












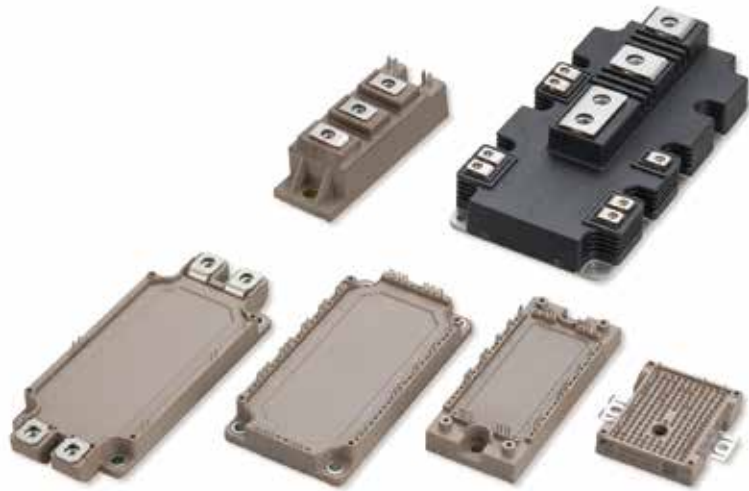
FUJI Power Semiconductors

IGBT/SiC Devices Selection Guide

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Features of IGBT Module X Series

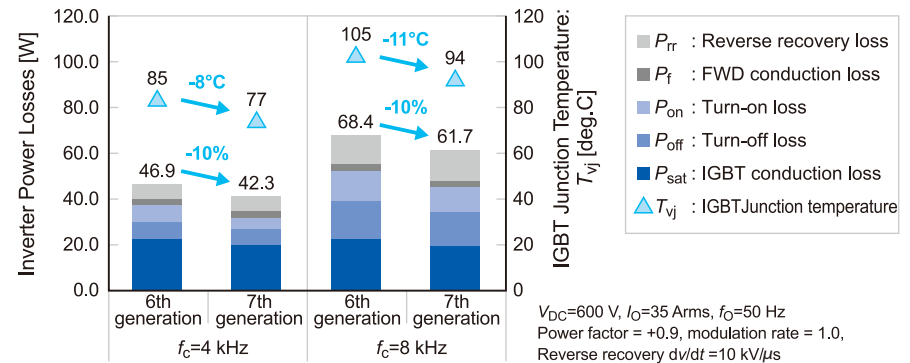


1. Low loss

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)

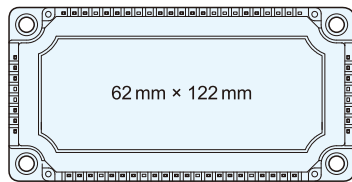


2. Miniaturization

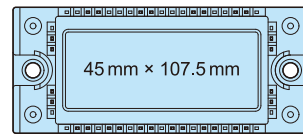
The application of the newly developed insulating substrate has improved the heat dissipation of the module. A smaller footprint of about 36% has been achieved by reducing power loss and suppressing heat generation compared with the previous product.

Application example)

36% reduction



75 A (6th Generation V Series)



75 A (7th Generation X Series)

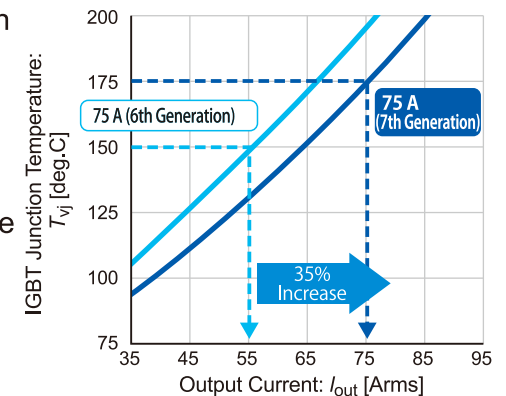
3. High-temperature operation

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)

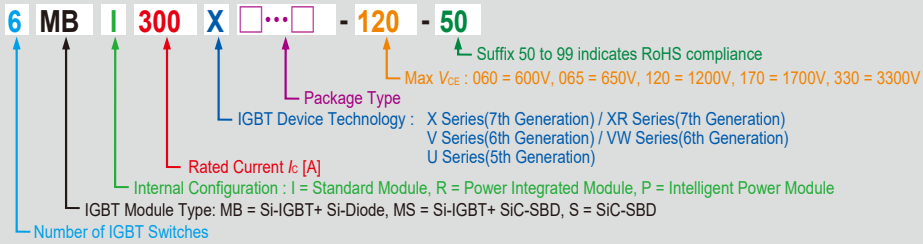
Increased output current by $T_{vj(op)} = 175^\circ\text{C}$



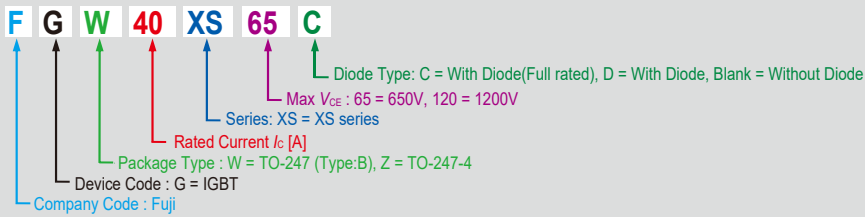
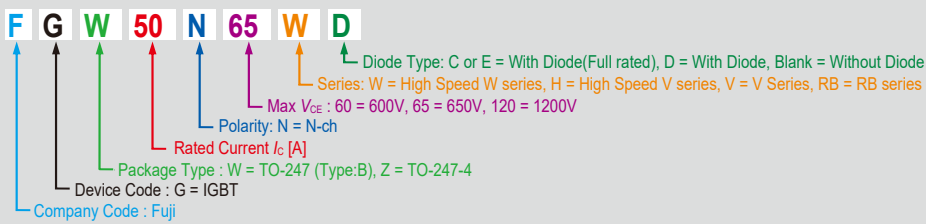
Number of IGBT Switches		Page	Internal Configuration						Max V_{CE} (V_{RRM})					Rated Current					
Products Category			IGBT Module				Discrete IGBT	Rectifier Diode	Discrete SiC-SBD	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A
7	Small PIM	9		✓								✓	✓	✓			✓		
	PIM EconoPIM™	10		✓					✓	✓	✓			✓	✓				
		11			✓					✓	✓	✓			✓	✓			
6	6-Pack EconoPACK™ EconoPACK™+	12							✓		✓			✓	✓	✓			
		13	✓						✓		✓	✓		✓	✓	✓	✓		
2	Standard 2-Pack	14							✓	✓	✓	✓			✓	✓	✓		
		15	✓								✓	✓				✓	✓	✓	
1	Standard 1-Pack Chopper	16	✓								✓	✓				✓	✓	✓	
		16	✓						✓		✓			✓	✓	✓	✓		
1,2	High Speed Module	17	✓								✓				✓	✓	✓		
	High Power Module	18,19	✓								✓	✓	✓				✓	✓	✓
	PrimePACK™	20,21	✓								✓	✓					✓	✓	✓
4,12	T/I-type NPC 3-level	22							✓		✓	✓		✓	✓	✓	✓	✓	
6,7	IPM	23							✓	✓	✓			✓	✓				
		24,25							✓	✓	✓			✓	✓				
		26			✓					✓	✓	✓			✓	✓	✓		
		27								✓	✓	✓				✓	✓	✓	
1,2,6,7	Hybrid SiC Module	28,29	✓						✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
	All-SiC Module	30	✓								✓	✓				✓	✓		
1	Discrete IGBT	31					✓							✓	✓				
-	Rectifier Diode	32							✓	✓	✓			✓	✓				
-	SiC-SBD	33								✓			✓	✓					

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

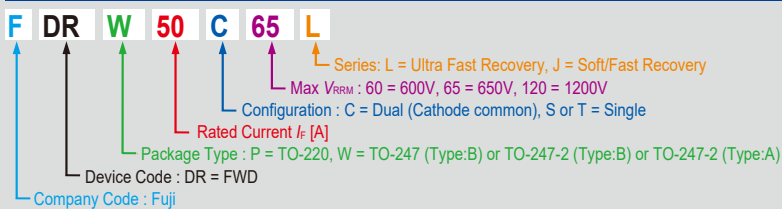
IGBT Module Production Number



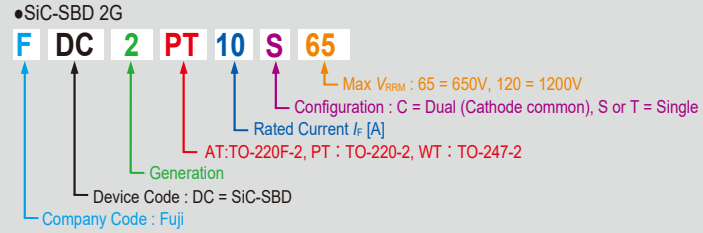
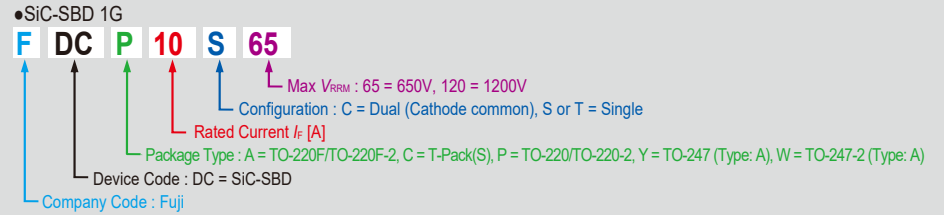
Discrete IGBT Production Number



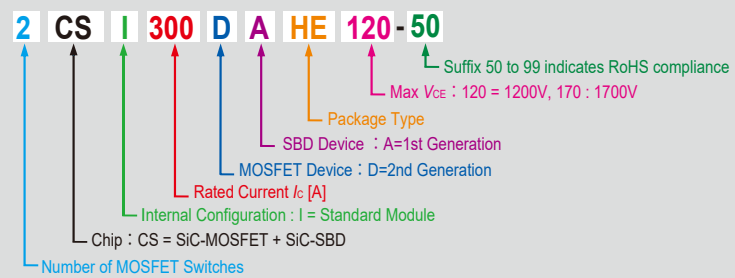
Rectifier Diode Production Number



SiC Schottky-Barrier Diode Production Number



All-SiC Module Production Number

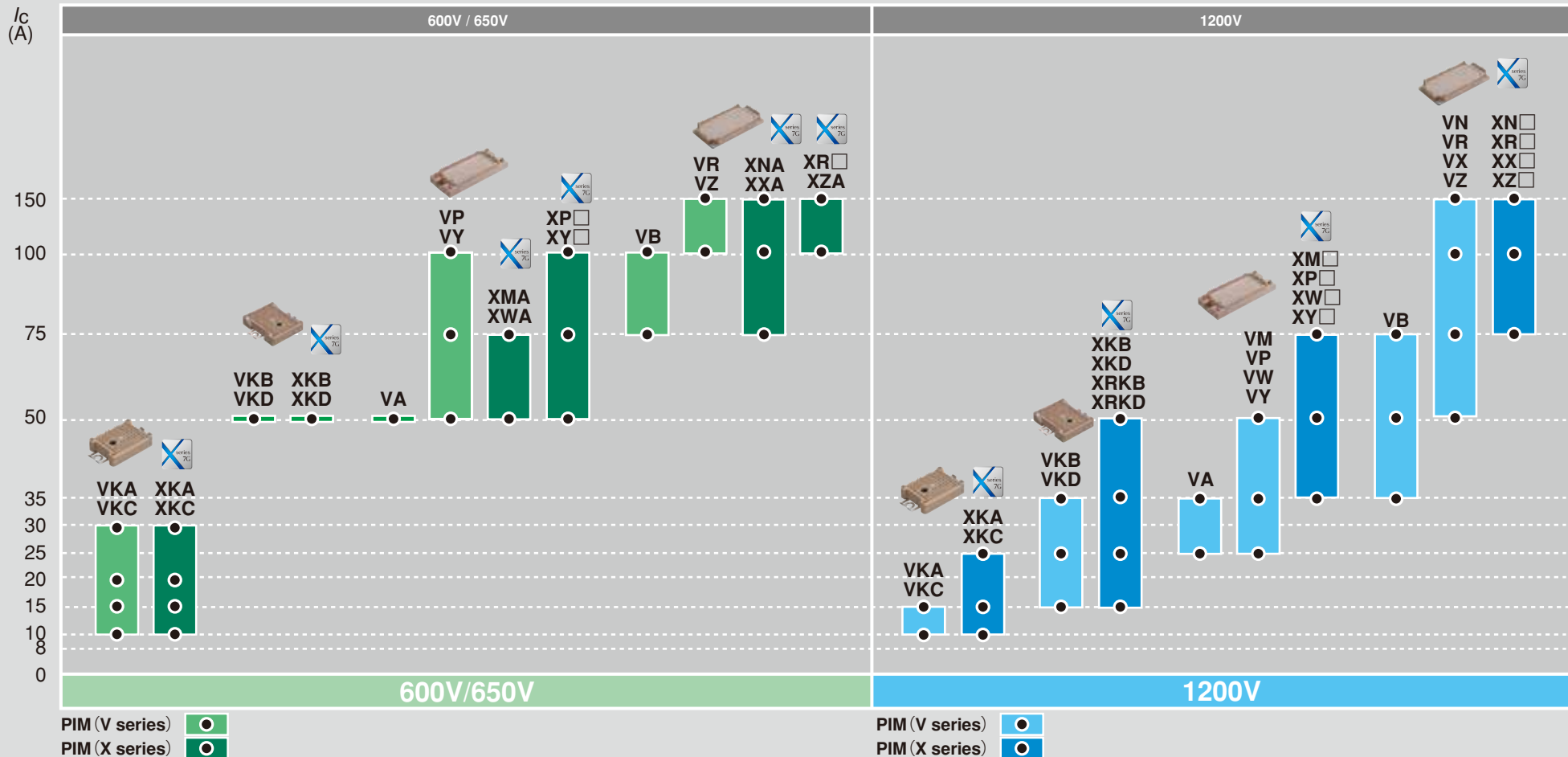


PIM (Power Integrated Modules) Products Map

7MBR	Ic	IGBT series & Package type				Size	Page
		V series		X series			
		Solder pins	Press fit pins	Solder pins	Press fit pins		
		VKC	VKA	XKC	XKA	33.8×62.8mm	9
		VKD	VKB	XKD, XRKD	XKB, XRKB	56.7×62.8mm	9
		VA, VM, VP	VW, VY	XM□, XP□	XW□, XY□	45×107.5mm	10,11
		VB, VN, VR	VX, VZ	XN□, XR□	XX□, XZ□	62×122mm	10,11

EconoPIM™

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

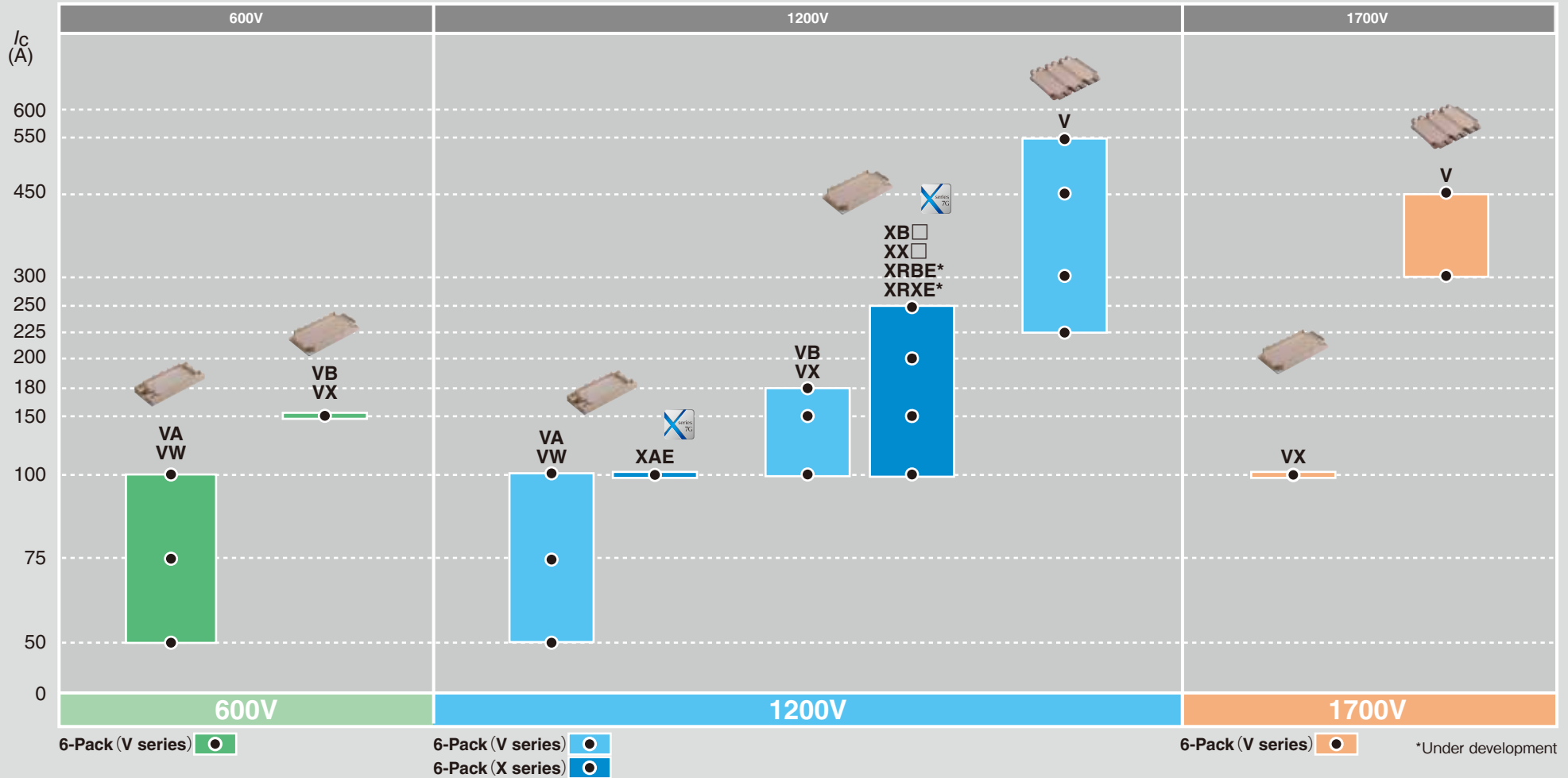


6-Pack Products Map

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	12,13
		VB	VX	XB□, XRBE	XX□, XRXE	62×122mm	12,13
		V				150×162mm	13

EconoPACK™
EconoPACK™+

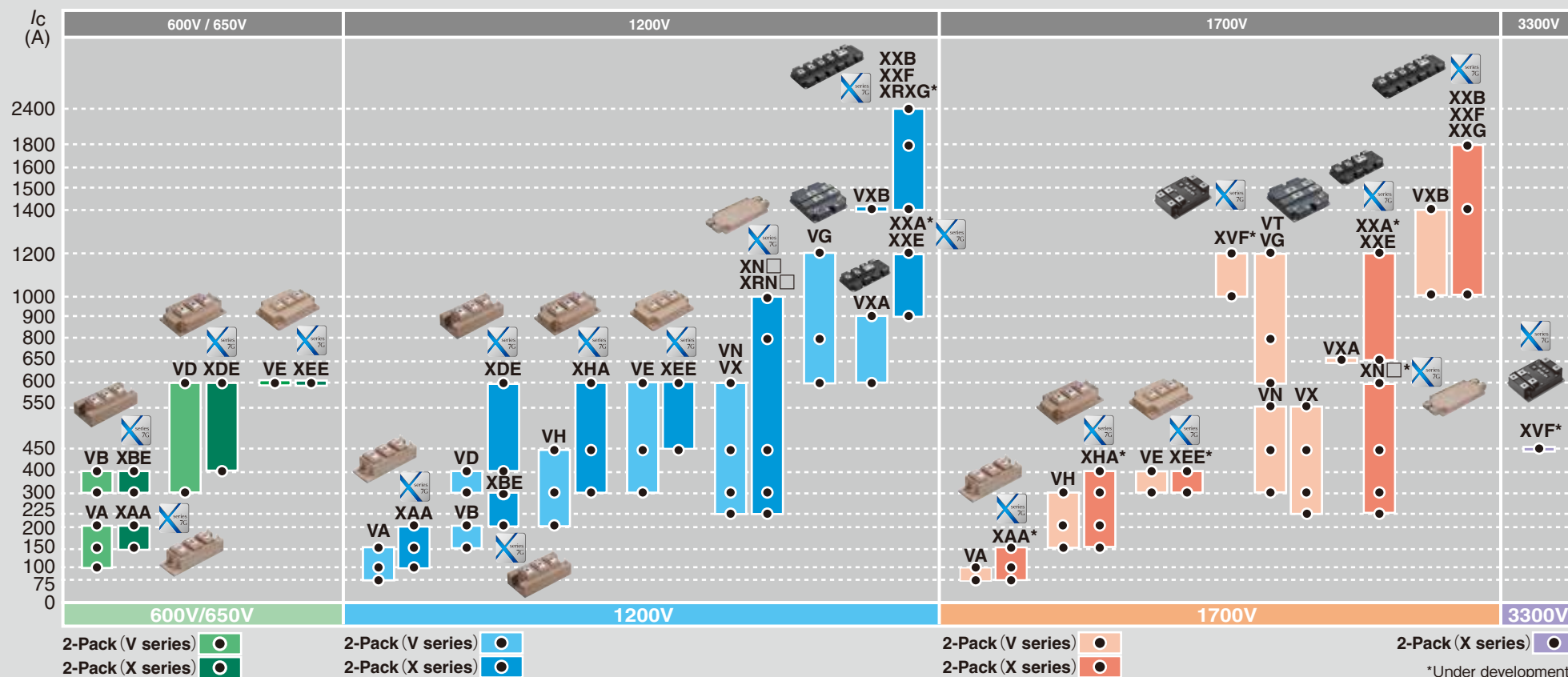
Note:
EconoPACK™ and EconoPACK™+ are registered trademark of
Infineon Technologies AG, Germany.



2-Pack Products Map

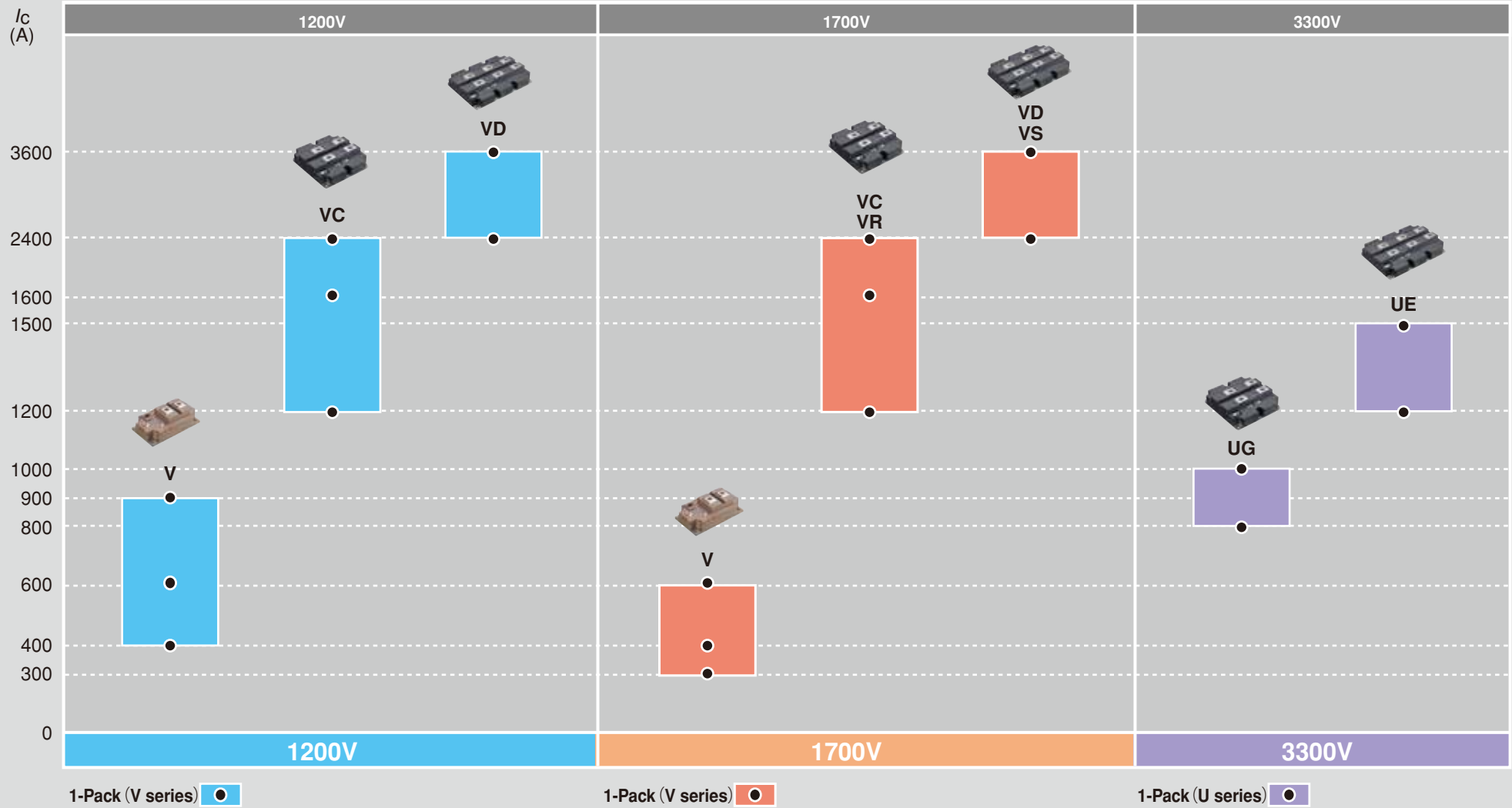
2MBI	Ic	IGBT series & Package type		Size	Page	
		V series	X series			
		VA	XAA	34×94mm	14	Standard Pack
		VB	XBE	45×92mm	14	
		VD, VH	XDE, XHA	62×108mm	14	
		VE	XEE	80×110mm	14	
		VN, VX	XN□, XRN□	62×150mm	15	
		-	XVF	100×140mm	19	HPnC
		VG, VT	-	140×130mm	18	High Power Module
		VXA	XXA, XXE	89×172mm	20	PrimePACK™
		VXB	XXB, XXF, XXG, XRXG	89×250mm	20	

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany



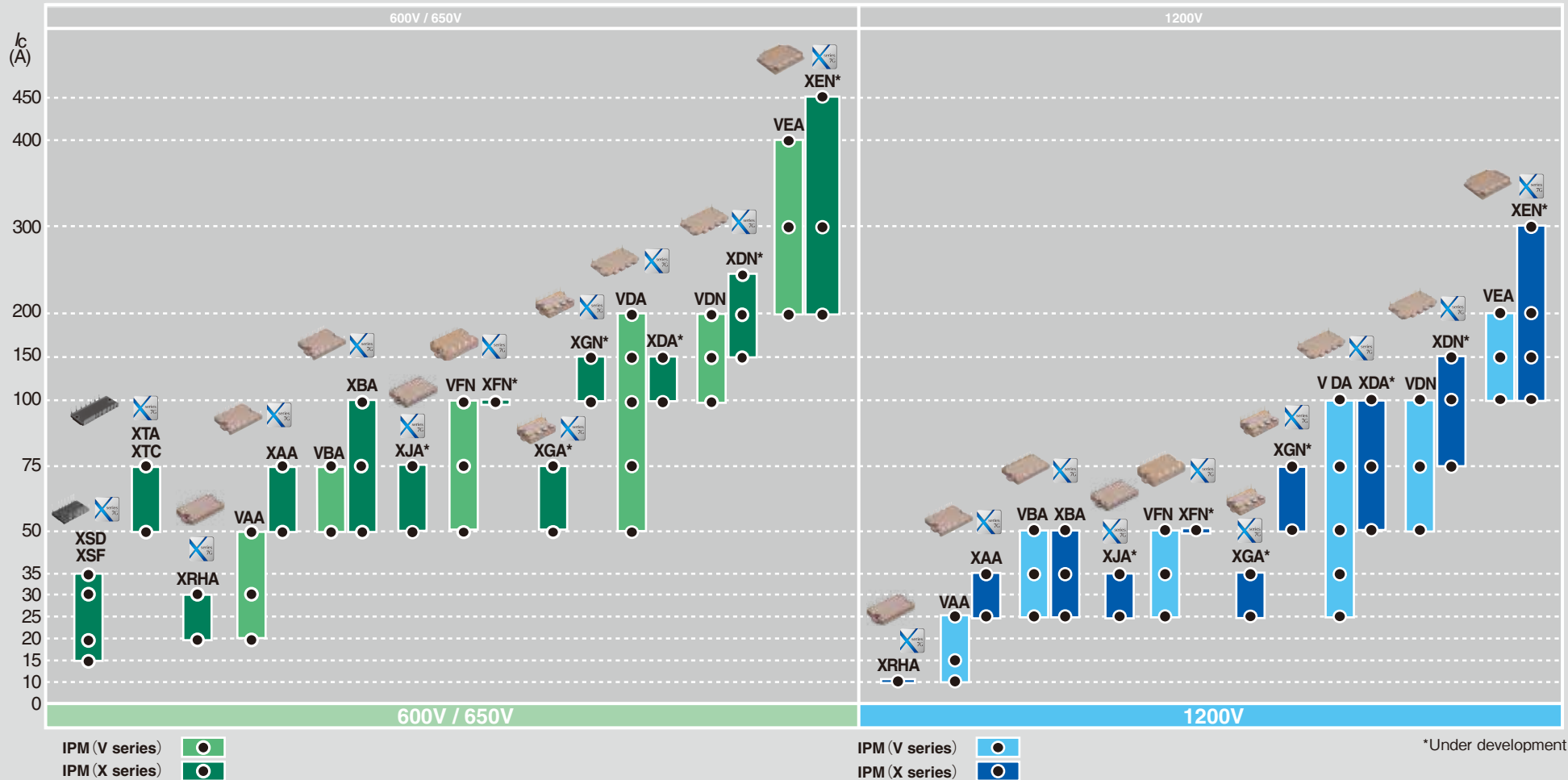
1-Pack Products Map

1MBI	Ic	IGBT series & Package type	Size	Page	
		V/U series			
		V	62×108mm	16	Standard Pack
		VC, VR, UG	140×130mm	18	High Power Module
		VD, VS, UE	140×190mm	18	



IPM (Intelligent Power Modules) Products Map

6/7MBP	Ic	IGBT series & Package type		V series		X series		Page
		V series	X series	7 in 1	6 in 1	7 in 1	6 in 1	
		Size						
-	-	XSD, XSF	26×43mm	-	-	-	✓	23
-	-	XTA, XTC	31×79mm	-	-	-	✓	23
-	-	XRHA	36×70mm	-	-	-	✓	24
VAA	XAA	49.5×70mm	-	✓	-	✓	✓	24
VBA	XBA	50.2×87mm	-	✓	-	✓	✓	24
-	XJA	50.2×87mm	-	-	-	✓	-	24
VFN	XFN	55×90mm	✓	✓	✓	✓	✓	25
-	XGA, XGN	55×90mm	-	-	-	✓	✓	25
VDA, VDN	XDA, XDN	84×128.5mm	✓	✓	✓	✓	✓	26
VEA	XEN	110×142mm	✓	✓	✓	✓	✓	27

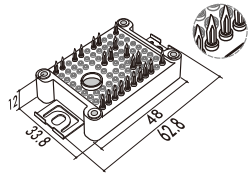


*Under development

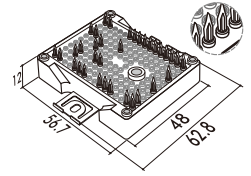
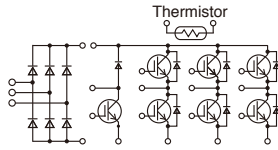
Small PIM (Power Integrated Modules)

Dimension[mm]

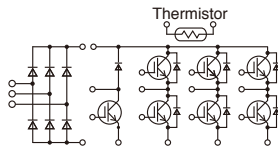
With NTC, Press fit pins



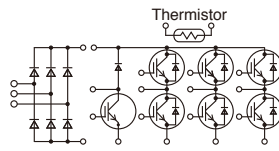
V: M726, X: M730



V: M727, X: M731

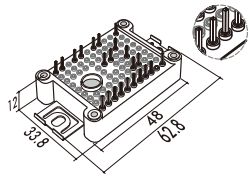


XKB, VKB

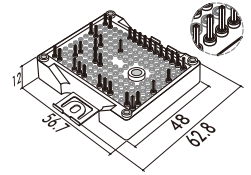
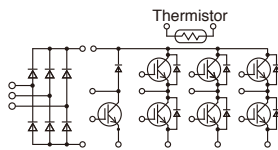


XRKB

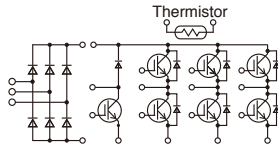
With NTC, Solder pins



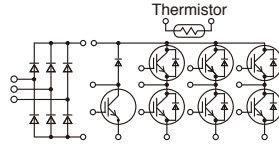
V: M728, X: M732



V: M729, X: M733



XKD, VKD

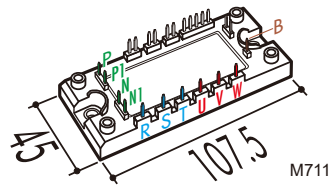


XRKD

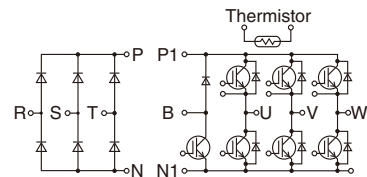
Ic	650V		600V		1200V	
	X series	V series	X series	V series	X series	V series
10A	7MBR10XKA065-50	7MBR10VKA060-50	7MBR10XKA120-50	7MBR10VKA120-50		
15A	7MBR15XKA065-50	7MBR15VKA060-50	7MBR15XKA120-50	7MBR15VKA120-50		
20A	7MBR20XKA065-50	7MBR20VKA060-50				
25A			7MBR25XKA120-50			
30A	7MBR30XKA065-50	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



M711



Dimension[mm]

Ic

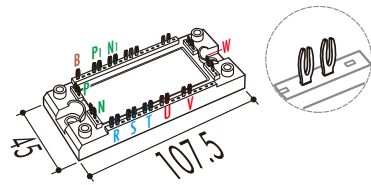
Ic	650V		600V		1200V	
	X series		V series	X series		V series
25A						7MBR25VA120-50
35A						7MBR35VA120-50
50A			7MBR50VA060-50			
25A						7MBR25VM120-50
35A					7MBR35XMA120-50	7MBR35VM120-50
50A	7MBR50XMA065-50				7MBR50XMA120-50	7MBR50VM120-50
75A	7MBR75XMA065-50				7MBR75XME120-50	
25A						7MBR25VP120-50
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		7MBR150XRE120-50	7MBR150VR120-50
	7MBR150XRE065-50					

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

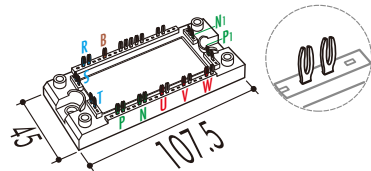
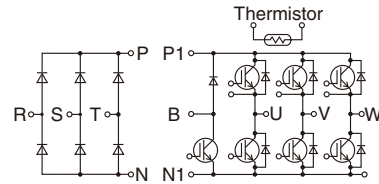
PIM (Power Integrated Modules) EconoPIM™

Dimension[mm]

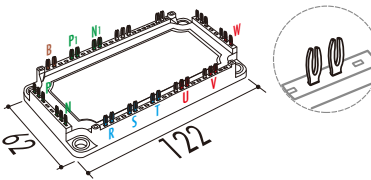
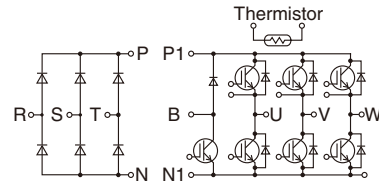
With NTC, Press fit pins, PIM



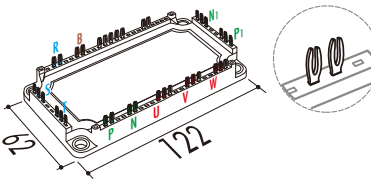
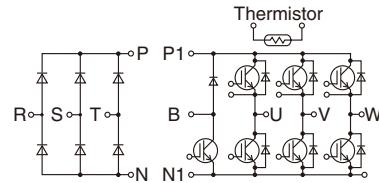
M721



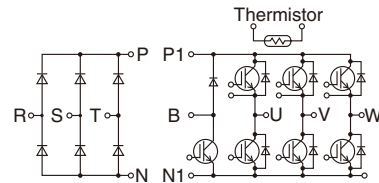
M721



M722



M722



Ic	650V		600V		1200V	
	X series	V series	X series	V series	X series	V series
25A						7MBR25VW120-50
35A					7MBR35XWA120-50	7MBR35VW120-50
50A	7MBR50XWA065-50				7MBR50XWA120-50	7MBR50VW120-50
75A	7MBR75XWA065-50				7MBR75XWE120-50	
25A						7MBR25VY120-50
35A					7MBR35XYA120-50	7MBR35VY120-50
50A	7MBR50XYA065-50	7MBR50VY060-50			7MBR50XYA120-50	7MBR50VY120-50
75A	7MBR75XYA065-50	7MBR75VY060-50			7MBR75XE120-50	
100A	7MBR100XE065-50	7MBR100VY060-50				
50A						7MBR50VX120-50
						7MBR50VX120-80
75A	7MBR75XXA065-50				7MBR75XXA120-50	7MBR75VX120-50
						7MBR75VX120-80
100A	7MBR100XXA065-50				7MBR100XXA120-50	7MBR100VX120-50
						7MBR100VX120-80
150A	7MBR150XXA065-50				7MBR150XE120-50	7MBR150VX120-50
						7MBR150VX120-80
50A						7MBR50VZ120-50
						7MBR50VZ120-80
75A					7MBR75XZA120-50	7MBR75VZ120-50
						7MBR75VZ120-80
100A	7MBR100XZA065-50	7MBR100VZ060-50			7MBR100XZA120-50	7MBR100VZ120-50
		7MBR100VZ060-80				7MBR100VZ120-80
150A	7MBR150XZA065-50	7MBR150VZ060-50			7MBR150XZE120-50	7MBR150VZ120-50
		7MBR150VZ060-80				7MBR150VZ120-80

Note1: EconoPIM™ 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.

6-Pack EconoPACK™

Dimension[mm]

Ic

600V

1200V

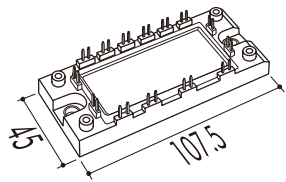
V series

X series

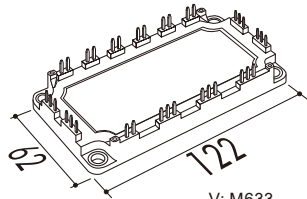
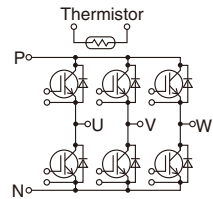


V series

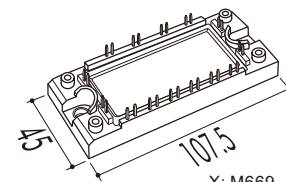
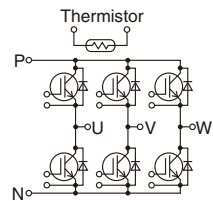
With NTC, Solder pins



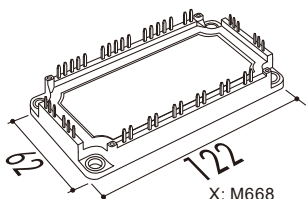
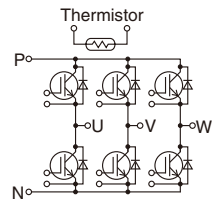
V: M636



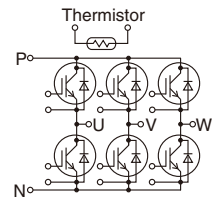
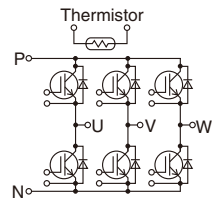
V: M633



X: M669



X: M668



XBA, XBE

XRBE

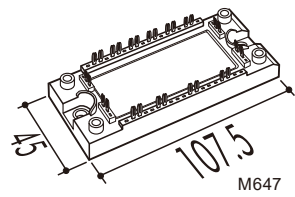
Ic	600V	1200V
	V series	X series
50A	6MBI50VA-060-50	
75A	6MBI75VA-060-50	
100A	6MBI100VA-060-50	
100A		6MBI100VB-120-50
150A	6MBI150VB-060-50	6MBI150VB-120-50
180A		6MBI180VB-120-50
		6MBI180VB-120-55
100A		6MBI100XAE120-50
100A		6MBI100XBA120-50
150A		6MBI150XBA120-50
200A		6MBI200XBA120-50
		6MBI200XBE120-50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

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

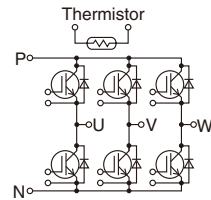
*Under development

6-Pack EconoPACK™

With NTC, Press fit pins




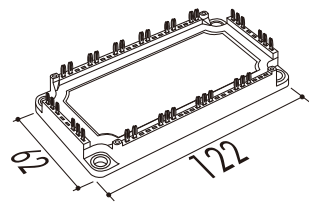
M647



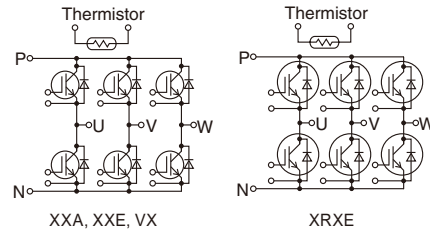
Dimension[mm]

Ic

Ic	600V	X series 	1200V	1700V
	V 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*		



M648

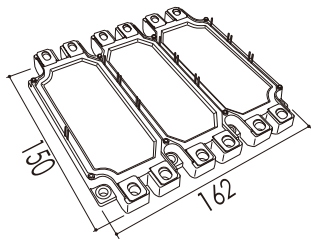


Note1: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)
 Note2: "-85" :High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate for "-55" type.
 Note3: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

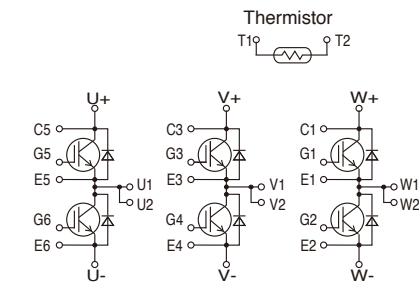
*Under development

6-Pack EconoPACK™+

With NTC, High power 6-Pack



M629



Dimension[mm]

Ic

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.



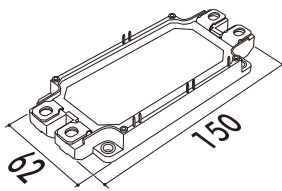
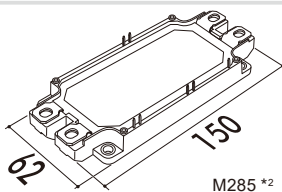
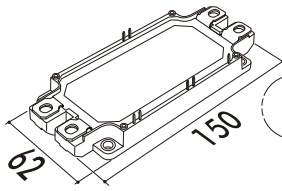
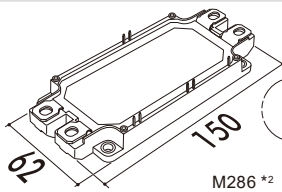
Standard 2-Pack

Dimension [mm]	Ic	650V		600V		1200V		1700V	
		X series	V series	X series	V series	X series	V series	X series	V series
 M263		75A							
		100A		2MBI100VA-060-50	2MBI100XAA120-50	2MBI100VA-120-50	2MBI100XAA170-50	2MBI100VA-170-50	
		150A	2MBI150XAA065-50	2MBI150VA-060-50	2MBI150XAA120-50	2MBI150VA-120-50	2MBI150XAA170-50		
		200A	2MBI200XAA065-50	2MBI200VA-060-50	2MBI200XAA120-50				
 M274		150A					2MBI150VB-120-50		
		200A				2MBI200XBE120-50	2MBI200VB-120-50		
		300A	2MBI300XBE065-50	2MBI300VB-060-50	2MBI300XBE120-50				
		400A	2MBI400XBE065-50	2MBI400VB-060-50					
 M275		300A					2MBI300VD-120-50		
		400A	2MBI400XDE065-50	2MBI400VD-060-50	2MBI400XDE120-50	2MBI400VD-120-50			
		600A	2MBI600XDE065-50	2MBI600VD-060-50	2MBI600XDE120-50				
 M276	 2MBI450VH-120F Common Emitter	150A					2MBI150XHA170-50	2MBI150VH-170-50	
		200A					2MBI200VH-120-50	2MBI200XHA170-50	2MBI200VH-170-50
		300A					2MBI200VH-120-80	2MBI300XHA170-50	2MBI300VH-170-50
		400A					2MBI300VH-120-80	2MBI300XHA170-50	2MBI300VH-170-80
		450A				2MBI450XHA120-50	2MBI450VH-120-50	2MBI400XHA170-50	
							2MBI450VH-120-80		
							2MBI450VH-120F-50*1		
							2MBI450VH-120F-80*1		
 M277		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	

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

Standard 2-Pack

Dimension[mm]

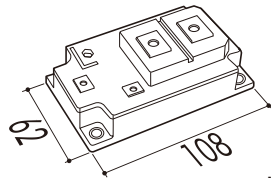
ic	1200V			1700V			
	X series 	V series	V series With SiN substrate *1	X series 	V series	V series With SiN substrate *1	
With NTC, Solder pins  M254  M285 *2  M282  M286 *2	225A	2MBI225XNA120-50	2MBI225VN-120-50 2MBI225VN-120-80	2MBI225VN-120S-50	2MBI225XNA170-50		
	300A	2MBI300XNA120-50	2MBI300VN-120-50 2MBI300VN-120-80	2MBI300VN-120S-50	2MBI300XNA170-50	2MBI300VN-170-50 2MBI300VN-170-80	
	450A	2MBI450XNA120-50	2MBI450VN-120-50 2MBI450VN-120-80	2MBI450VN-120S-50	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					
	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						

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

*1 Low thermal impedance version

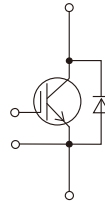
*2 Low thermal impedance and high tracking capability type

Standard 1-Pack



M153

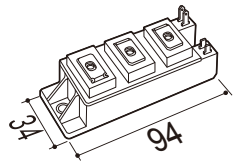
Dimension[mm]



Ic

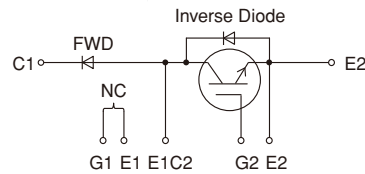
Ic	1200V		1700V
	V series	V series with AlN substrate	V series
300A			1MBI300V-170-50
400A	1MBI400V-120-50	1MBI400VF-120-50	1MBI400V-170-50
600A	1MBI600V-120-50	1MBI600VF-120-50	1MBI600V-170-50
900A	1MBI900V-120-50		

Chopper



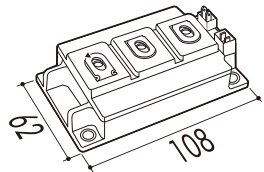
M262

Dimension[mm]

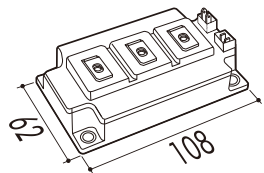
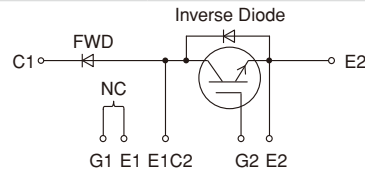


Ic

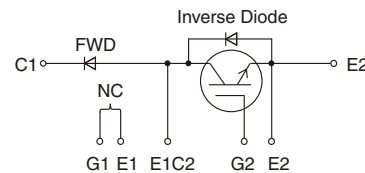
Ic	600V		1200V	
	U series	V series	U series	V series
50A			1MBI50U4F-120L-50	
75A			1MBI75U4F-120L-50	
100A			1MBI100U4F-120L-50	
150A				1MBI150VA-120L-50
200A				1MBI200VA-120L-50
200A			1MBI200U4H-120L-50	
300A	1MBI300U2H-060L-50			
400A		1MBI400VH-060L-50		



M259

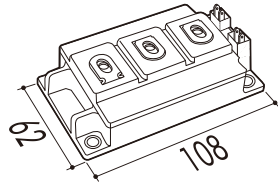


M283

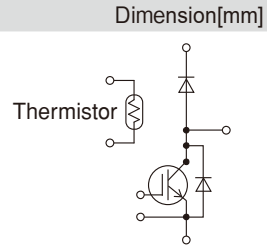


High Speed Modules

Chopper



M249



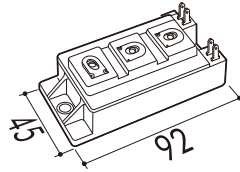
I_c

1200V

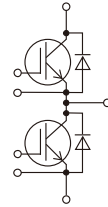
High Speed IGBT

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

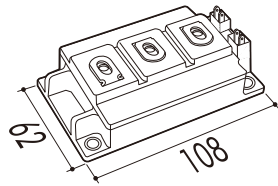
2-Pack



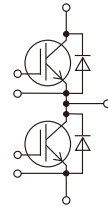
M233



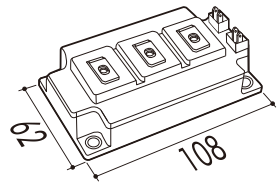
- 100A 2MBI100HB-120-50



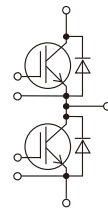
M249



- 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

1-Pack

2-Pack

Dimension[mm]

Ic

1200V

1700V

3300V

V series Trench-FS

V series Trench-FS

U series Trench-FS

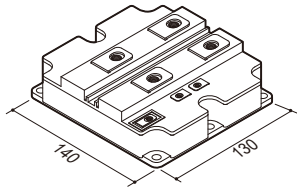
Cu-baseplate

Cu-baseplate

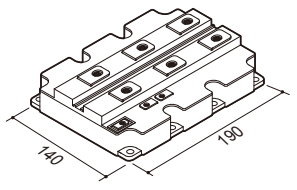
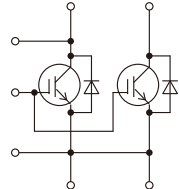
AlSiC-baseplate

AlSiC-baseplate

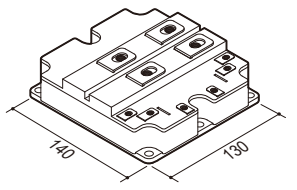
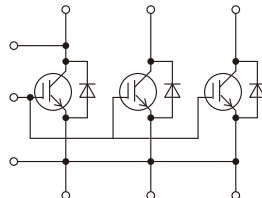
AlSiC-baseplate
Low switching loss



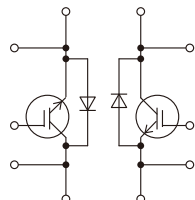
M151, M155



M152, M156



M256, M278

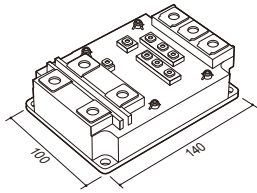


	1200V	1700V		3300V	
	V series Trench-FS	V series Trench-FS		U series Trench-FS	
	Cu-baseplate	Cu-baseplate	AlSiC-baseplate	AlSiC-baseplate	AlSiC-baseplate Low switching loss
800A				1MBI800UG-330	
1000A				1MBI1000UG-330	1MBI1000UG-330B
1200A	1MBI1200VC-120P	1MBI1200VC-170E	1MBI1200VR-170E		
1600A	1MBI1600VC-120P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

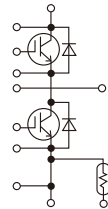
High Power Modules

2-Pack HPnC



M292

Dimension[mm]



Thermistor

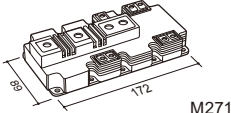
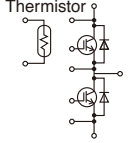
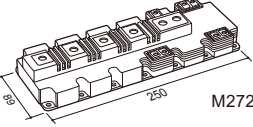
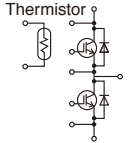
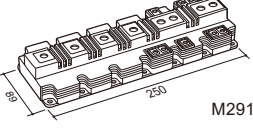
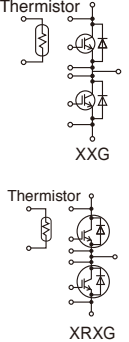
Ic	1700V		3300V	
	X series		X series	
450A			2MBI450XVF330-50*	
1000A	2MBI1000XVF170-50*			
1200A	2MBI1200XVF170-50*			

*Under development

PrimePACK™

Dimension[mm]

Ic

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

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

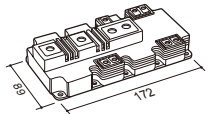
*Under development

PrimePACK™

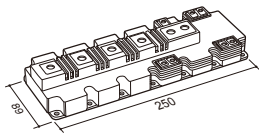
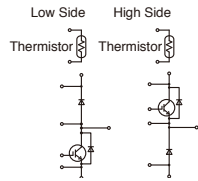
Dimension[mm]

Ic

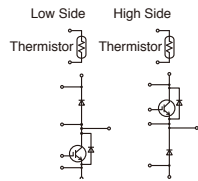
Chopper



M271



M272

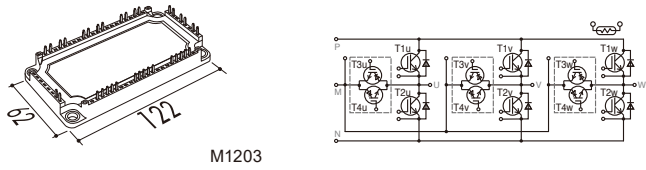
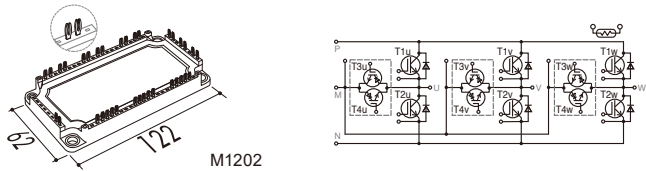
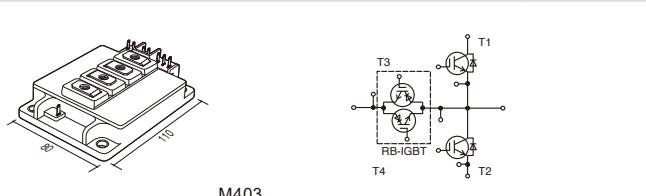
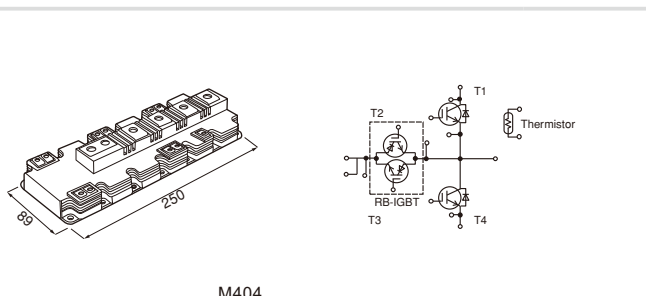


		1200V		1700V		
		V series		V series		
		Low side configuration	High side configuration	Low side configuration	High side configuration	
650A				1MBI650VXA-170EL-50	1MBI650VXA-170EH-50	
				1MBI650VXA-170EL-80	1MBI650VXA-170EH-80	
				1MBI650VXA-170EL-54	1MBI650VXA-170EH-54	
	900A	1MBI900VXA-120PD-50 *1	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" : 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.
 *1 Antiparallel diode current rating is 120A. Application circuit is Boost/Buck chopper only.

Advanced T-type NPC 3-level Modules

Dimension[mm] I_c

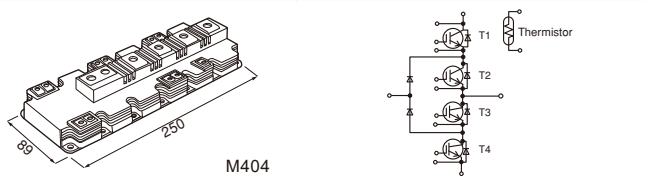
		600V		1200V		1700V		
		V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT	
3 Phase With NTC, Solder pins		50A		12MBI50VN-120-50	600V			
		75A		12MBI75VN-120-50	600V			
		100A		12MBI100VN-120-50	600V			
3 Phase With NTC, Press fit pins		50A		12MBI50VX-120-50	600V			
		75A		12MBI75VX-120-50	600V			
		100A		12MBI100VX-120-50	600V			
1 Phase		220A				4MBI220VG-170R2-50	1200V	
		300A			4MBI300VG-120R-50	600V		
		340A			4MBI300VG-120R1-50	900V		
		400A	4MBI400VG-060R-50	600V	4MBI340VF-120R-50	600V		
					4MBI400VF-120R-50*1	600V		
1 Phase		450A		4MBI450VB-120R1-50	900V	4MBI450VB-170R2-50	1200V	
		600A		4MBI450VB-120R1-60	900V	4MBI450VB-170R2-60	1200V	
		650A				4MBI600VB-170R2-50	1200V	
						4MBI600VB-170R2-60	1200V	
		900A			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

I-type NPC 3-level Module

Dimension[mm] I_c

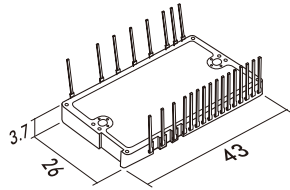
		600V	1200V	1700V
		V series	V series	V series
1 Phase		600A	4MBI600VC-120-50	
			4MBI600VC-120-60	

Small IPM (Intelligent Power Modules)

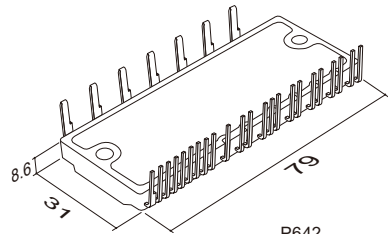
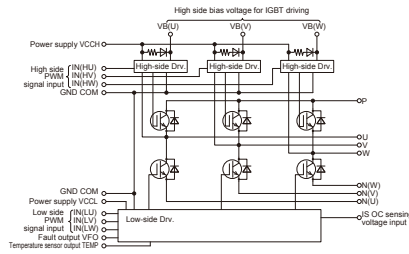
Built-in protection functions

- 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)

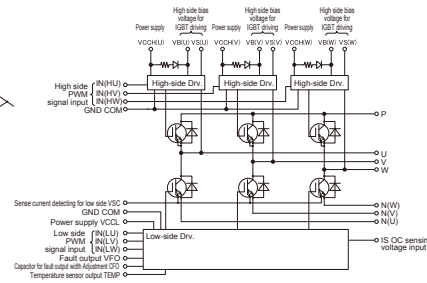
Small IPM with High Voltage Driver-IC without Brake-Chopper



P633A



P642

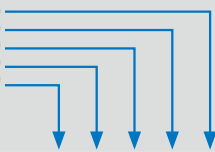


Dimension [mm]

600 / 650V		X series		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				

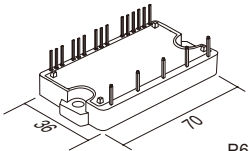
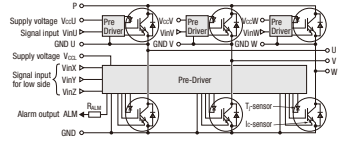
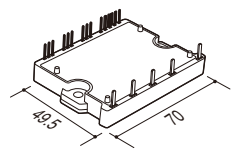
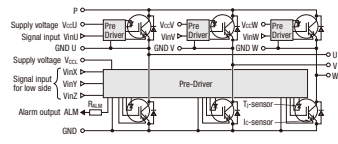
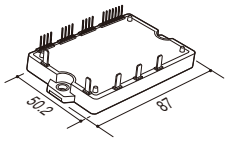
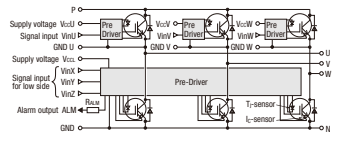
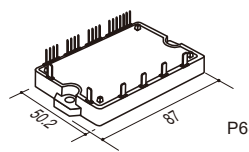
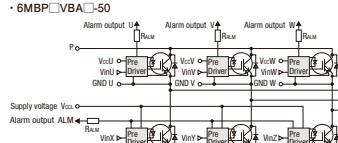
Built-in protection functions

- 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)

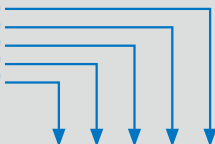
Dimension[mm]

	Dimension[mm]	Ic	650V		600V		1200V	
			X series	X series	V series	X series	V series	
Without Brake-Chopper  <p>P639</p> 								
	• 6MBP□XAA□-50	10A						
		20A	6MBP20XRHA065-50					
		30A	6MBP30XRHA065-50					
 <p>P629</p> 								
	• 6MBP□VAA□-50	10A						6MBP10VAA120-50
		15A						6MBP15VAA120-50
		20A			6MBP20VAA060-50			
		25A				6MBP25XAA120-50		6MBP25VAA120-50
		30A			6MBP30VAA060-50			
		35A				6MBP35XAA120-50		
 <p>P626</p> 								
	• 6MBP□XBA□-50	25A					6MBP25XBA120-50	6MBP25VBA120-50
		35A					6MBP35XBA120-50	6MBP35VBA120-50
		50A	6MBP50XBA065-50		6MBP50VBA060-50		6MBP50XBA120-50	6MBP50VBA120-50
		75A	6MBP75XBA065-50		6MBP75VBA060-50			
		100A	6MBP100XBA065-50					
 <p>P644</p> 								
	• 7MBP□XJA□-50	25A					7MBP25XJA120-50*	
		35A					7MBP35XJA120-50*	
		50A	7MBP50XJA065-50*					
		75A	7MBP75XJA065-50*					

*Under development

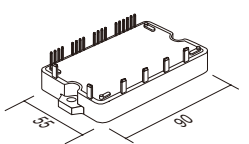
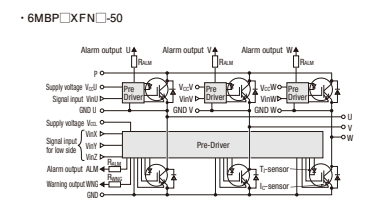
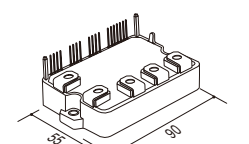
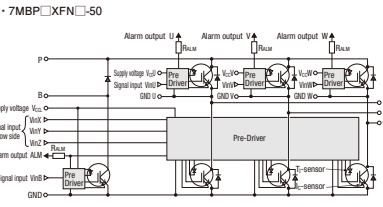
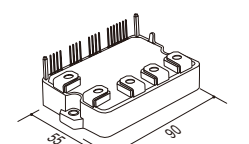
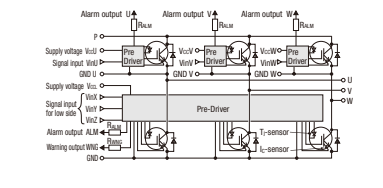
Built-in protection functions

- 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)

Dimension[mm]

	Dimension[mm]	650V		600V		1200V	
		X series	X series	V series	X series	V series	
Without Brake-Chopper	 <p>P636</p>		25A				6MBP25VFN120-50
			35A				6MBP35VFN120-50
			50A		6MBP50VFN060-50	6MBP50XFN120-50*	6MBP50VFN120-50
			75A		6MBP75VFN060-50		
			100A	6MBP100XFN065-50*	6MBP100VFN060-50		
With Brake-Chopper	 <p>P636</p>		25A				7MBP25VFN120-50
			35A				7MBP35VFN120-50
			50A		7MBP50VFN060-50	7MBP50XFN120-50*	7MBP50VFN120-50
			75A		7MBP75VFN060-50		
			100A	7MBP100XFN065-50*	7MBP100VFN060-50		
Without Brake-Chopper	 <p>P638</p>		25A				6MBP25XGA120-50*
			35A				6MBP35XGA120-50*
			50A	6MBP50XGA065-50*			6MBP50XGN120-50*
			75A	6MBP75XGA065-50*			6MBP75XGN120-50*
			100A	6MBP100XGN065-50*			
			150A	6MBP150XGN065-50*			

*Under development

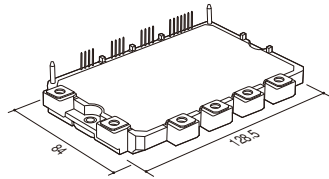
Built-in protection functions

- 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)

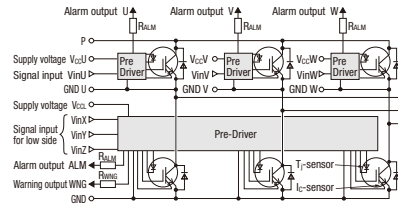
Without Brake-Chopper

With Brake-Chopper

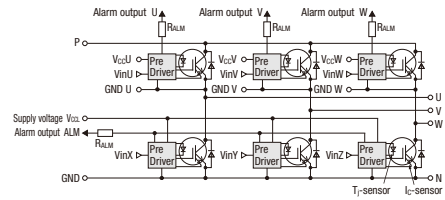


P630

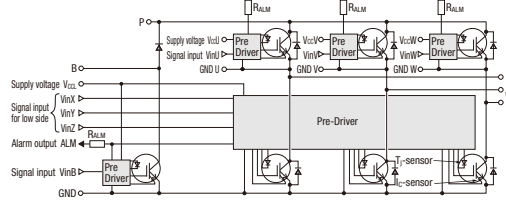
- 6MBP□XDA□-50
- 6MBP□XDN□-50



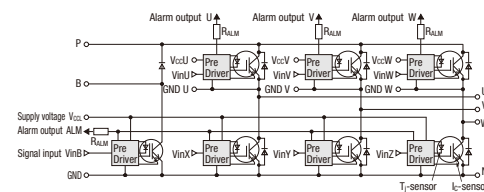
- 6MBP□VDA□-50
- 6MBP□VDN□-50



- 7MBP□XDA□-50
- 7MBP□XDN□-50



- 7MBP□VDA□-50
- 7MBP□VDN□-50



Dimension[mm]

✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓

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

Note: The products with 'VDN,XDN' on this page have Low Thermal Impedance Version.

*Under development

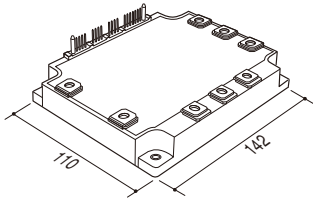
IPM (Intelligent Power Modules)

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)

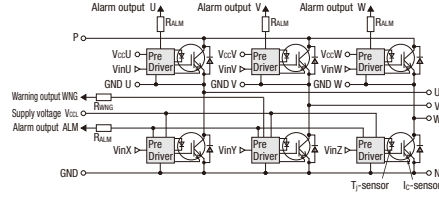
Without Brake-Chopper

With Brake-Chopper

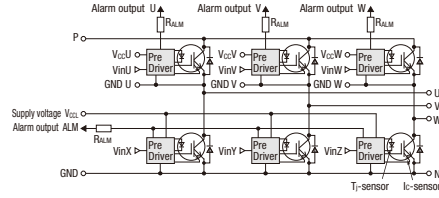


P631

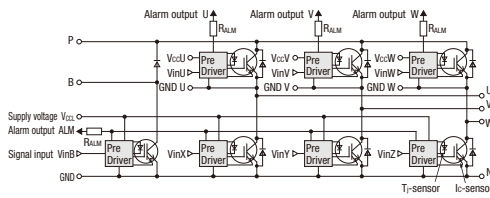
• 6MBP□XEN□-50



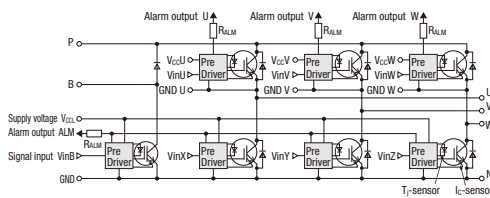
• 6MBP□VEA□-50



• 7MBP□XEN□-50



• 7MBP□VEA□-50




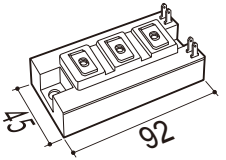
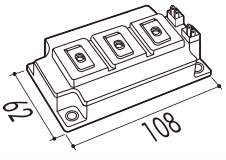
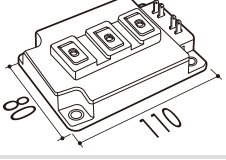
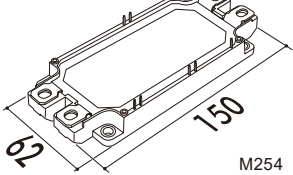


Dimension [mm]

		650V	600V	1200V	
		X series	V series	X series	V series
Ic	100A			6MBP100XEN120-50*	6MBP100VEA120-50
	150A			6MBP150XEN120-50*	6MBP150VEA120-50
	200A	6MBP200XEN065-50*	6MBP200VEA060-50	6MBP200XEN120-50*	6MBP200VEA120-50
	300A	6MBP300XEN065-50*	6MBP300VEA060-50	6MBP300XEN120-50*	
	400A		6MBP400VEA060-50		
	450A	6MBP450XEN065-50*			
		✓	✓	✓	✓
		✓	✓	✓	✓

*Under development



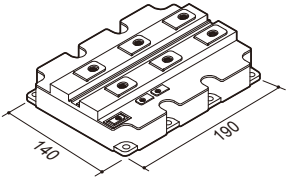
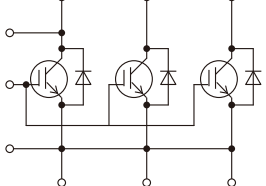
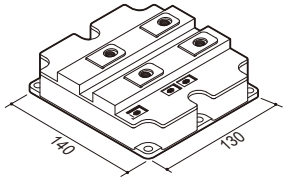
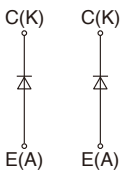
Hybrid SiC Modules

	Dimension[mm]	Ic	600V 		1200V 		1700V 
			V series	V series	VW series	V series	
2-Pack	 M274	200A		2MSI200VAB-120-53			
	 M276	200A 300A		2MSI300VAH-120C-53	2MSI200VWAH-120-53* 2MSI300VWAH-120-53*		
	 M277	400A				2MSI400VAE-170-53	
	 M254	300A 450A 550A 600A		2MSI300VAN-120-53 2MSI450VAN-120-53 2MSI600VAN-120-53	2MSI300VWAN-120-53*	2MSI550VAN-170-53*	

*Under development

Hybrid SiC Modules

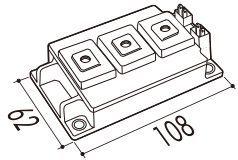
Dimension[mm]

		3300V	
		X series  	SiC-SBD series 
1-Pack	 M155 	1200A	1MSI1200XAGF330-03*
Diode	 M156 	1800A	1MSI1800XAEF330-03*
	 M289 	900A	2SI900AGF330-03*

*Under development

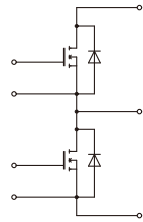
All-SiC Modules



2-Pack



M295

Dimension[mm]



Ic	1200V 		1700V 	
	2G SiC-MOSFET Modules with 1G SiC-SBD			
200A			2SCI200DAHE170-50*	
300A	2SCI300DAHE120-50*			2SCI300DAHE170-50*
400A				2SCI400DAHE170-50*
450A	2SCI450DAHE120-50*			
600A	2SCI600DAHE120-50*			

*Under development

Discrete IGBT

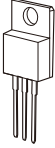
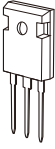
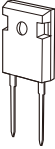
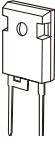
	Ic	600V			650V		1200V			
		High speed V series	V series	RB series	XS series	High speed W series	XS series	High speed W series	High speed V series	V series
TO-247 (Type:B)	15A								FGW15N120H	
	25A							FGW25N120W		
	30A				FGW30XS65	FGW30N65W			FGW30N120H	
	35A	FGW35N60H								
	40A				FGW40XS65	FGW40N65W	FGW40XS120	FGW40N120W	FGW40N120H	
	50A	FGW50N60H			FGW50XS65	FGW50N65W				
	60A					FGW60N65W				
	75A	FGW75N60H			FGW75XS65	FGW75N65W	FGW75XS120			
	15A								FGW15N120HD	FGW15N120VD
	25A							FGW25N120WD		FGW25N120VD
							FGW25N120WE			
	30A		FGW30N60VD		FGW30XS65C			FGW30N120HD		
	35A	FGW35N60HD								
		FGW35N60HC								
	40A				FGW40XS65C	FGW40N65WD	FGW40XS120C	FGW40N120WD	FGW40N120HD	FGW40N120VD
						FGW40N65WE		FGW40N120WE		
	50A	FGW50N60HD	FGW50N60VD		FGW50XS65D	FGW50N65WD				
		FGW50N60HC			FGW50XS65C	FGW50N65WE				
	60A					FGW60N65WD				
						FGW60N65WE				
	75A	FGW75N60HD			FGW75XS65D	FGW75N65WE	FGW75XS120C			
		FGW75N60HC			FGW75XS65C					
	85A			FGW85N60RB						
TO-247-4	40A							FGZ40N120WE		
	50A					FGZ50N65WD				
						FGZ50N65WE				
	75A				FGZ75XS65C	FGZ75N65WE	FGZ75XS120C*			

Recommended operating frequency

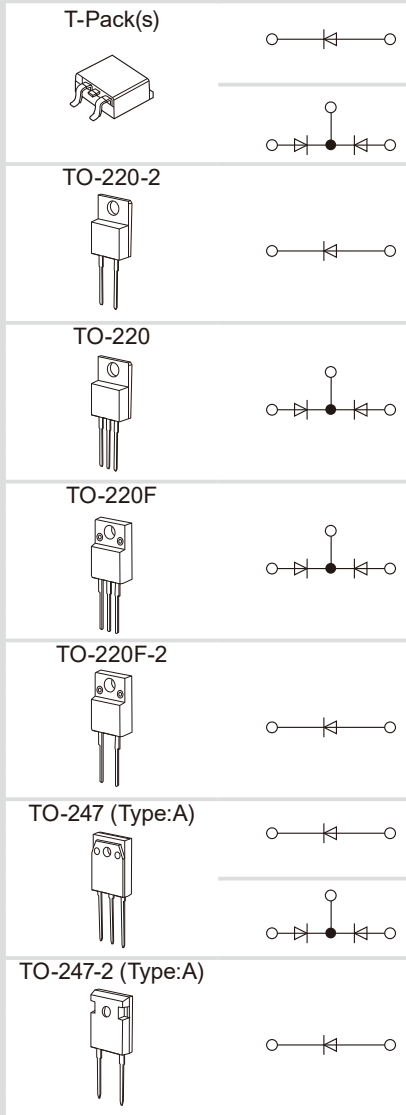
*Under development

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

Rectifier Diode

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

SiC-SBD 

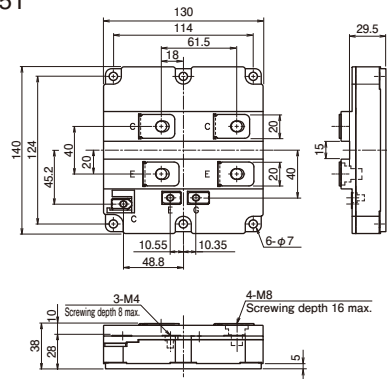


If	650V		1200V	
	SiC-SBD 2G	SiC-SBD 1G	SiC-SBD 2G	SiC-SBD 1G
10A		FDCC10S65		
20A				
25A		FDCC25S65		
20A		FDCC20C65		
6A	FDC2PT06S65*			
8A	FDC2PT08S65*			
10A	FDC2PT10S65*	FDCP10S65		
25A		FDCP25S65		
20A		FDCP20C65		
20A		FDCA20C65		
6A	FDC2AT06S65*			
8A	FDC2AT08S65*			
10A	FDC2AT10S65*	FDCA10S65		
18A				FDCA18S120
25A		FDCA25S65		
10A		FDCY10S65		
18A				FDCY18S120
25A		FDCY25S65		
20A		FDCY20C65		
36A				FDCY36C120
50A		FDCY50C65		
18A			FDC2WT20S120*	FDCW18T120
20A			FDC2WT40S120*	
40A				

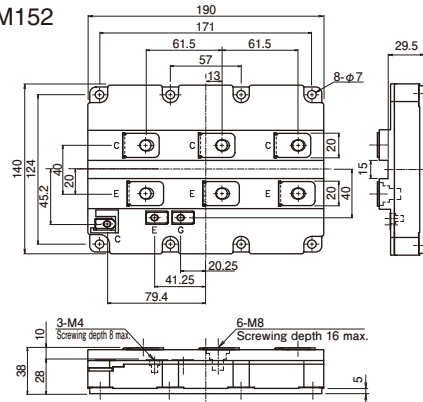
*Under development

Package Outlines, mm

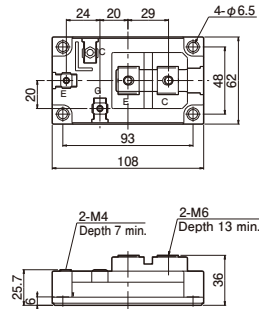
M151



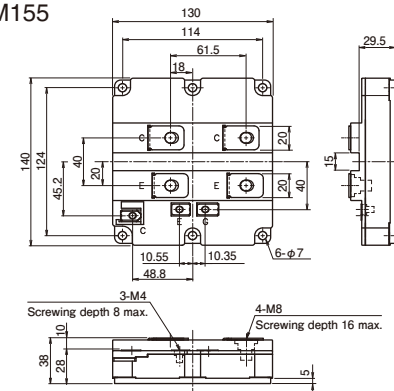
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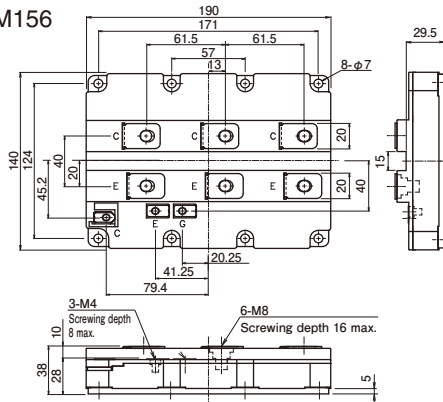
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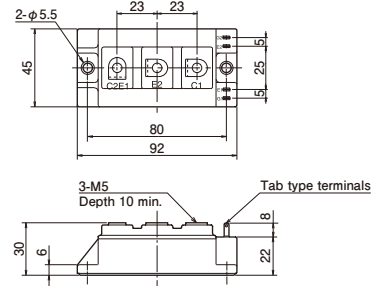
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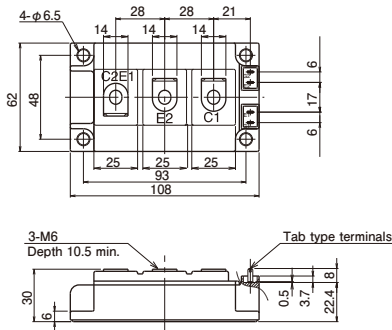
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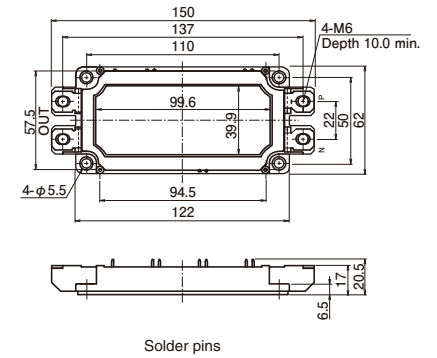
M233



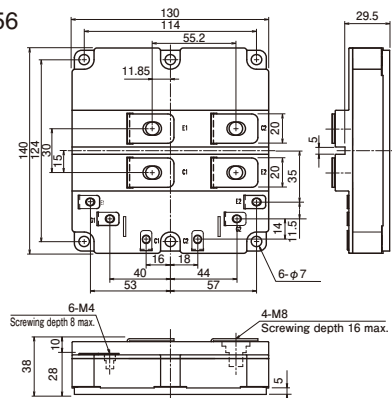
M249



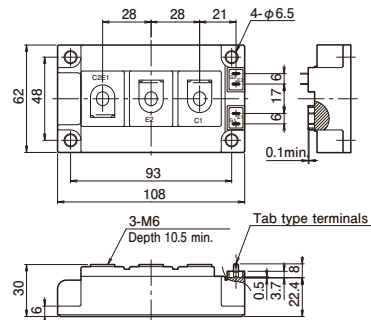
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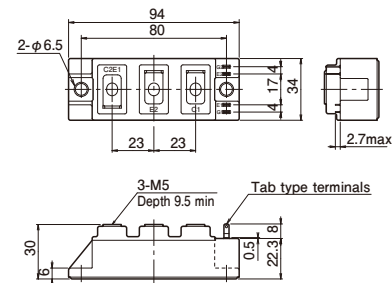
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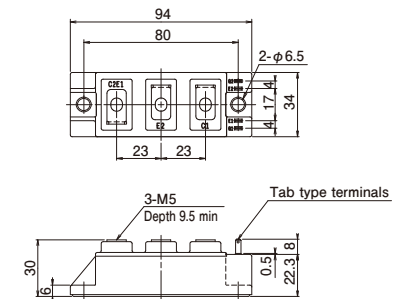
M259



M262

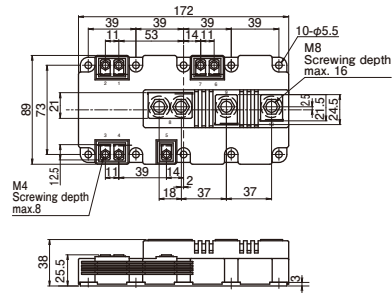


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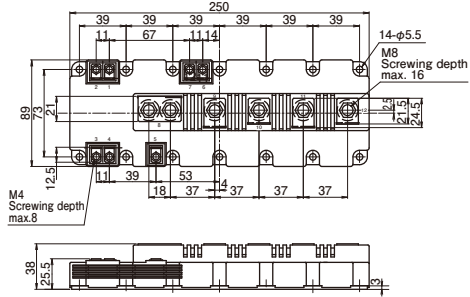


Package Outlines, mm

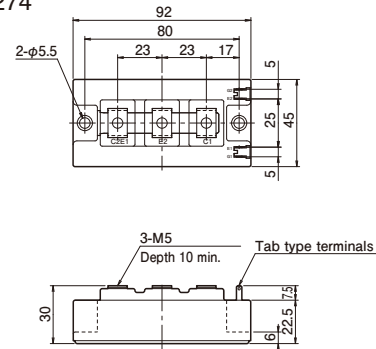
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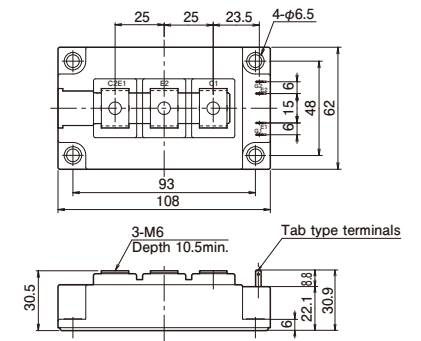
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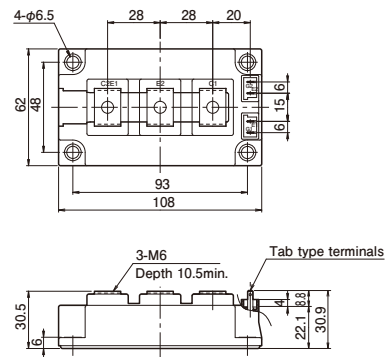
M274



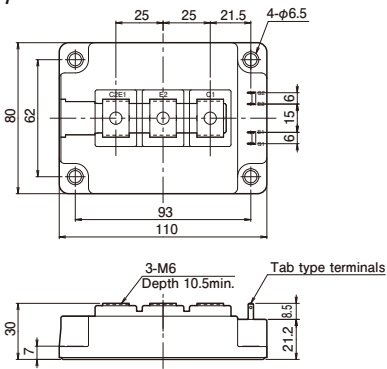
M275



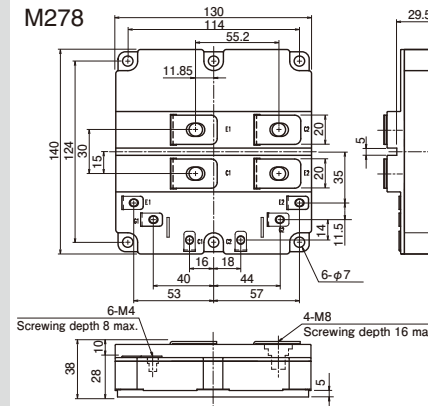
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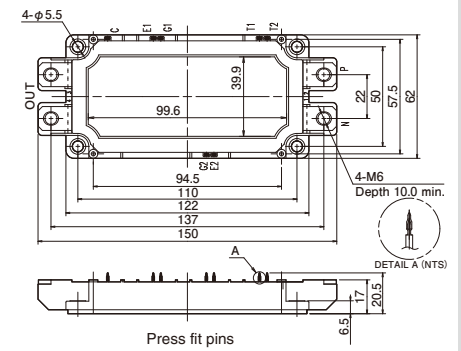
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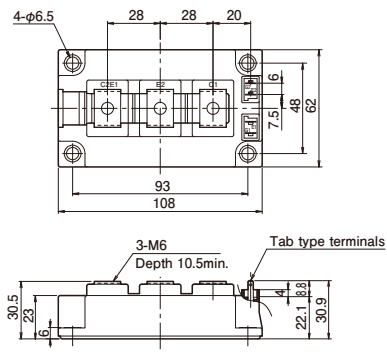
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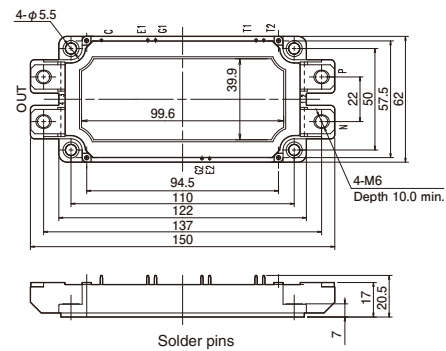
M282



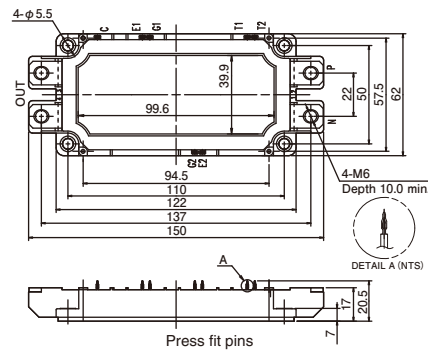
M283



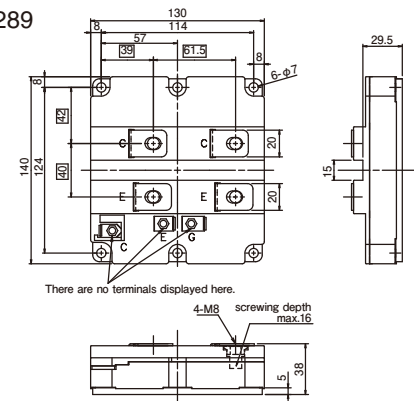
M285



M286

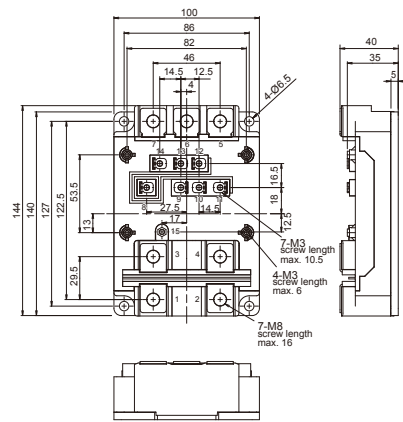


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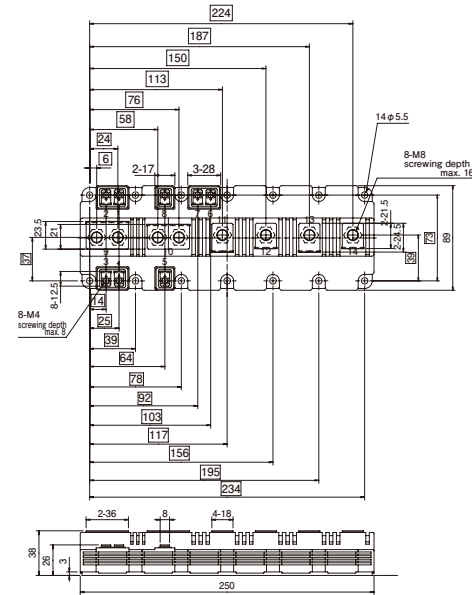


Package Outlines, mm

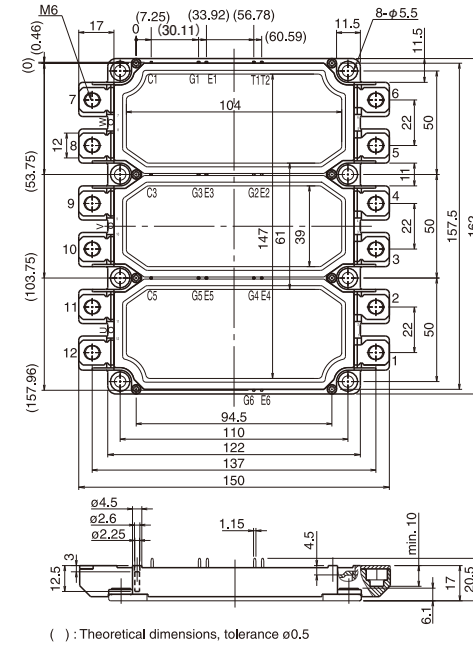
M292



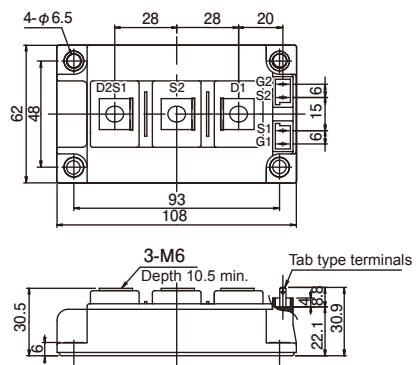
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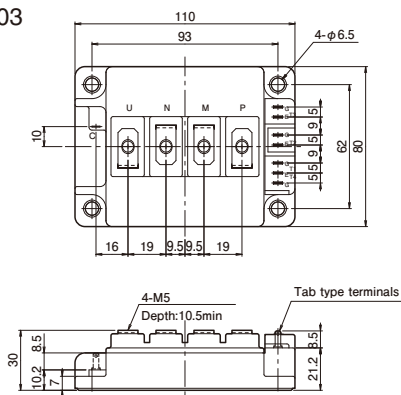
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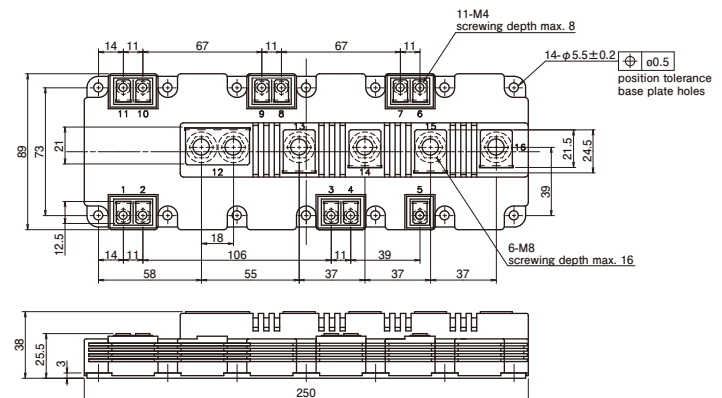
M295



M403

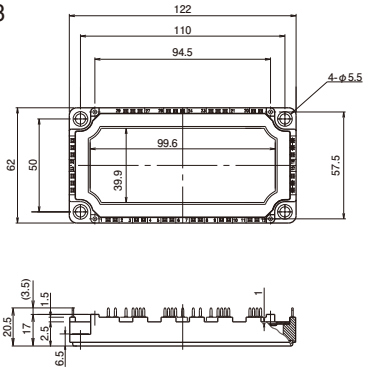


M404



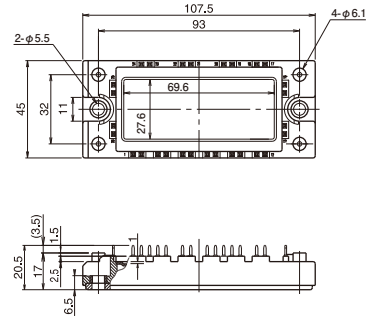
Package Outlines, mm

M633



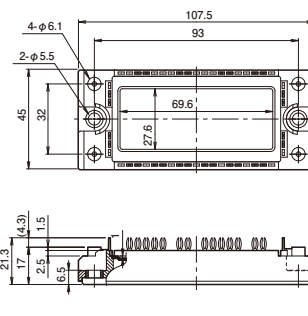
Solder pins

M636



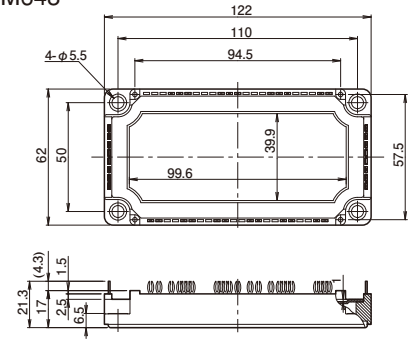
Solder pins

M647



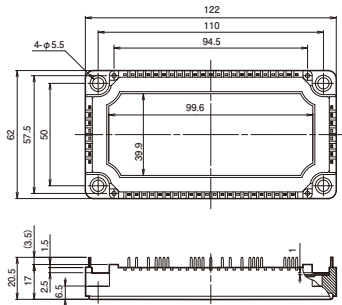
Press fit pins

M648



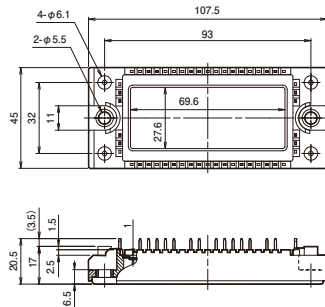
Press fit pins

M668



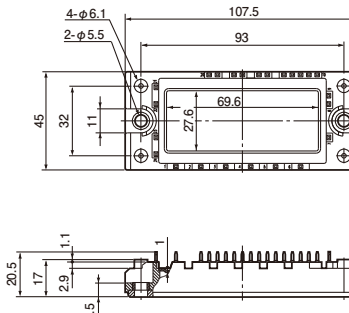
Solder pins

M669



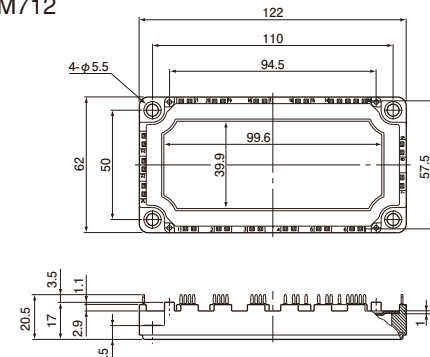
Solder pins

M711



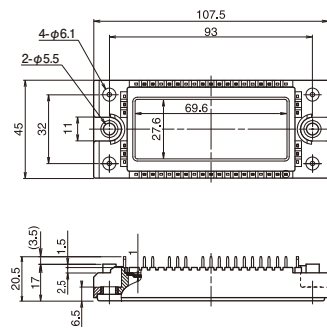
Solder pins

M712



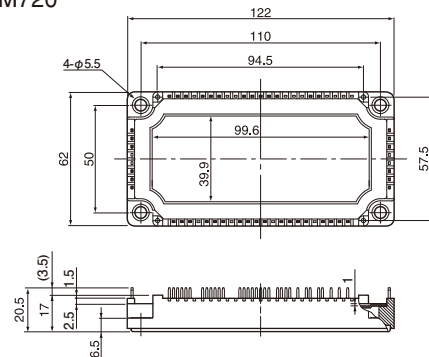
Solder pins

M719



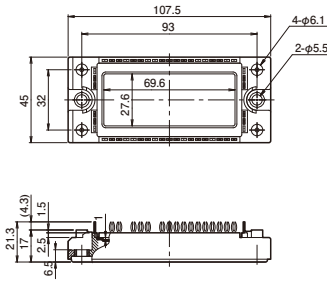
Solder pins

M720



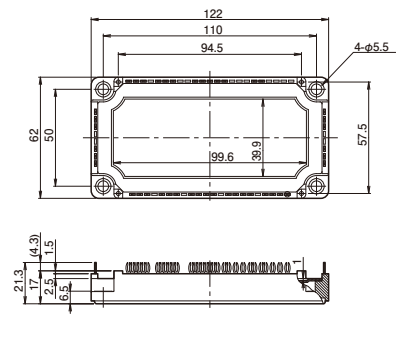
Solder pins

M721



Press fit pins

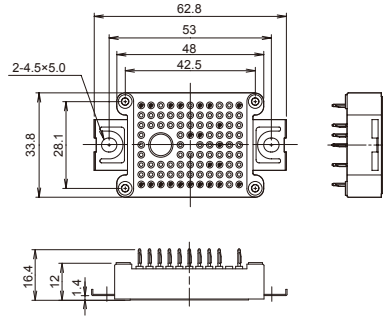
M722



Press fit pins

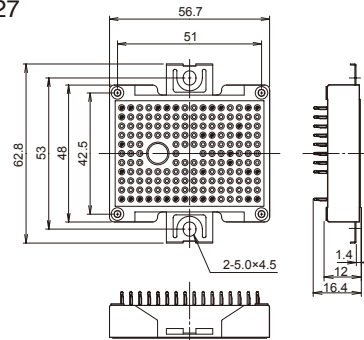
Package Outlines, mm

M726



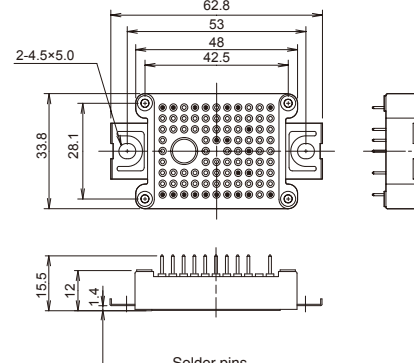
Press fit pins

M727



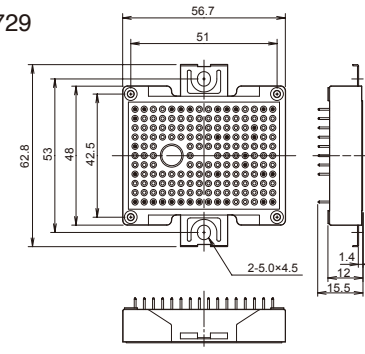
Press fit pins

M728



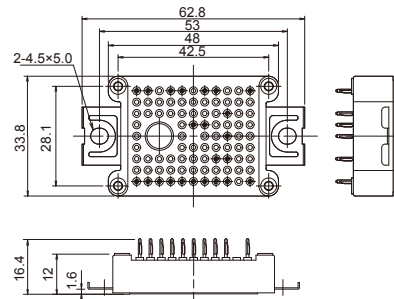
Solder pins

M729



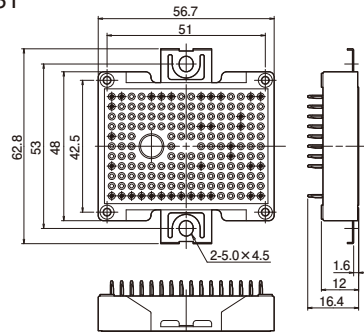
Solder pins

M730



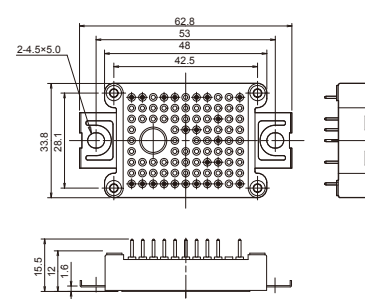
Press fit pins

M731



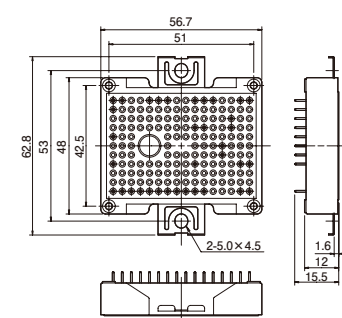
Press fit pins

M732



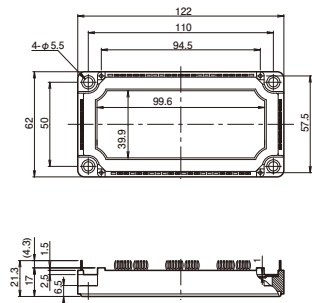
Solder pins

M733



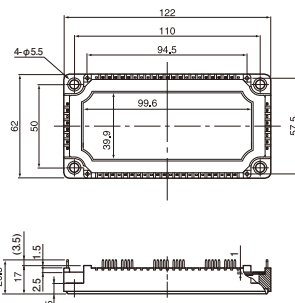
Solder pins

M1202



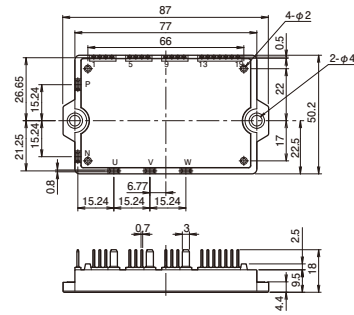
Press fit pins

M1203

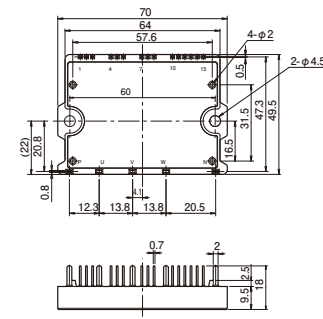


Solder pins

P626

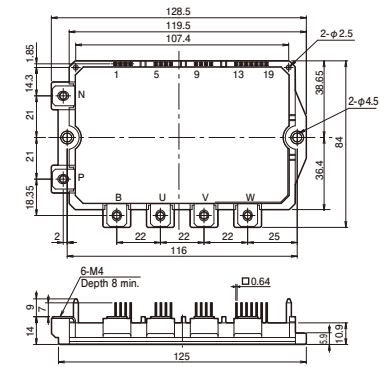


P629

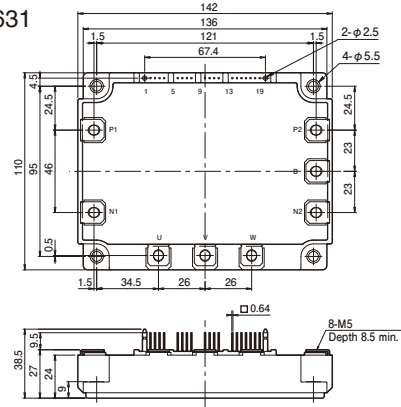


Package Outlines, mm

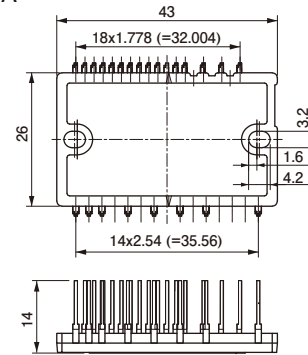
P630



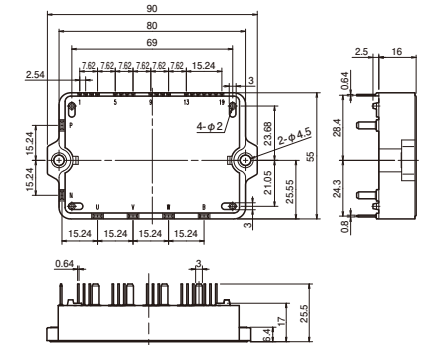
P631



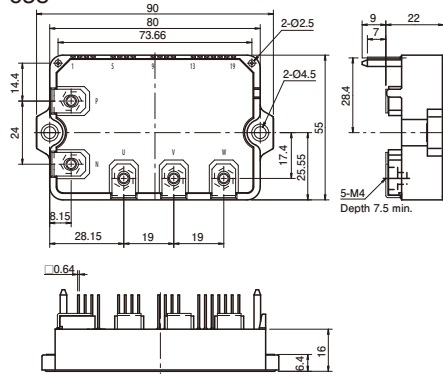
P633A



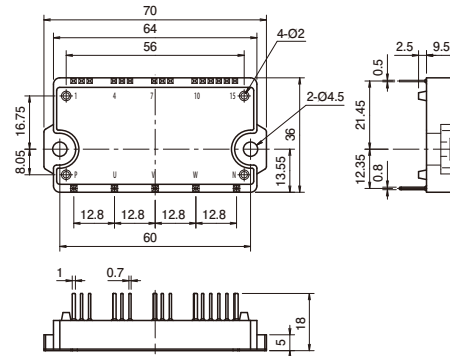
P636



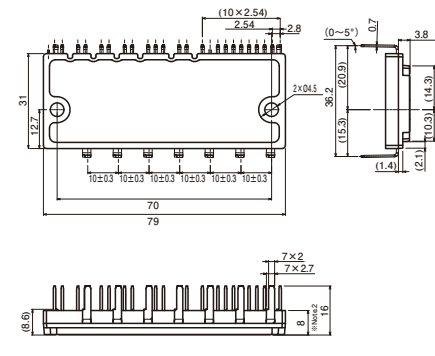
P638



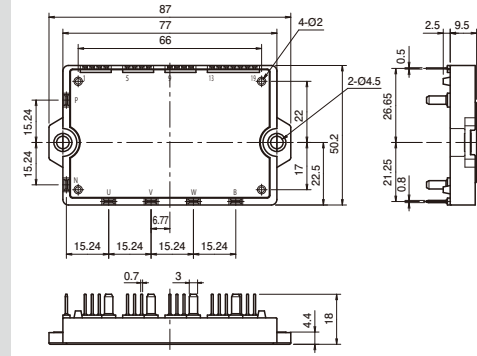
P639



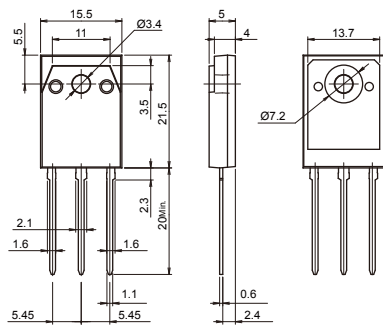
P642



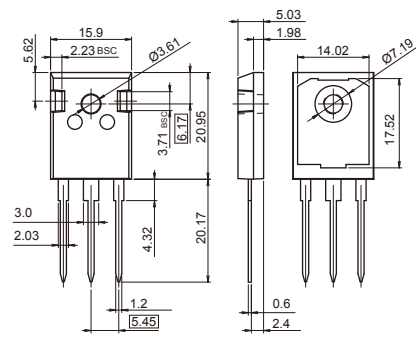
P644



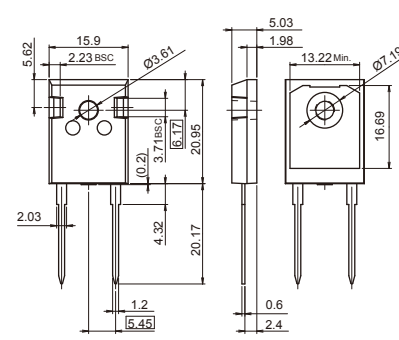
TO-247 (Type:A)



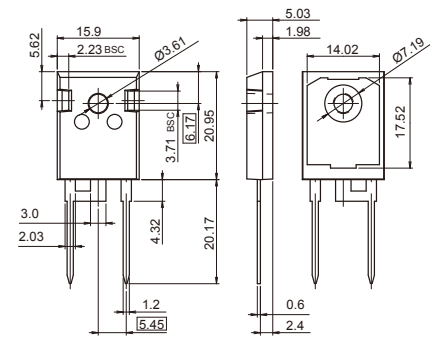
TO-247 (Type:B)



TO-247-2 (Type:A)

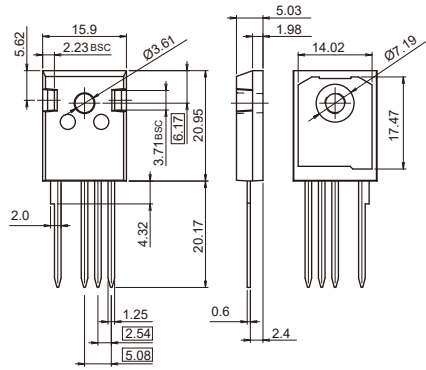


TO-247-2 (Type:B)

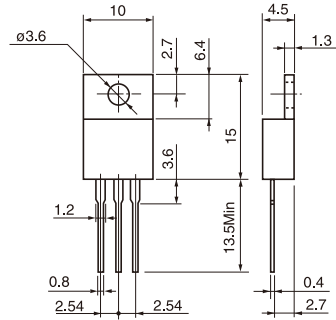


Package Outlines, mm

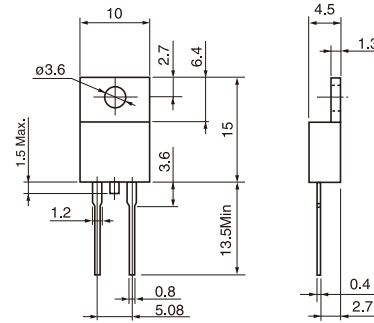
TO-247-4



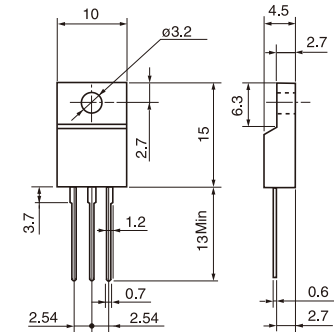
TO-220



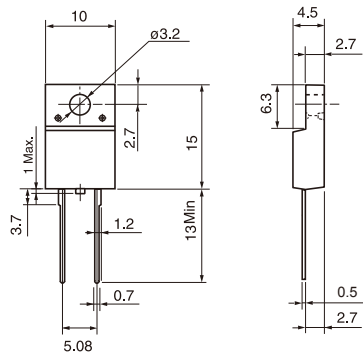
TO-220-2



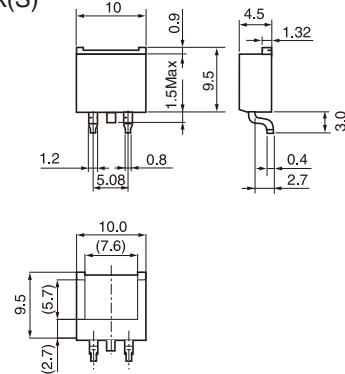
TO-220F



TO-220F-2



T-Pack(S)



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