-Applied Thermal-Interface-Material for "-50"

Standard 2-Pack

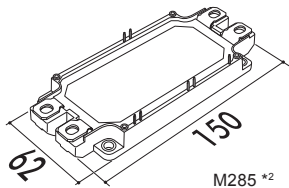
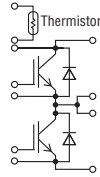
mm

lc

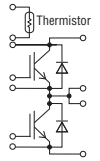
With NTC, solder pins



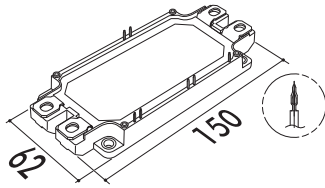
M254



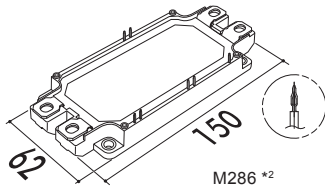
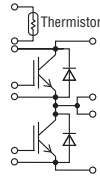
M285 *2



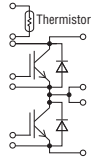
With NTC, press fit pins



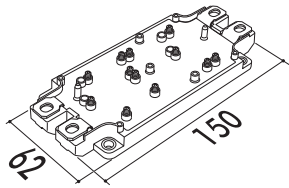
M282



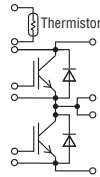
M286 *2



With NTC, spring contacts



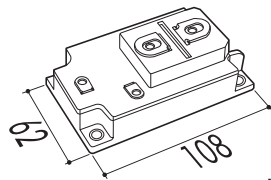
M260



			1200V			1700V		
			V series	V series With SIN-substrate *1	X series	V series	V series With SIN-substrate *1	X series
With NTC, solder pins	225A	2MBI225VN-120-50	2MBI225VN-120S-50	2MBI225XNA120-50				2MBI225XNA170-50
		2MBI225VN-120-80						
	300A	2MBI300VN-120-50	2MBI300VN-120S-50	2MBI300XNA120-50	2MBI300VN-170-50			2MBI300XNA170-50
		2MBI300VN-120-80	2MBI300VN-120S-80		2MBI300VN-170-80			
	450A	2MBI450VN-120-50	2MBI450VN-120S-50	2MBI450XNA120-50	2MBI450VN-170-50			2MBI450XNA170-50
		2MBI450VN-120-80	2MBI450VN-120S-80		2MBI450VN-170-80			
	550A					2MBI550VN-170-50		
						2MBI550VN-170-80		
	600A		2MBI600VN-120-50	2MBI600XNG120-50				2MBI600XNG170-50
			2MBI600VN-120-80					
600A			2MBI600XNE120-50				2MBI600XNE170-50	
800A			2MBI800XNE120-50					
With NTC, press fit pins	225A	2MBI225VX-120-50		2MBI225XNB120-50	2MBI225VX-170-50			2MBI225XNB170-50
		2MBI225VX-120-80			2MBI225VX-170-80			
	300A	2MBI300VX-120-50		2MBI300XNB120-50	2MBI300VX-170-50			2MBI300XNB170-50
		2MBI300VX-120-80			2MBI300VX-170-80			
	450A	2MBI450VX-120-50		2MBI450XNB120-50	2MBI450VX-170-50			2MBI450XNB170-50
		2MBI450VX-120-80			2MBI450VX-170-80			
	550A					2MBI550VX-170-50		
						2MBI550VX-170-80		
	600A		2MBI600VX-120-50	2MBI600XNH120-50				2MBI600XNH170-50
			2MBI600VX-120-80					
600A			2MBI600XNF120-50				2MBI600XNF170-50	
800A			2MBI800XNF120-50					
With NTC, spring contacts	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" : Pre-Applied Thermal-Interface-Material for "-50" Note2: *1 Low Thermal Impedance Version Note3: *2 Low thermal impedance and high tracking capability type

Standard 1-Pack

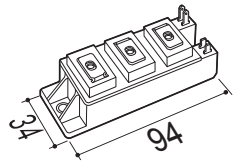


M153

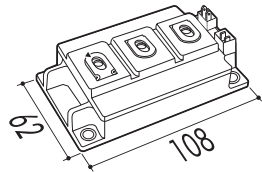
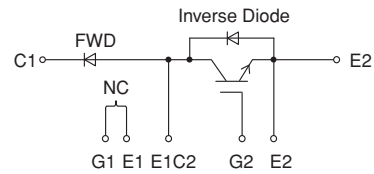


Ic	1200V		1700V
	V series		V series
	Aluminium oxide DCB	Aluminium nitride DCB	Aluminium oxide DCB
300A			1MBI300V-170-50
400A	1MBI400V-120-50	1MBI400VF-120-50	1MBI400V-170-50
600A	1MBI600V-120-50	1MBI600VF-120-50	1MBI600V-170-50
900A	1MBI900V-120-50		

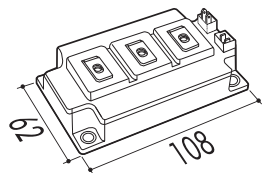
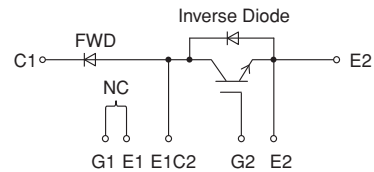
Chopper



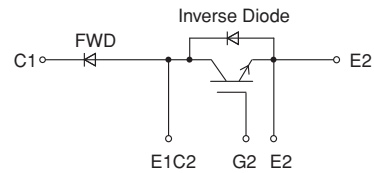
M262



M259



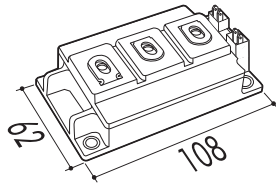
M283



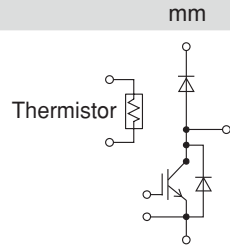
Ic	600V		1200V	
	U series	V series	U series	V series
50A			1MBI50U4F-120L-50	
75A			1MBI75U4F-120L-50	
100A			1MBI100U4F-120L-50	
150A				1MBI150VA-120L-50
200A				1MBI200VA-120L-50
200A			1MBI200U4H-120L-50	
300A	1MBI300U2H-060L-50			
400A		1MBI400VH-060L-50		

High Speed Modules

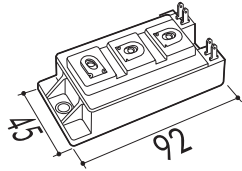
Chopper



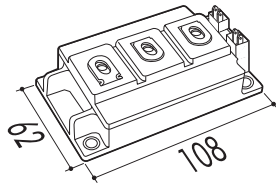
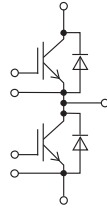
M249



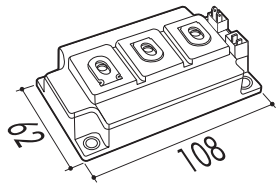
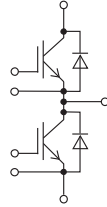
2-Pack



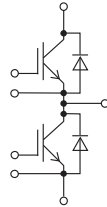
M233



M249



M276



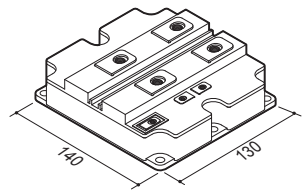
Ic

1200V	
High Speed IGBT	
200A	1MBI200HH-120L-50
300A	1MBI300HH-120L-50
400A	1MBI400HH-120L-50
100A	2MBI100HB-120-50
150A	2MBI150HH-120-50
200A	2MBI200HH-120-50
100A	2MBI100HJ-120-50
150A	2MBI150HJ-120-50
200A	2MBI200HJ-120-50
300A	2MBI300HJ-120-50

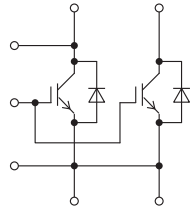
High Power Modules

1-Pack

2-Pack



M151, M155



mm

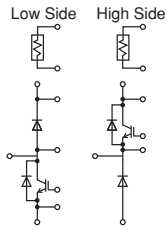
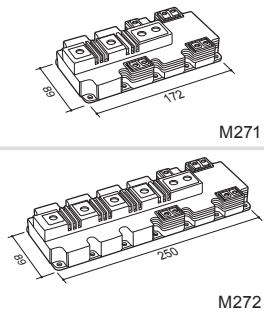
Ic

		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
1-Pack	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	1200A				1MBI1200UE-330	
	1500A				1MBI1500UE-330	1MBI1500UE-330B
	2400A	1MBI2400VD-120P	1MBI2400VD-170E	1MBI2400VS-170E		
	3600A	1MBI3600VD-120P	1MBI3600VD-170E	1MBI3600VS-170E		
2-Pack	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

PrimePACK™

Chopper



mm

Ic

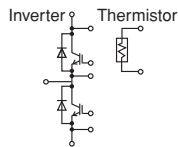
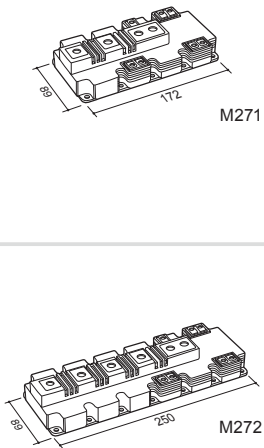
	1200V		1700V	
	V series		V series	
	Low side configuration	High side configuration	Low side configuration	High side configuration
650A			1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
			1MBI650VXA-170EL-80	1MBI650VXA-170EH-80
			1MBI650VXA-170EL-54	1MBI650VXA-170EH-54
900A	1MBI900VXA-120PD-50 *1	1MBI900VXA-120PC-50 *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" : Pre-Applied Thermal-Interface-Material for "-54"

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

PrimePACK™

2-Pack



mm

Ic

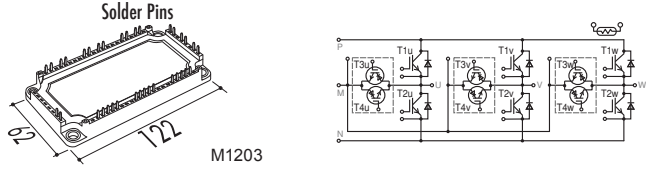
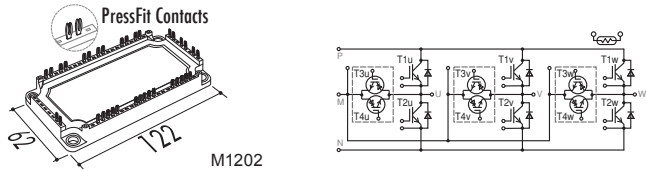
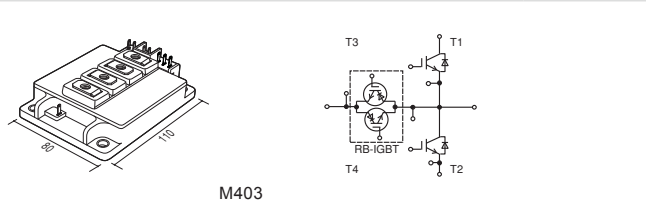
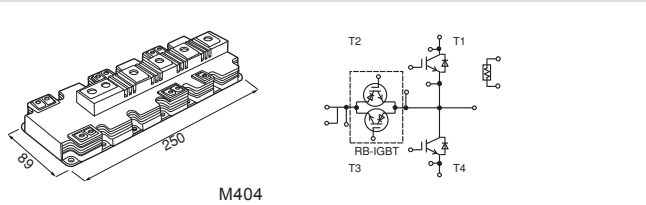
	1200V				1700V		
	V series		X series		V series		X series
	Low switching loss	Soft turn off	Low switching loss	Soft turn off	Low switching loss	Soft turn off	
600A	2MBI600VXA-120E-50						
	2MBI600VXA-120E-80						
	2MBI600VXA-120E-54						
650A					2MBI650VXA-170E-50		2MBI650XXA170-50*
					2MBI650VXA-170E-80		
					2MBI650VXA-170E-54		
					2MBI650VXA-170EA-50		
					2MBI650VXA-170EA-80		
900A	2MBI900VXA-120E-50	2MBI900VXA-120P-50	2MBI900XXA120E-50*	2MBI900XXA120P-50*			
	2MBI900VXA-120E-80	2MBI900VXA-120P-80					
	2MBI900VXA-120E-54	2MBI900VXA-120P-54					
1200A			2MBI1200XXE120E-50*	2MBI1200XXE120P-50*			2MBI1200XXE170-50*
1000A					2MBI1000VXB-170E-50		2MBI1000XXB170-50*
					2MBI1000VXB-170E-80		
					2MBI1000VXB-170E-54		
					2MBI1000VXB-170EA-50		
					2MBI1000VXB-170EA-80		
1400A					2MBI1000VXB-170EA-54		
	2MBI1400VXB-120P-50			2MBI1400XXB120P-50*	2MBI1400VXB-170E-50	2MBI1400VXB-170P-50	2MBI1400XXB170-50*
	2MBI1400VXB-120P-80				2MBI1400VXB-170E-80	2MBI1400VXB-170P-80	
	2MBI1400VXB-120P-54				2MBI1400VXB-170E-54	2MBI1400VXB-170P-54	
1800A				2MBI1800XXF120P-50*			2MBI1800XXF170-50*

Note1: The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_F.
 Note2: "-80" : Pre-Applied Thermal-Interface-Material for "-54"

Note3: The products with 'EA' on this page have large FWD.
 Note4: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

*Under development

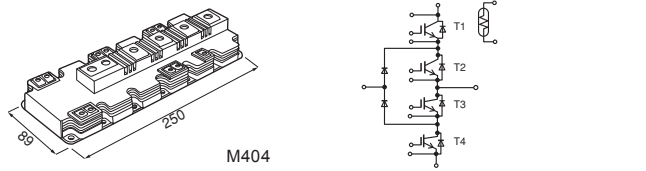
Advanced T-type NPC 3-level Modules

		600V		1200V		1700V		
		V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT	
3 Phase With NTC, 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	 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						
		340A			4MBI300VG-120R-50	600V		
		400A	4MBI400VG-060R-50	600V	4MBI300VG-120R1-50	900V		
		450A			4MBI340VF-120R-50	600V		
1 Phase	 M404	450A				4MBI450VF-120R-50*1	600V	
		600A			4MBI450VF-120RD-50*2*3	600V		
		650A						
		900A			4MBI450VB-120R1-50	900V	4MBI450VB-170R2-50	1200V
				4MBI650VB-120R1-50	900V	4MBI600VB-170R2-50	1200V	
				4MBI900VB-120R1-50	900V			

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.

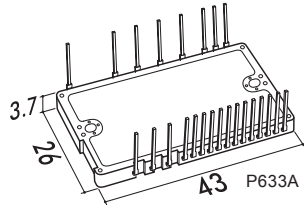
*1: Particular for Inverter of UPS or PCS *2: Particular for Converter of UPS *3: Under development

I-type NPC 3-level Module

		600V		1200V		1700V		
		V series		V series		V series		
1 Phase	 M404	600A		4MBI600VC-120-50				

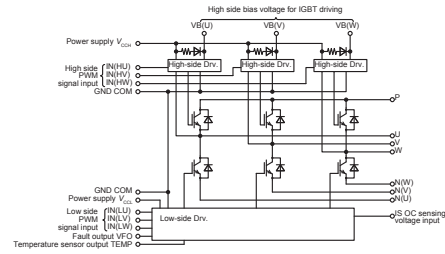
Small IPM (Intelligent Power Modules)

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



Built-in protection functions

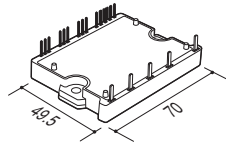
- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)



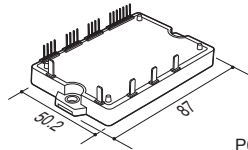
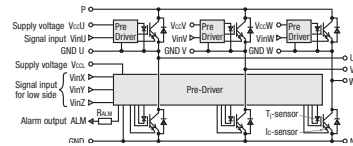
600V		X series	
15A	6MBP15XSD060-50	✓	—
20A	6MBP20XSD060-50	—	✓
30A	6MBP30XSD060-50	✓	✓
35A	6MBP35XSD060-50	✓	✓
15A	6MBP15XSF060-50	—	—
20A	6MBP20XSF060-50	—	—
30A	6MBP30XSF060-50	✓	✓
35A	6MBP35XSF060-50	✓	✓

IPM (Intelligent Power Modules)

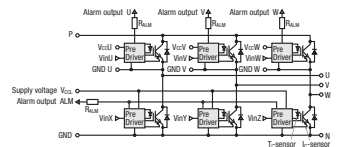
Without Brake-Chopper



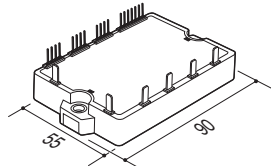
P629



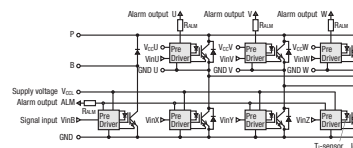
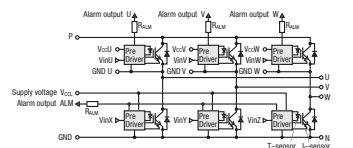
P626



Without Brake-Chopper



P636



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)

		600V		1200V	
		V series		V series	
10A		—	✓	—	6MBP10VAA120-50
15A		—	✓	—	6MBP15VAA120-50
20A	6MBP20VAA060-50	—	✓	—	
25A		—	✓	—	6MBP25VAA120-50
30A	6MBP30VAA060-50	—	✓	—	
50A	6MBP50VAA060-50	—	✓	—	
25A		—	✓	—	6MBP25VBA120-50
35A		—	✓	—	6MBP35VBA120-50
50A	6MBP50VBA060-50	—	✓	—	6MBP50VBA120-50
75A	6MBP75VBA060-50	—	✓	—	
25A		—	✓	—	6MBP25VFN120-50
35A		—	✓	—	6MBP35VFN120-50
50A	6MBP50VFN060-50	—	✓	—	6MBP50VFN120-50
75A	6MBP75VFN060-50	—	✓	—	
100A	6MBP100VFN060-50	—	✓	—	
25A		—	✓	—	7MBP25VFN120-50
35A		—	✓	—	7MBP35VFN120-50
50A	7MBP50VFN060-50	—	✓	—	7MBP50VFN120-50
75A	7MBP75VFN060-50	—	✓	—	
100A	7MBP100VFN060-50	—	✓	—	

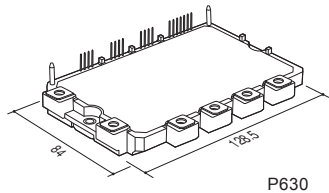
IPM (Intelligent Power Modules)

Built-in protection functions

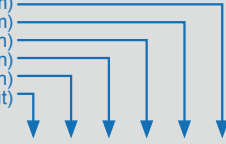
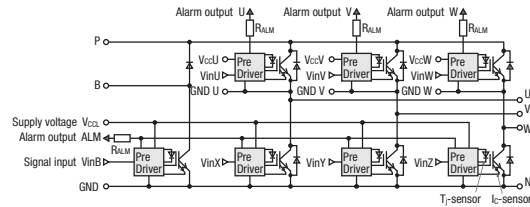
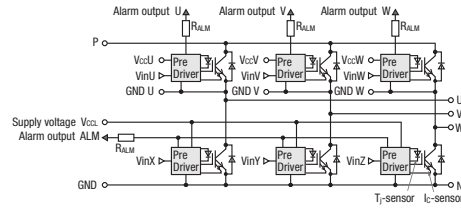
- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)

Without Brake-Chopper

With Brake-Chopper



P630



Ic	600V		1200V	
	V series		V series	
25A	✓		✓	
35A	✓		✓	
50A	✓	6MBP50VDA060-50	✓	6MBP50VDA120-50
			✓	6MBP50VDN120-50
75A	✓	6MBP75VDA060-50	✓	6MBP75VDA120-50
			✓	6MBP75VDN120-50
100A	✓	6MBP100VDA060-50	✓	6MBP100VDA120-50
		6MBP100VDN060-50	✓	6MBP100VDN120-50
150A	✓	6MBP150VDA060-50		
		6MBP150VDN060-50		
200A	✓	6MBP200VDA060-50		
		6MBP200VDN060-50		
25A	✓		✓	7MBP25VDA120-50
35A	✓		✓	7MBP35VDA120-50
50A	✓	7MBP50VDA060-50	✓	7MBP50VDA120-50
			✓	7MBP50VDN120-50
75A	✓	7MBP75VDA060-50	✓	7MBP75VDA120-50
			✓	7MBP75VDN120-50
100A	✓	7MBP100VDA060-50	✓	7MBP100VDA120-50
		7MBP100VDN060-50	✓	7MBP100VDN120-50
150A	✓	7MBP150VDA060-50		
		7MBP150VDN060-50		
200A	✓	7MBP200VDA060-50		
		7MBP200VDN060-50		

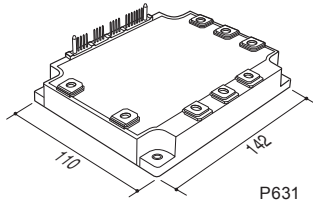
Note1: The products with 'VDN' on this page have high heat dissipation characteristics.

IPM (Intelligent Power Modules)

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)

Without Brake-Chopper




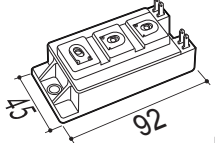
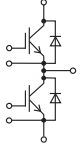
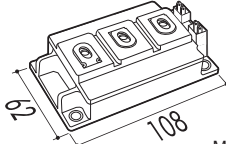
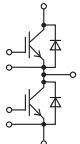
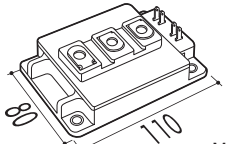
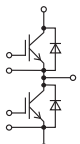
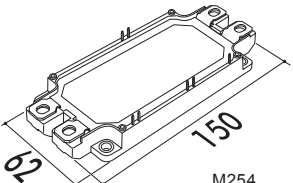
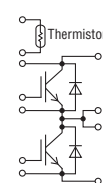
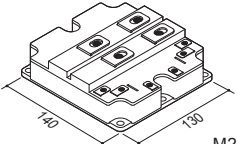
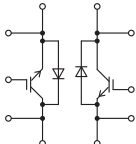
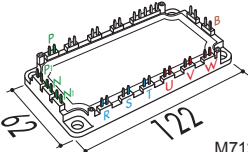
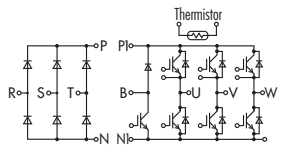
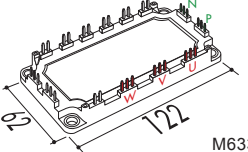
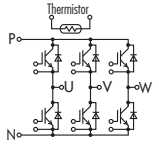


P631

With Brake-Chopper


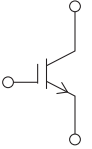

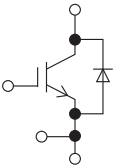
		600V		1200V	
		V series		V series	
Without Brake-Chopper	100A				6MBP100VEA120-50
	150A				6MBP150VEA120-50
	200A	✓	✓	✓	6MBP200VEA060-50
	300A	✓	✓	✓	6MBP300VEA060-50
	400A	✓	✓	✓	6MBP400VEA060-50
With Brake-Chopper	100A				7MBP100VEA120-50
	150A				7MBP150VEA120-50
	200A	✓	✓	✓	7MBP200VEA060-50
	300A	✓	✓	✓	7MBP300VEA060-50
	400A	✓	✓	✓	7MBP400VEA060-50

Hybrid SiC Modules

		600V 		1200V 		1700V 	
		V series		V series		V series	
2-Pack	 M274		200A		2MSI200VAB-120-53		
	 M276		300A		2MSI300VAH-120C-53		
	 M277		400A				2MSI400VAE-170-53
	 M254		300A		2MSI300VAN-120-53		
			450A		2MSI450VAN-120-53		
			550A				2MSI550VAN-170-53
600A				2MSI600VAN-120-53			
 M278		1200A				2MSI1200VAT-170PC *1 2MSI1200VAT-170EC *2	
PIM	 M712		35A		7MSR35VAB120-50		
			50A	7MSR50VAB060-50	7MSR50VAB120-50		
			75A	7MSR75VAB060-50			
			100A	7MSR100VAB060-50			
6-Pack	 M633		100A		6MSI100VAB-120-50		

*1: Low $V_{CE(sat)}$ type *2: Low switching losses

Discrete IGBT

	Ic	600V			650V	1200V			
		V series	High speed V series	RB series	High speed W series	V series	High speed V series	High speed W series	
TO-247-P2  	15A					FGW15N120H			
	25A							FGW25N120W	
	30A						FGW30N120H		
	35A		FGW35N60H						
	40A				FGW40N65W		FGW40N120H	FGW40N120W	
	50A		FGW50N60H		FGW50N65W				
	60A				FGW60N65W				
	75A		FGW75N60H		FGW75N65W				
	15A					FGW15N120VD	FGW15N120HD		
	25A					FGW25N120VD		FGW25N120WD/WE	
	30A	FGW30N60VD					FGW30N120HD		
	35A		FGW35N60HD/HC						
	40A				FGW40N65WD/WE	FGW40N120VD	FGW40N120HD	FGW40N120WD/WE	
	50A	FGW50N60VD	FGW50N60HD/HC		FGW50N65WD/WE				
	60A				FGW60N65WD/WE				
75A		FGW75N60HD/HC		FGW75N65WE					
85A			FGW85N60RB						
TO-247-4-P2  	40A							FGZ40N120WE	
	50A				FGZ50N65WD/WE				
	75A				FGZ75N65WE				

Recommended operating frequency

~10kHz	~20kHz	~100kHz	
V/RB			
High speed V			
		High speed W	

Rectifier Diode

		Ultra Fast Recovery Diodes		Soft Recovery Fast Recovery Diodes	
		600V	650V	1200V	
lc					
TO-220 	15A	FDRP15S60L			
	25A	FDRP25S60L			
	35A				
	75A				
TO-247-P2 	12A			FDRW12S120J	
	15A	FDRW15S60L			
	20A			FDRW20S120J	
	25A	FDRW25S60L			
	30A			FDRW30S120J	
	35A	FDRW35S60L			
	40A				FDRW40C120J
50A		FDRW50C60L			
60A				FDRW60C120J	
70A		FDRW70C60L			
TO-247-2-P2 	60A	FDRW60T60L			
	75A		FDRW75T65L		

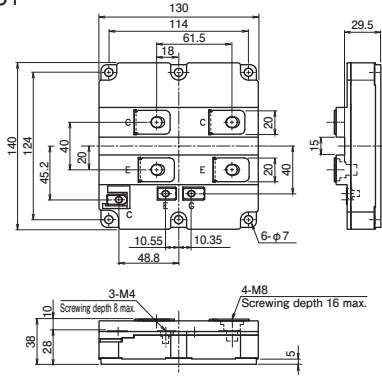
SiC-SBD



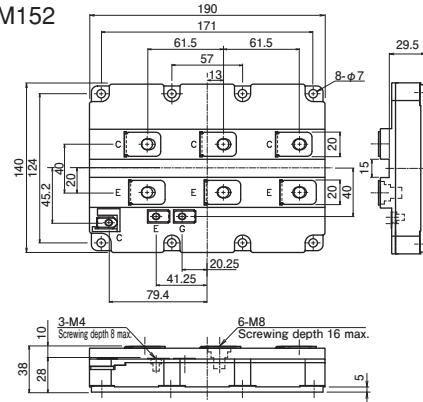
		600V		1200V	
lc					
T-Pack(s) 	10A	FDCC10S65			
	20A		FDCC20C65		
	25A	FDCC25S65			
TO-220-2 	10A	FDCP10S65			
	25A	FDCP25S65			
TO-220 	20A		FDCP20C65		
TO-220F 	20A		FDCA20C65		
TO-220F-2 	10A	FDCY10S65			
	25A	FDCY25S65			
TO-247 	10A	FDCY10S65			
	18A			FDCY18S120	
	20A		FDCY20C65		
	25A	FDCY25S65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

Package Outlines, mm

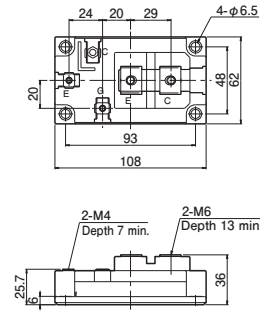
M151



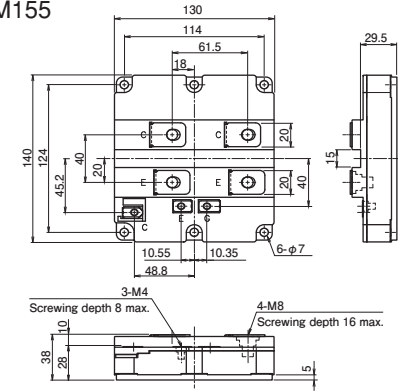
M152



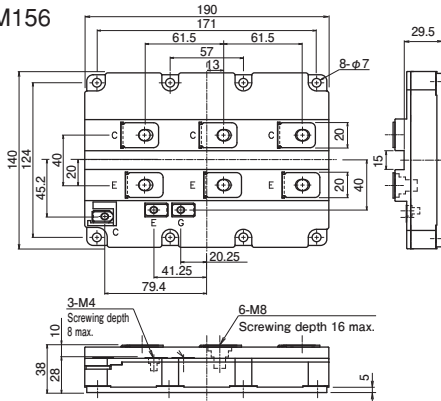
M153



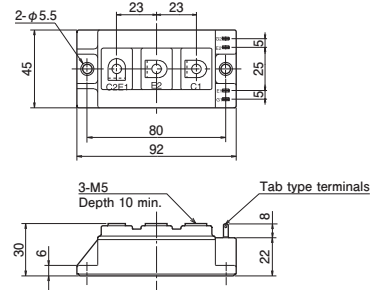
M155



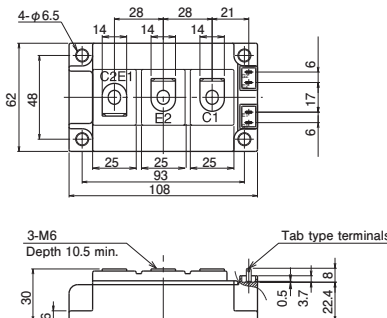
M156



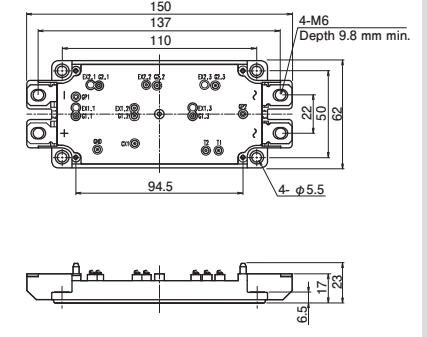
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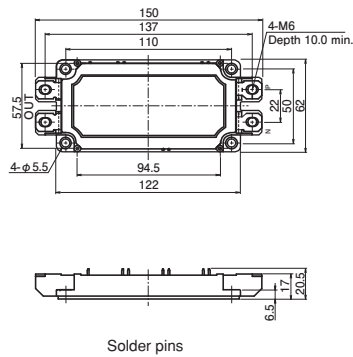
M249



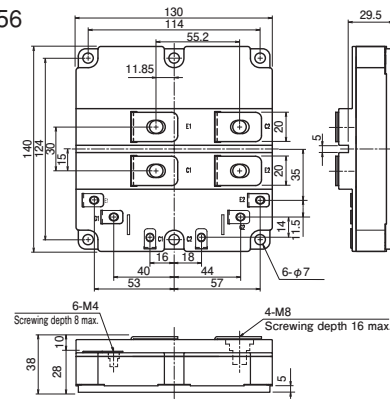
M250



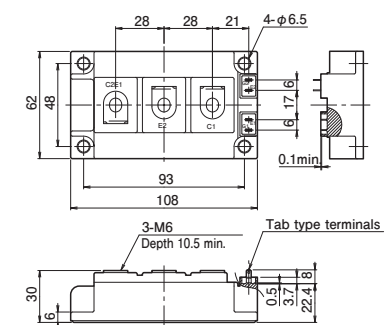
M254



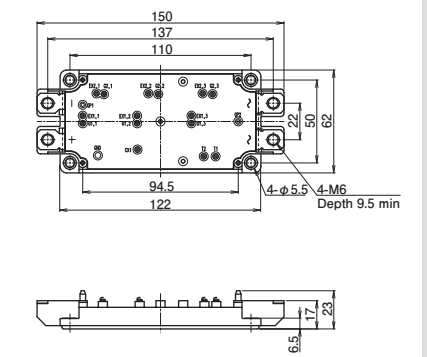
M256



M259

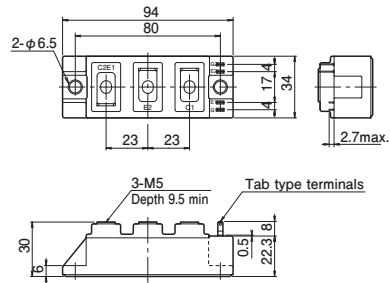


M260

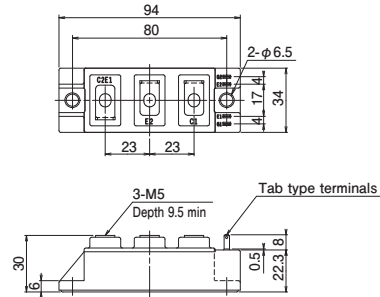


Package Outlines, mm

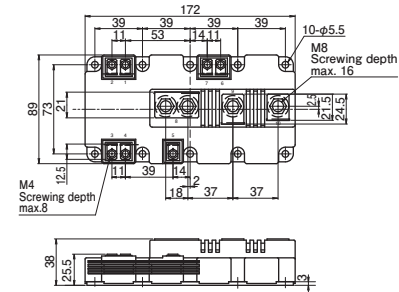
M262



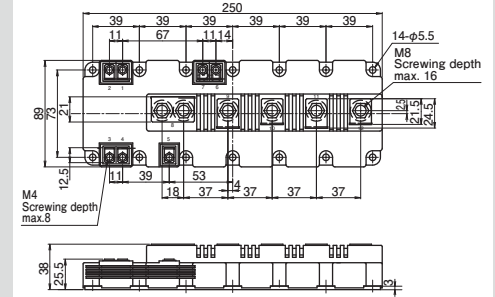
M263



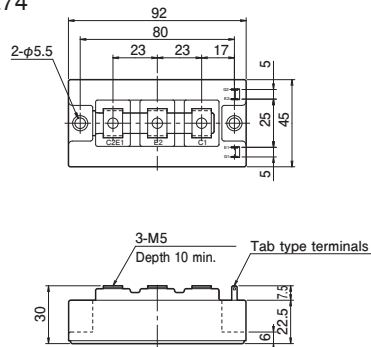
M271



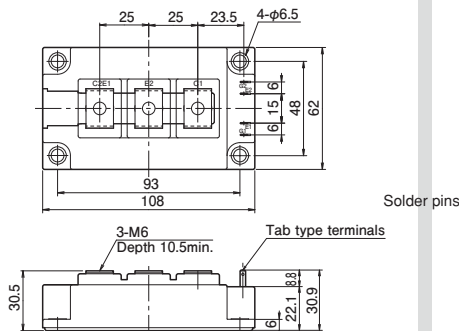
M272



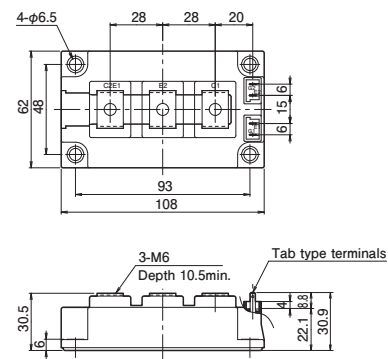
M274



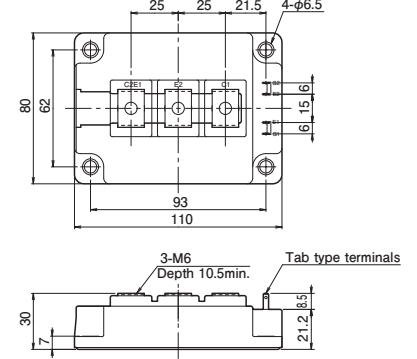
M275



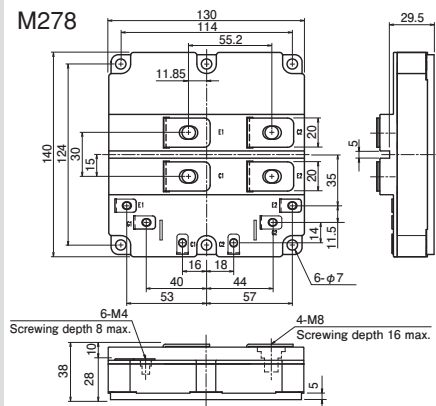
M276



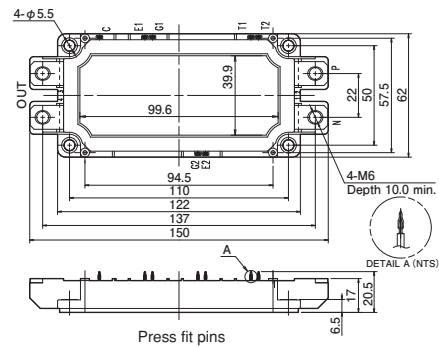
M277



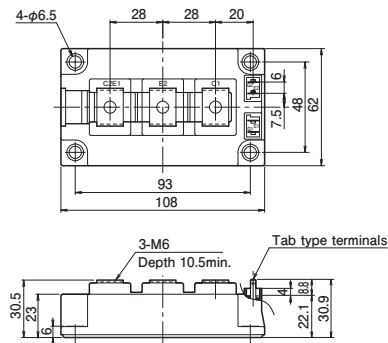
M278



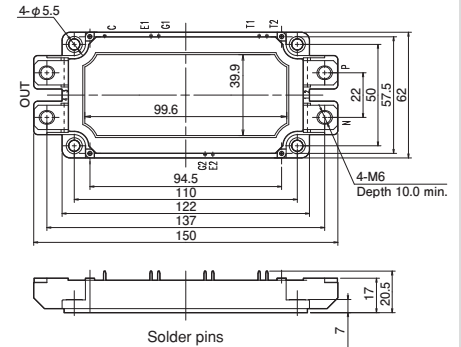
M282



M283

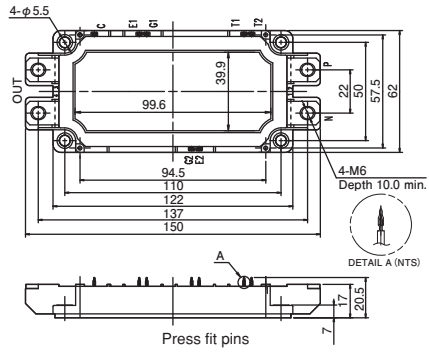


M285

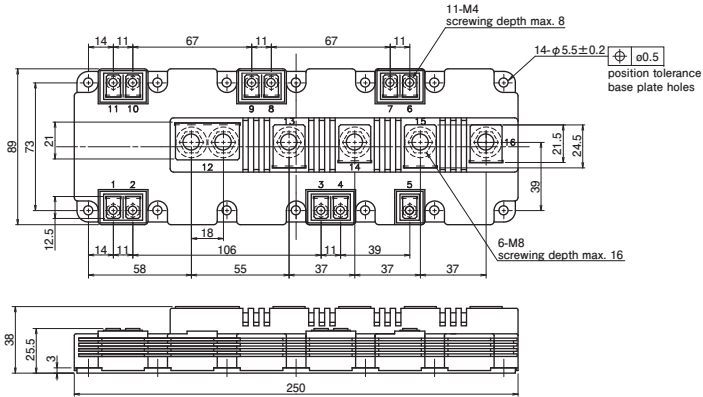


Package Outlines, mm

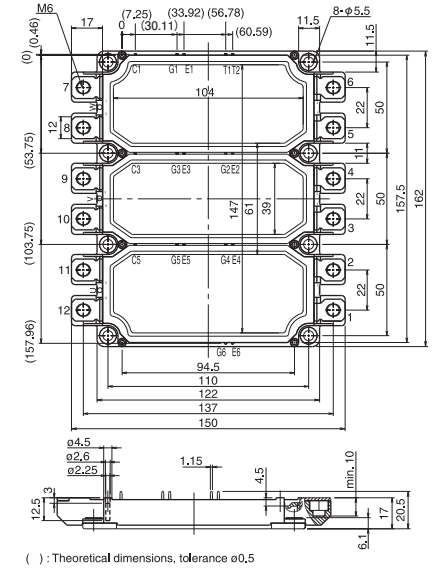
M286



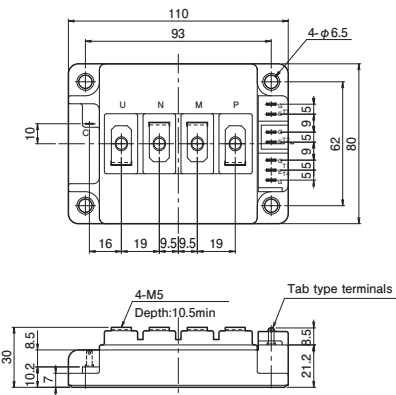
M404



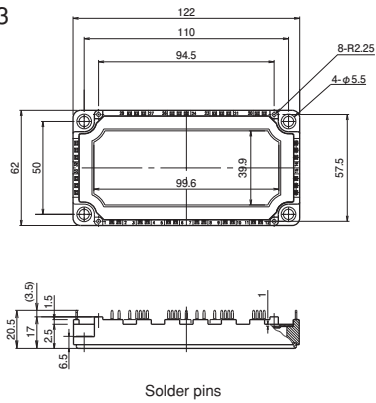
M629



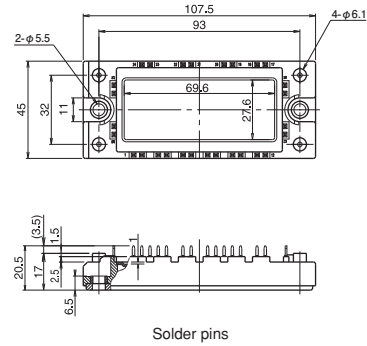
M403



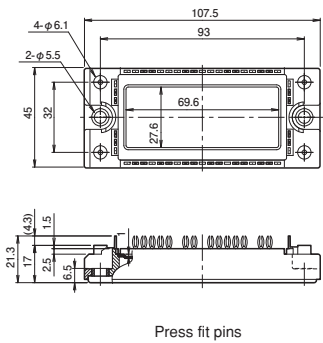
M633



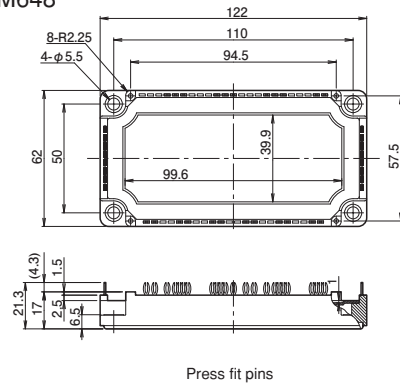
M636



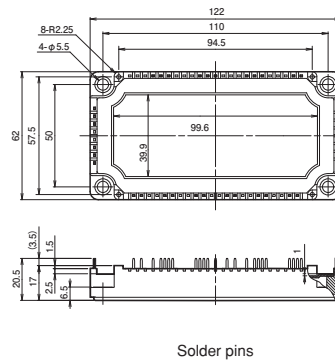
M647



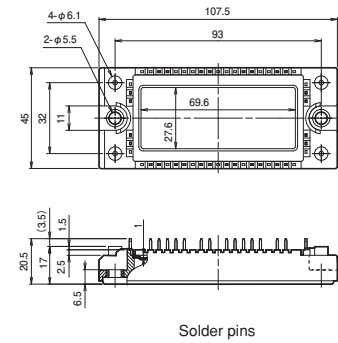
M648



M668



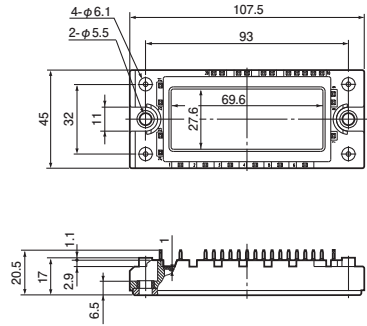
M669



() : Theoretical dimensions, tolerance ± 0.5

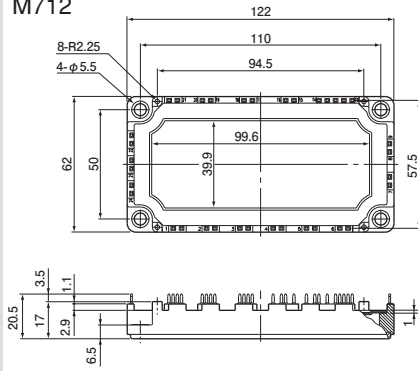
Package Outlines, mm

M711



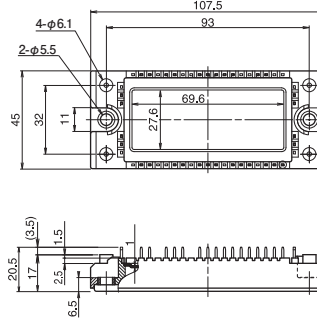
Solder pins

M712



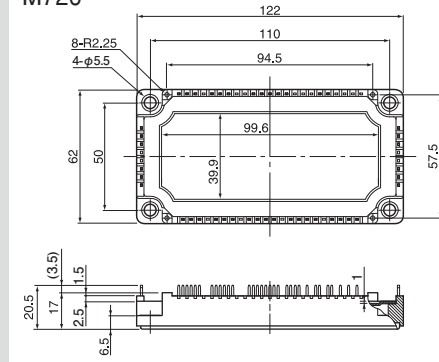
Solder pins

M719



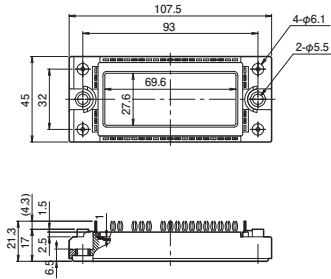
Solder pins

M720



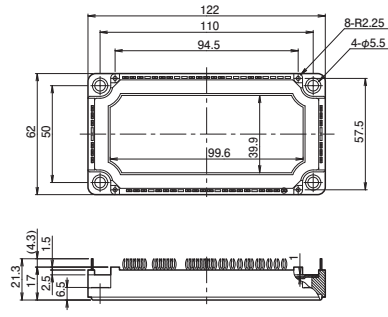
Solder pins

M721



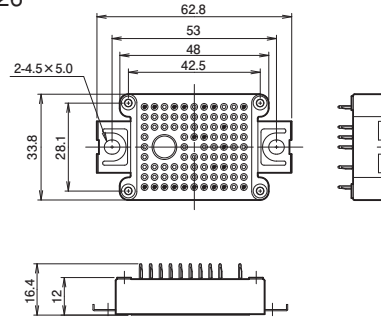
Press fit pins

M722



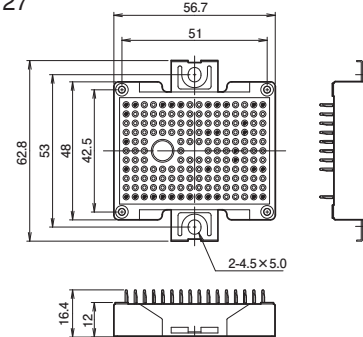
Press fit pins

M726



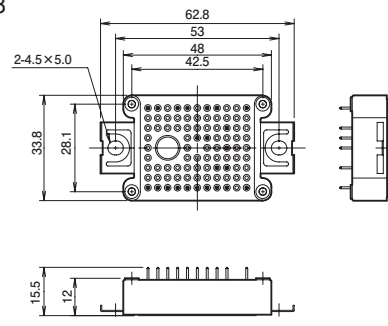
Press fit pins

M727



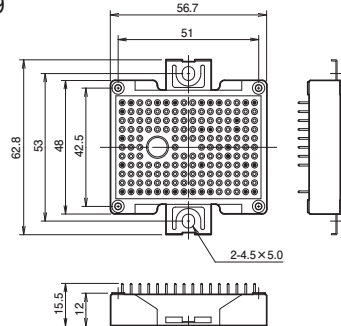
Press fit pins

M728



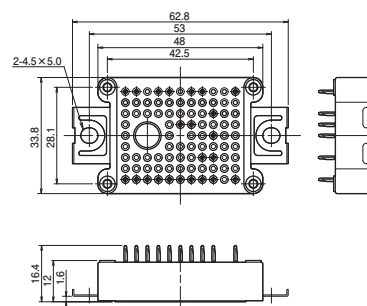
Solder pins

M729



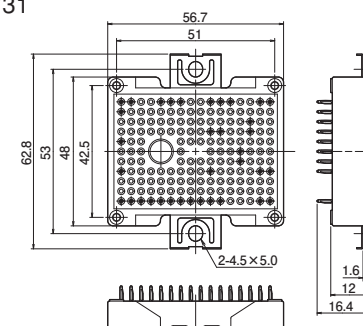
Solder pins

M730



Press fit pins

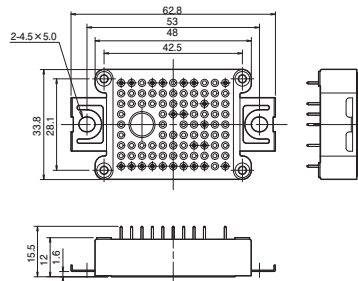
M731



Press fit pins

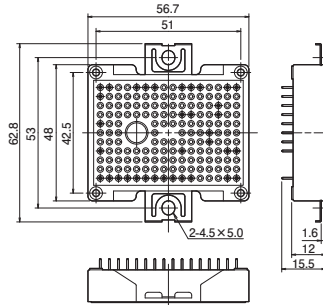
Package Outlines, mm

M732



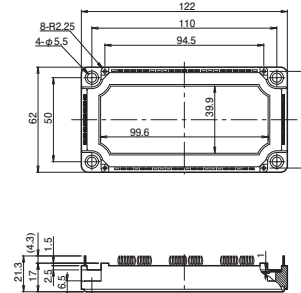
Solder pins

M733



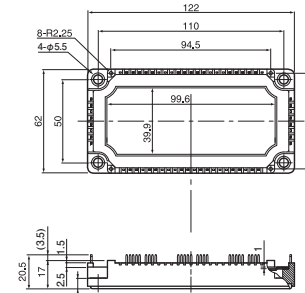
Solder pins

M1202



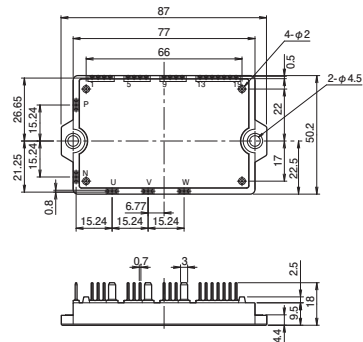
Press fit pins

M1203

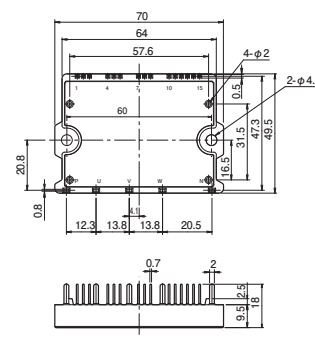


Press fit pins

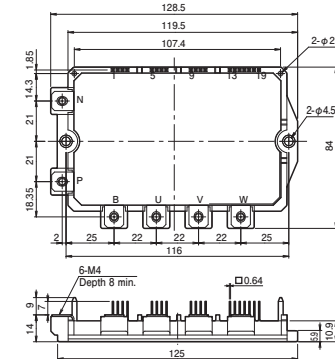
P626



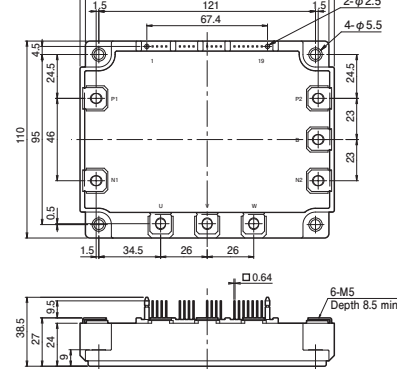
P629



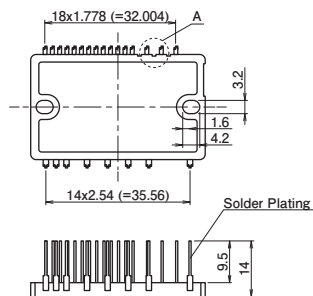
P630



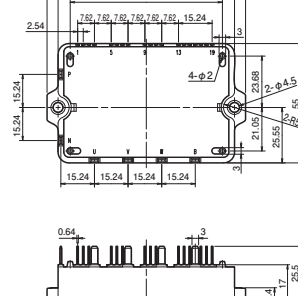
P631



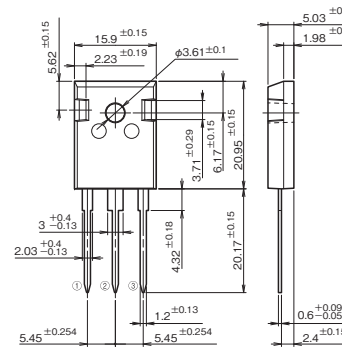
P633A



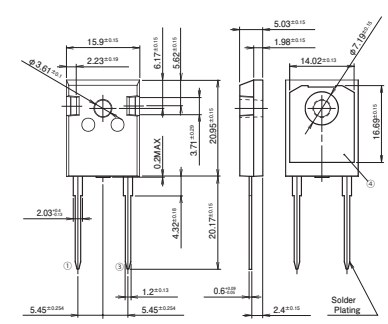
P636



TO-247-P2

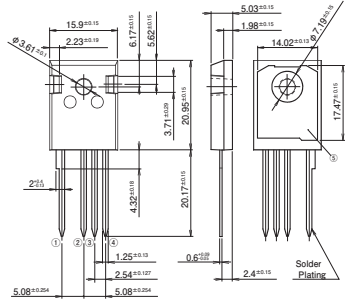


TO-247-2-P2

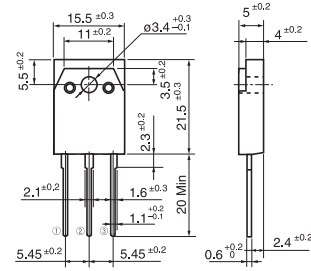


Package Outlines, mm

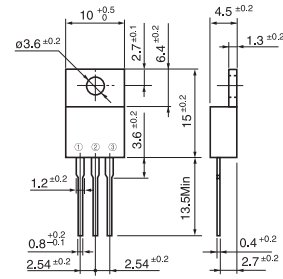
TO-247-4-P2



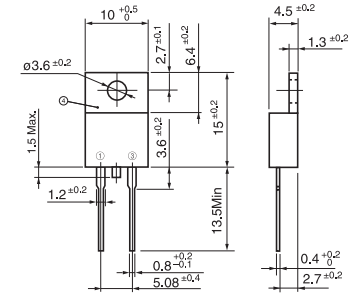
TO-247



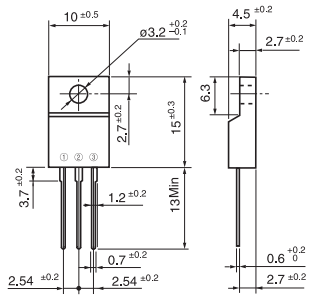
TO-220



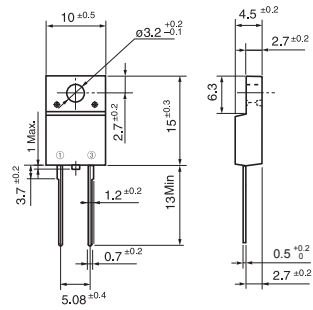
TO-220-2



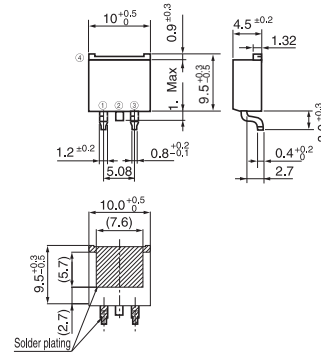
TO-220F



TO-220F-2



T-Pack(s)



Package Outlines, mm

WARNING

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 - Machine tools
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 - Safety devices
 - Medical equipment
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