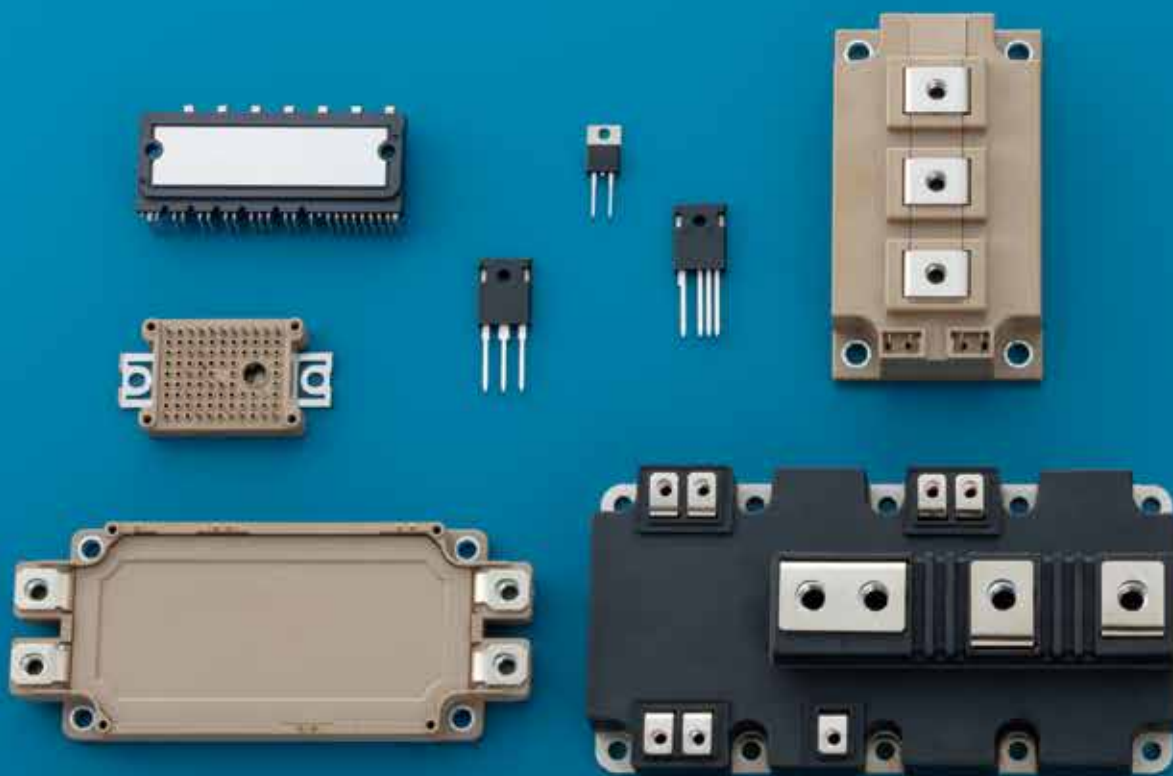


FUJI Power Semiconductors

IGBT/SiC Devices Selection Guide

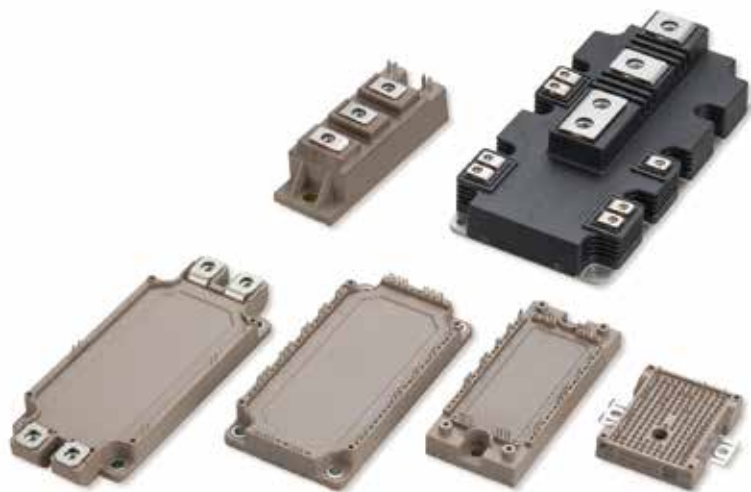


CONTENTS

Small PIM	9
PIM	10
6-Pack	12
Standard 2-Pack	14
Standard 1-Pack / Chopper	16
High Speed Module	17
HPnC	18
PrimePACK™	19
T/I-type NPC 3-level	21
Small IPM	22
IPM	23
SiC Module	27
Discrete IGBT	29
Rectifier Diode	30
SiC-SBD	31

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

Features of IGBT Module X Series



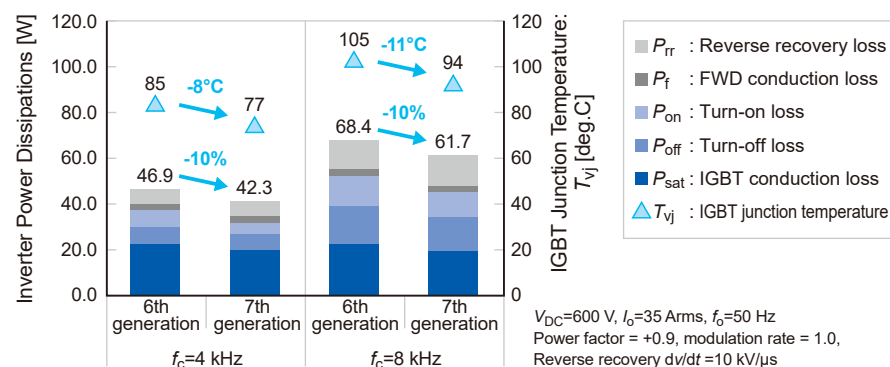
1. Low loss

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



Reduces inverter power dissipation by 10% and IGBT Junction temperature by 11°C

(Comparison with the 6th Generation V Series (75 A), at $f_c = 8$ kHz)

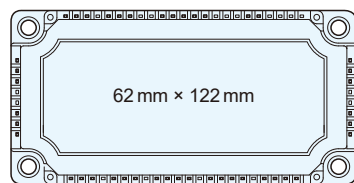


2. Miniaturization

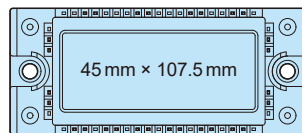
The application of the newly developed insulating substrate has improved the heat dissipation of the module. A smaller footprint of about 36% has been achieved by reducing power dissipation and suppressing heat generation compared with the previous product.

Application example)

36% reduction



75 A (6th Generation V Series)



75 A (7th Generation X Series)

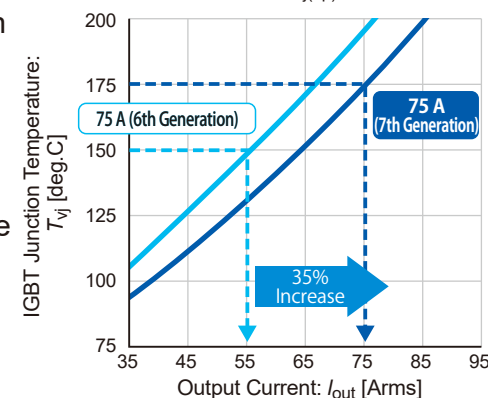
3. High-temperature operation

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					
			IGBT Module				Discrete IGBT	Rectifier Diode	Discrete SiC-SBD	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
Products Category	Standard Module	Power Integrated Module	Intelligent Power Module	3-level Module																
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	16	✓								✓	✓				✓	✓	✓		
	Chopper	16	✓						✓		✓			✓	✓	✓	✓			
1,2	High Speed Module	17	✓								✓				✓	✓	✓			
	HPnC	18	✓									✓	✓				✓	✓		
	PrimePACK™	19,20	✓								✓	✓					✓	✓	✓	
4,12	T/I-type NPC 3-level	21				✓			✓		✓	✓		✓	✓	✓	✓	✓		
6,7	IPM	22							✓	✓	✓			✓	✓					
		23,24							✓	✓	✓			✓	✓					
		25			✓				✓	✓	✓			✓	✓	✓				
		26							✓	✓	✓				✓	✓	✓			
1,2,6,7	Hybrid SiC Module	27	✓								✓	✓				✓	✓			
	All-SiC Module	28	✓								✓	✓				✓	✓			
1	Discrete IGBT	29					✓			✓	✓	✓		✓	✓					
–	Rectifier Diode	30						✓		✓	✓	✓		✓	✓					
–	SiC-SBD	31							✓		✓	✓		✓						

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

6 MB I 300 X ... - 120 - 50

- Number of IGBT Switches: 6
- IGBT Module Type: MB = Si-IGBT+ Si-Diode
- Internal Configuration: I = Standard Module, R = Power Integrated Module, P = Intelligent Power Module
- Rated Current I_c [A]: 300
- IGBT Device Technology: X Series(7th Generation) / XR Series(7th Generation), V Series(6th Generation), U Series(5th Generation)
- Package Type: ...
- Max V_{CE} : 060 = 600V, 065 = 650V, 120 = 1200V, 170 = 1700V, 330 = 3300V
- Suffix 50 to 99 indicates RoHS compliance

Discrete IGBT Production Number

F G W 50 N 65 W D

- Company Code: F
- Device Code: G = IGBT
- Package Type: W = TO-247 (Type:B), Z = TO-247-4
- Rated Current I_c [A]: 50
- Polarity: N = N-ch
- Max V_{CE} : 60 = 600V, 65 = 650V, 120 = 1200V
- Series: W = High Speed W series, H = High Speed V series, V = V Series, RB = RB series
- Diode Type: C or E = With Diode(Full rated), D = With Diode, Blank = Without Diode

F G W 40 XS 65 C

- Company Code: F
- Device Code: G = IGBT
- Package Type: W = TO-247 (Type:B), Z = TO-247-4
- Rated Current I_c [A]: 40
- Series: XS = XS series
- Max V_{CE} : 65 = 650V, 120 = 1200V
- Diode Type: C = With Diode(Full rated), D = With Diode, Blank = Without Diode

Rectifier Diode Production Number

F DR W 50 C 65 L

- Company Code: F
- Device Code: DR = FWD
- Package Type: P = TO-220, W = TO-247 (Type:B) or TO-247-2 (Type:B) or TO-247-2 (Type:A)
- Rated Current I_F [A]: 50
- Configuration: C = Dual (Cathode common), S or T = Single
- Max V_{RRM} : 60 = 600V, 65 = 650V, 120 = 1200V
- Series: L = Ultra Fast Recovery, J = Soft/Fast Recovery

SiC Schottky-Barrier Diode Production Number

•SiC-SBD 1G

F DC P 10 S 65

- Company Code: F
- Device Code: DC = SiC-SBD
- Package Type: A = TO-220F/TO-220F-2, C = T-Pack(S), P = TO-220/TO-220-2 (Type: B), Y = TO-247 (Type: A), W = TO-247-2 (Type: A)
- Rated Current I_F [A]: 10
- Configuration: C = Dual (Cathode common), S or T = Single
- Max V_{RRM} : 65 = 650V, 120 = 1200V

•SiC-SBD 2G

F DC 2 PT 10 S 65

- Company Code: F
- Device Code: DC = SiC-SBD
- Generation: 2
- Package Type: A = TO-220F/TO-220F-2, C = T-Pack(S), P = TO-220/TO-220-2 (Type: B), Y = TO-247 (Type: A), W = TO-247-2 (Type: A)
- Rated Current I_F [A]: 10
- Configuration: C = Dual (Cathode common), S or T = Single
- Max V_{RRM} : 65 = 650V, 120 = 1200V

IGBT Hybrid Module with SiC-SBD Production Number

2 MS I 300 V A H 120 C - 53

- Number of IGBT Switches / Diode: 2
- SiC-SBD Type: MS = Si-IGBT + SiC-SBD
- Internal Configuration: I = Standard Module
- Rated Current I_c [A]: 300
- IGBT Device: V = 6th Generation, VW = 6th Gen High speed
- SBD Device: A = 1st Generation
- Package Type: H
- Max V_{CE} : 120 = 1200V, 170 = 1700V
- SiC-SBD for converter: C = Large current
- Suffix 50 to 99 indicates RoHS compliance

All-SiC Module Production Number

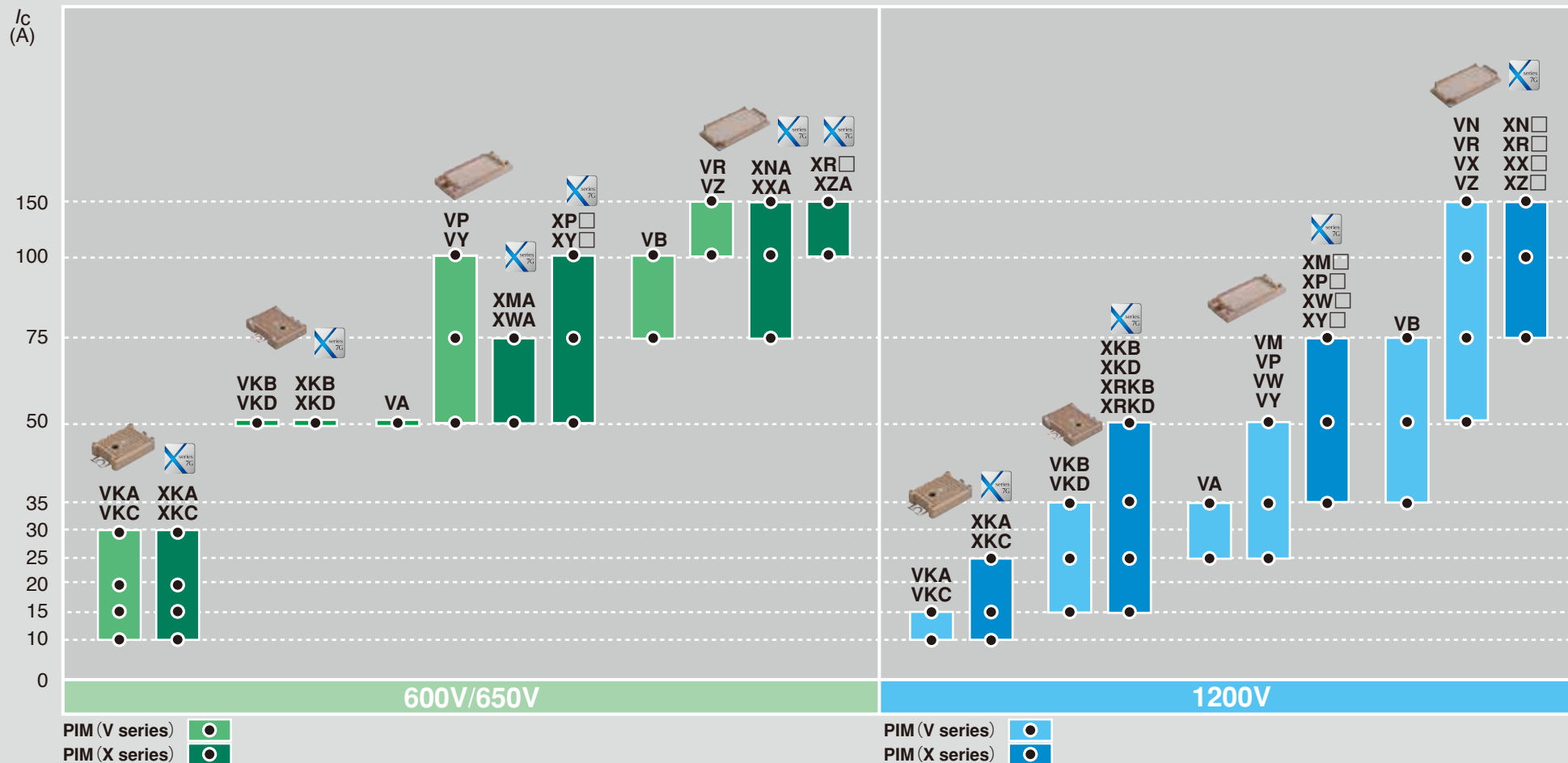
2 CS I 300 D A HE 120 - 50

- Number of MOSFET Switches: 2
- SiC-MOSFET Module Type: CS = SiC-MOSFET + SiC-SBD, C = SiC-MOSFET, S = SiC-SBD
- Internal Configuration: I = Standard Module
- Rated Current I_c [A]: 300
- MOSFET Device: D = 2nd Generation
- SBD Device: A = 1st Generation
- Package Type: HE
- Max V_{CE} : 120 = 1200V, 170 = 1700V
- Suffix 50 to 99 indicates RoHS compliance

PIM (Power Integrated Modules) Products Map

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

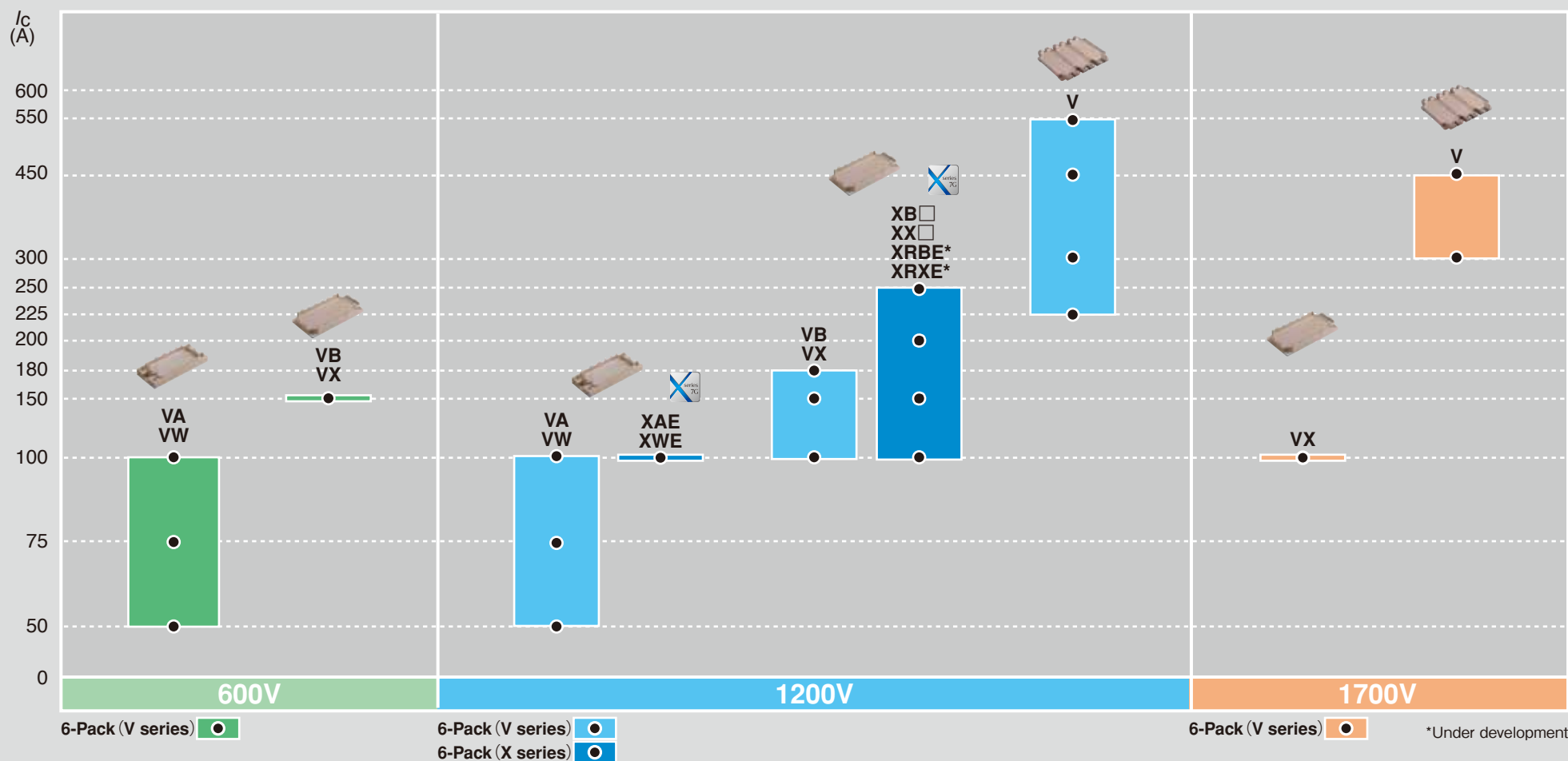
Note:
EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.



6-Pack Products Map

6MBI	Ic	IGBT series & Package type						
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins	Size	Page	
		VA	VW	XAE	XWE	45×107.5mm	12,13	
		VB	VX	XB□, XRBE	XX□, XRXE	62×122mm	12,13	
		V				150×162mm	13	

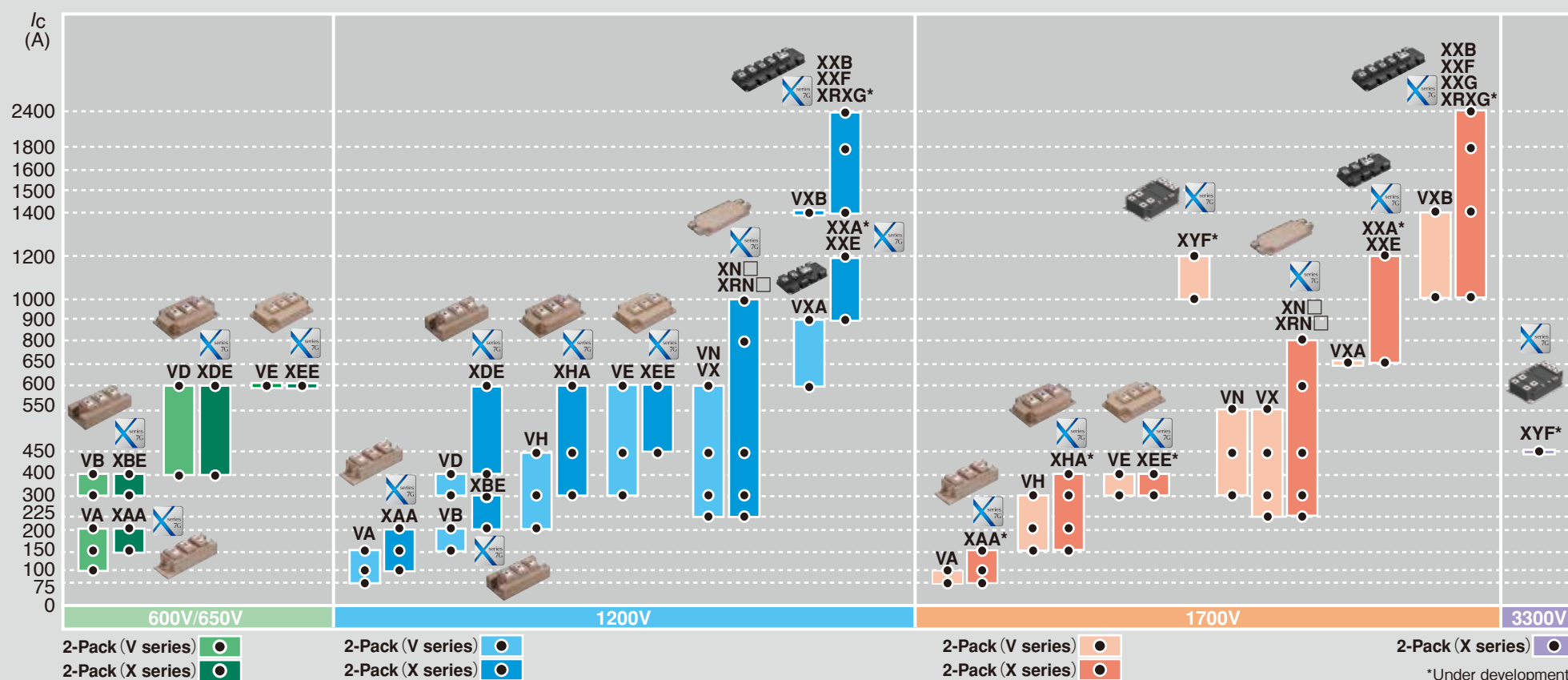
Note:
EconoPACK™ and EconoPACK™+ are registered trademark of
Infineon Technologies AG, Germany.



2-Pack Products Map

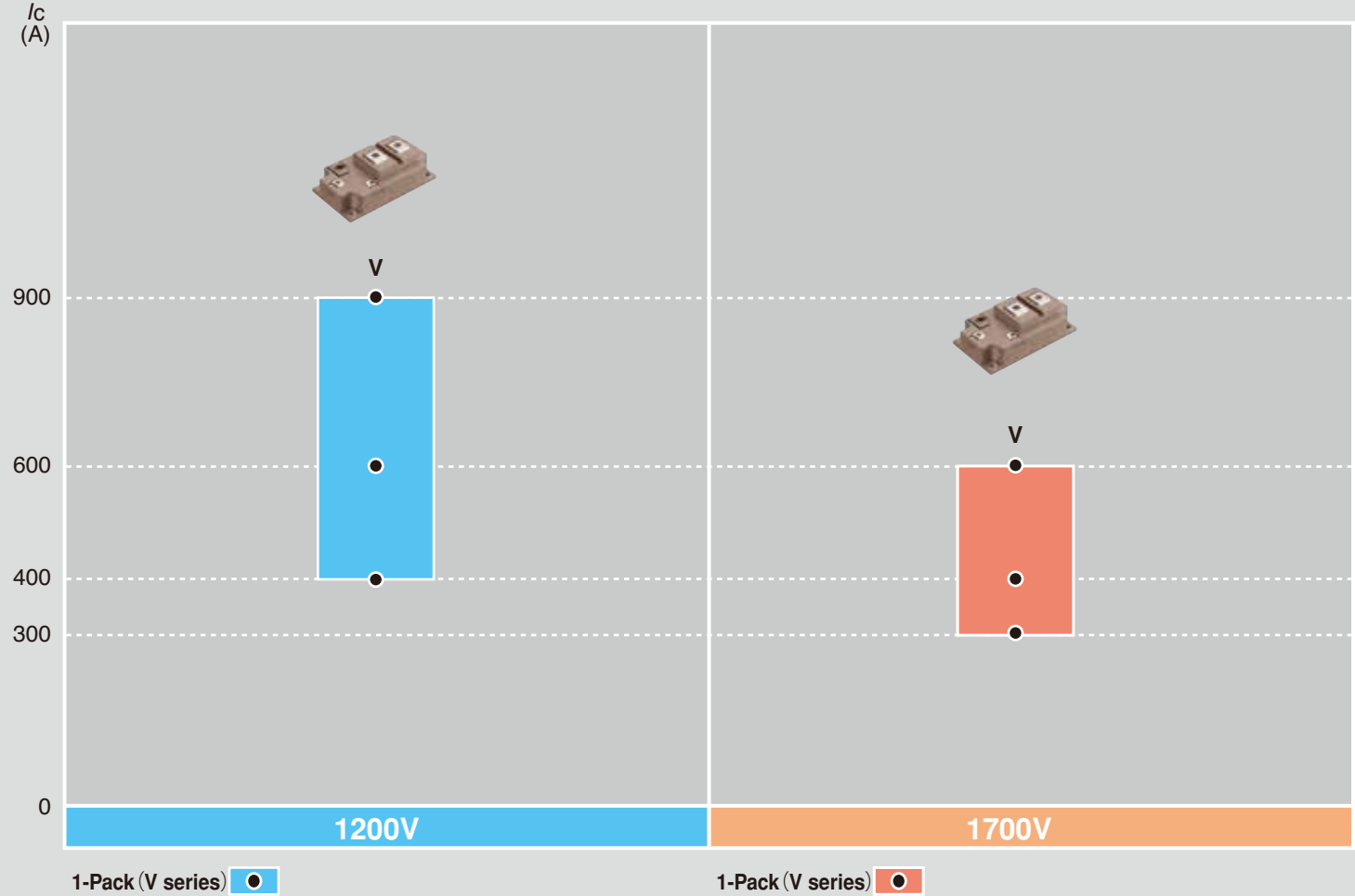
2MBI	Ic	IGBT series & Package type		Size	Page	
		V series	X series			
		VA	XAA	34×94mm	14	Standard Pack
		VB	XBE	45×92mm	14	
		VD, VH	XDE, XHA	62×108mm	14	
		VE	XEE	80×110mm	14	
		VN, VX	XN□, XRN□	62×150mm	15	Dual XT
		-	XYF	100×140mm	18	HPnC
		VXA	XXA, XXE	89×172mm	19	PrimePACK™
		VXB	XXB, XXF, XXG,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

PrimePACK™ is registered trademark of Infineon Technologies AG, Germany



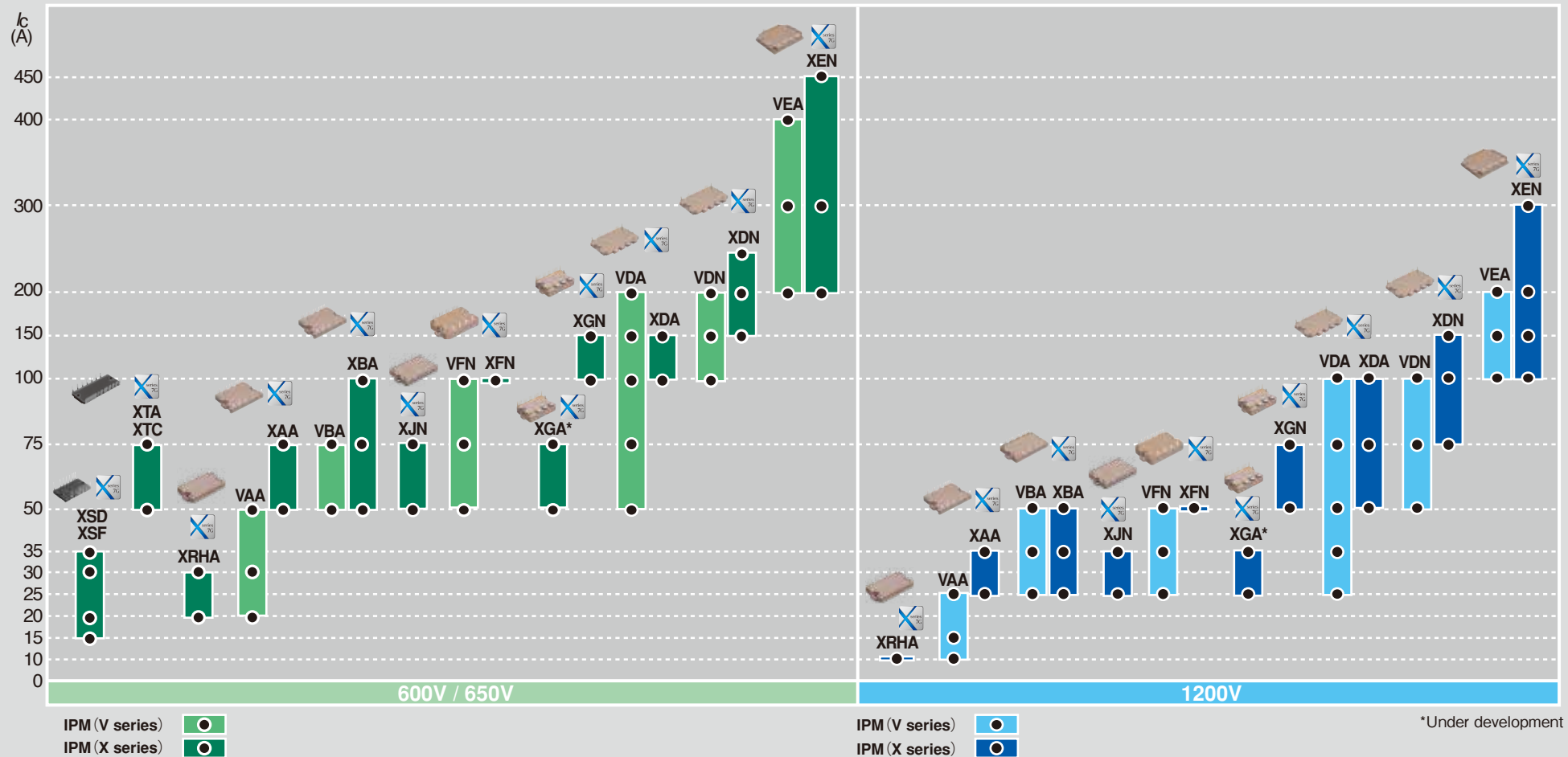
1-Pack Products Map

1MBI	Ic	IGBT series & Package type	Size	Page	Standard Pack
		V series			
		V	62×108mm	16	



IPM (Intelligent Power Modules) Products Map

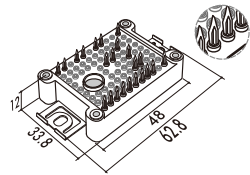
6/7MBP	Ic	IGBT series & Package type		Size	V series		X series		Page
		V series	X series		7 in 1	6 in 1	7 in 1	6 in 1	
		—	XSD, XSF		—	—	—	✓	
		—	XTA, XTC	31×79mm	—	—	—	✓	22
		—	XRHA	36×70mm	—	—	—	✓	23
	VAA	XAA	49.5×70mm	—	—	✓	—	✓	23
	VBA	XBA	50.2×87mm	—	—	✓	—	✓	23
	—	XJN	50.2×87mm	—	—	—	✓	—	23
	VFN	XFN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



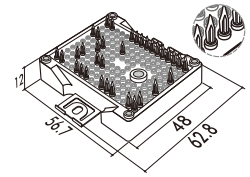
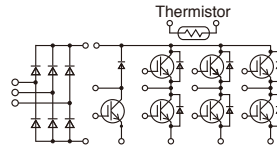
Small PIM (Power Integrated Modules)

Dimension[mm]

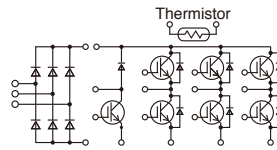
With NTC, Press fit pins



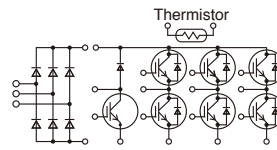
V: M726, X: M730



V: M727, X: M731

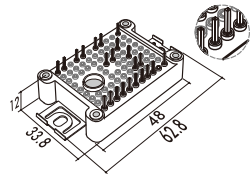


XKB, VKB

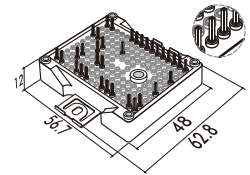
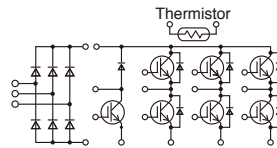


XRKB

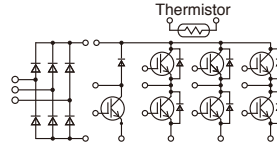
With NTC, Solder pins



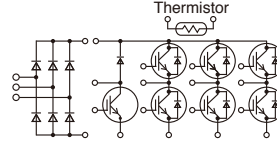
V: M728, X: M732



V: M729, X: M733



XKD, VKD



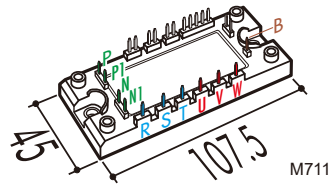
XRKD

Ic	650V		600V		1200V	
	X series		V series		X series	V series
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	

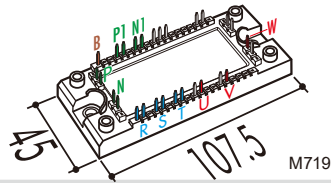
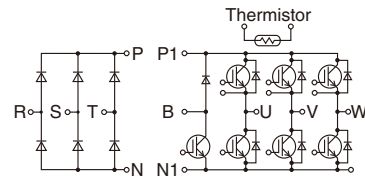
PIM (Power Integrated Modules) EconoPIM™

Dimension[mm]

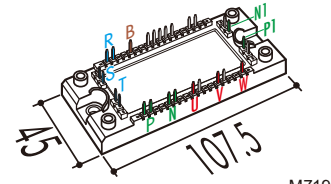
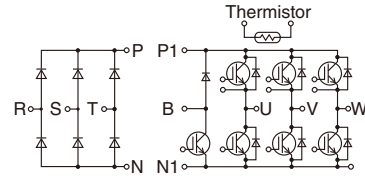
With NTC, Solder pins, PIM



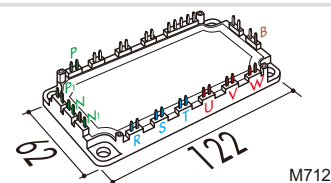
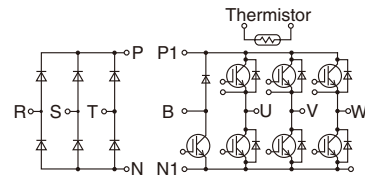
M711



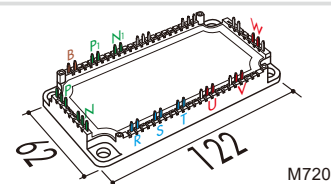
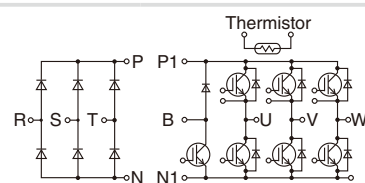
M719



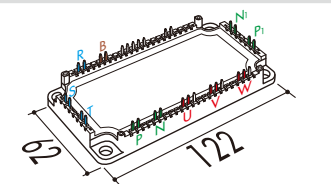
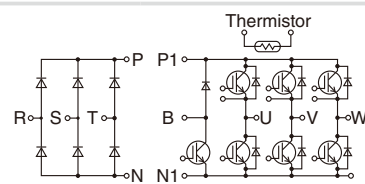
M719



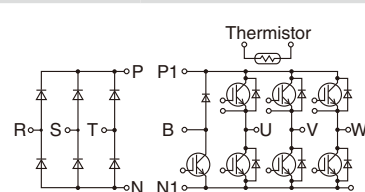
M712



M720



M720



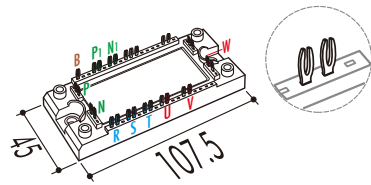
Ic	650V	600V	1200V	
	X series	V series	X series	V series
25A				7MBR25VA120-50
35A				7MBR35VA120-50
50A		7MBR50VA060-50		
25A				7MBR25VM120-50
35A			7MBR35XMA120-50	7MBR35VM120-50
50A	7MBR50XMA065-50		7MBR50XMA120-50	7MBR50VM120-50
75A	7MBR75XMA065-50		7MBR75XME120-50	
25A				7MBR25VP120-50
35A			7MBR35XPA120-50	7MBR35VP120-50
50A	7MBR50XPA065-50	7MBR50VP060-50	7MBR50XPA120-50	7MBR50VP120-50
			7MBR50XPE120-50	
75A	7MBR75XPA065-50	7MBR75VP060-50	7MBR75XPE120-50	
100A	7MBR100XPE065-50	7MBR100VP060-50		
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
			7MBR75XRE120-50	
100A	7MBR100XRA065-50	7MBR100VR060-50	7MBR100XRA120-50	7MBR100VR120-50
			7MBR100XRE120-50	
150A	7MBR150XRA065-50	7MBR150VR060-50	7MBR150XRE120-50	7MBR150VR120-50
	7MBR150XRE065-50			

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

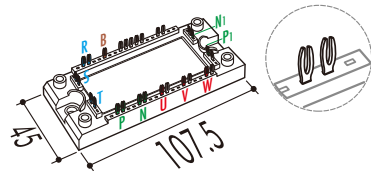
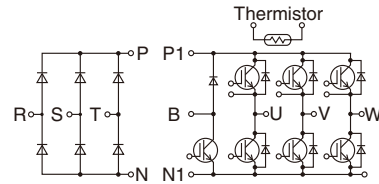
PIM (Power Integrated Modules) EconoPIM™

Dimension[mm]

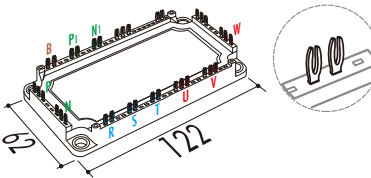
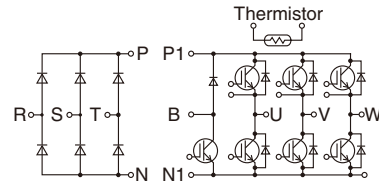
With NTC, Press fit pins, PIM



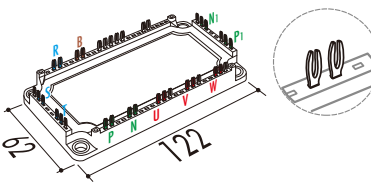
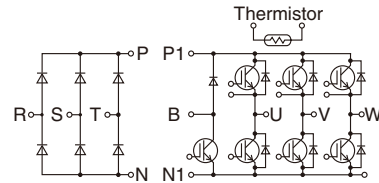
M721



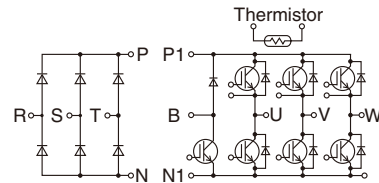
M721



M722



M722



Ic	650V	600V	1200V	
	X series	V series	X series	V series
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	7MBR75XYE120-50	
100A	7MBR100XYE065-50	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		7MBR150XXE120-50	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

V series

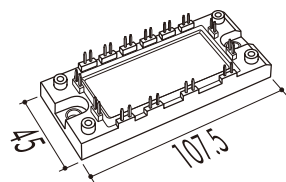
X series



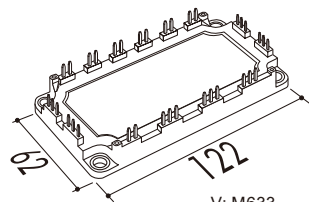
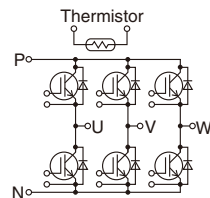
1200V

V series

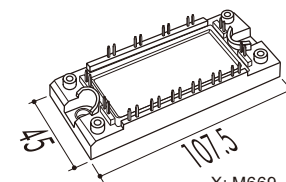
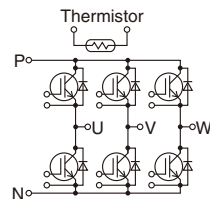
With NTC, Solder pins



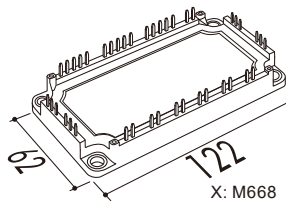
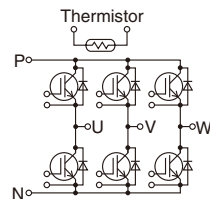
V: M636



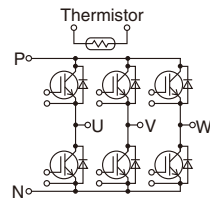
V: M633



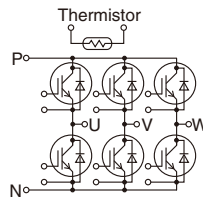
X: M669



X: M668



XBA, XBE



XRBE

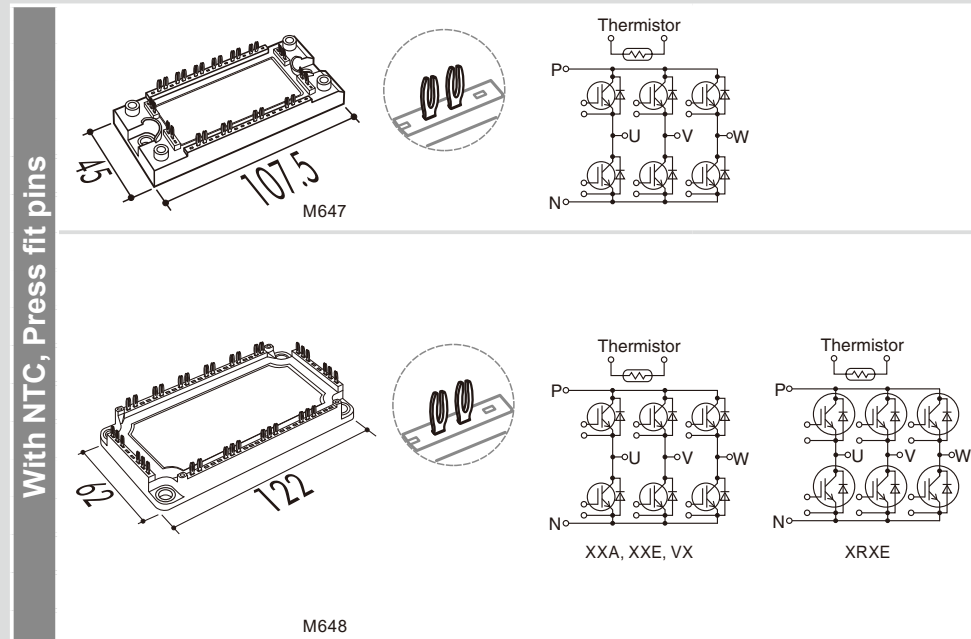
	600V	1200V
	V series	X series
50A	6MBI50VA-060-50	
75A	6MBI75VA-060-50	
100A	6MBI100VA-060-50	
100A		6MBI100VB-120-50
150A	6MBI150VB-060-50	6MBI150VB-120-50
180A		6MBI180VB-120-50
		6MBI180VB-120-55
100A		6MBI100XAE120-50
100A		6MBI100XBA120-50
150A		6MBI150XBA120-50
200A		6MBI200XBA120-50
		6MBI200XBE120-50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



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	6MBI100XWE120-50	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-120-81	
200A		6MBI200XXA120-50		
		6MBI200XXE120-50		
250A		6MBI250XRXE120-50*		

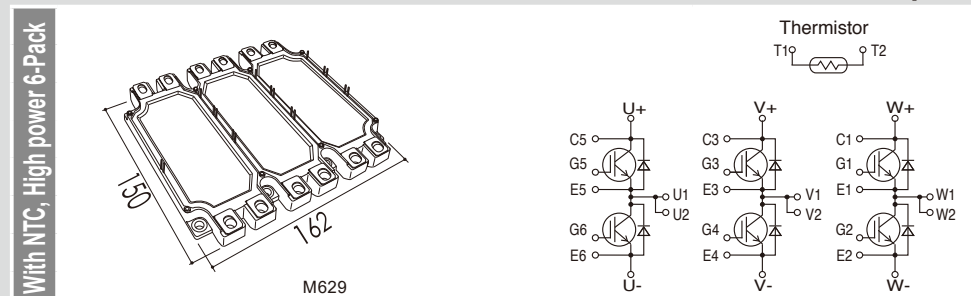
Note1: 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)

Note2: "-80", "-81": High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate for "-50", "-55" type.

Note3: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

*Under development

6-Pack EconoPACK™+



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

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

Note2: "-80": High thermal conductivity TIM (Thermal Interface Material) is pre-applied on a baseplate of "-50" type.

Standard 2-Pack

Standard 2-Pack

Dimension[mm]

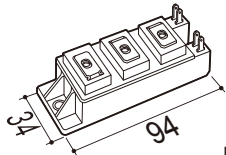
650V

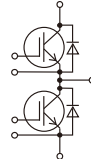
600V

1200V

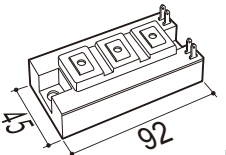
1700V

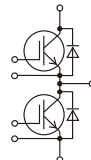
2-Pack


M263

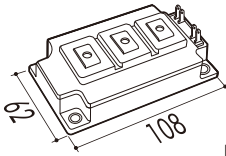


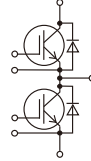
75A					
100A		2MBI100VA-060-50	2MBI100XAA120-50	2MBI100VA-120-50	2MBI75XAA170-50
150A	2MBI150XAA065-50	2MBI150VA-060-50	2MBI150XAA120-50	2MBI150VA-120-50	2MBI100XAA170-50
200A	2MBI200XAA065-50	2MBI200VA-060-50	2MBI200XAA120-50		2MBI150XAA170-50


M274

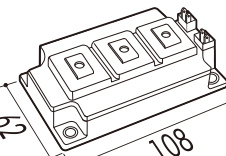


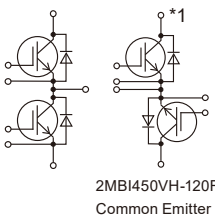
150A				2MBI150VB-120-50	
200A			2MBI200XBE120-50	2MBI200VB-120-50	
300A	2MBI300XBE065-50	2MBI300VB-060-50	2MBI300XBE120-50		
400A	2MBI400XBE065-50	2MBI400VB-060-50			


M275

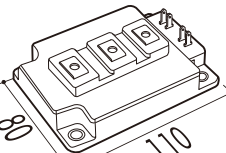


300A				2MBI300VD-120-50	
400A	2MBI400XDE065-50	2MBI400VD-060-50	2MBI400XDE120-50	2MBI400VD-120-50	
		2MBI400VD-060-80			
600A	2MBI600XDE065-50	2MBI600VD-060-50	2MBI600XDE120-50		
		2MBI600VD-060-80			


M276


2MBI450VH-120F
Common Emitter

150A					2MBI150XHA170-50	2MBI150VH-170-50
						2MBI150VH-170-80
200A				2MBI200VH-120-50	2MBI200XHA170-50	2MBI200VH-170-50
				2MBI200VH-120-80		2MBI200VH-170-80
300A			2MBI300XHA120-50	2MBI300VH-120-50	2MBI300XHA170-50	2MBI300VH-170-50
				2MBI300VH-120-80		2MBI300VH-170-80
400A					2MBI400XHA170-50	
450A			2MBI450XHA120-50	2MBI450VH-120-50		
				2MBI450VH-120-80		
				2MBI450VH-120F-50*		
				2MBI450VH-120F-80*		


M277



600A			2MBI600XHA120-50		
300A				2MBI300VE-120-50	2MBI300XEE170-50
				2MBI300VE-120-80*	2MBI300VE-170-80*
400A					2MBI400XEE170-50
					2MBI400VE-170-50
					2MBI400VE-170-80*
450A			2MBI450XEE120-50	2MBI450VE-120-50	
				2MBI450VE-120-80	
600A	2MBI600XEE065-50	2MBI600VE-060-50	2MBI600XEE120-50	2MBI600VE-120-50	
		2MBI600VE-060-80*		2MBI600VE-120-80	

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

*Under development

Standard 2-Pack

Dimension[mm]

Ic

X series



1200V

V series

V series With SiN substrate *1

X series

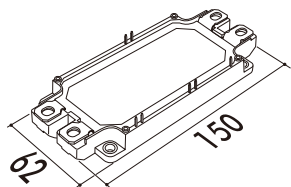


1700V

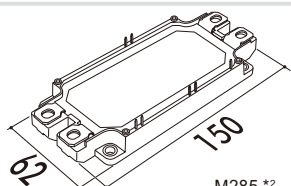
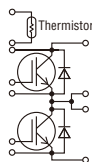
V series

V series With SiN substrate *1

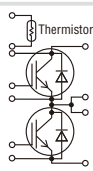
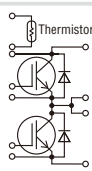
With NTC, Solder pins



M254



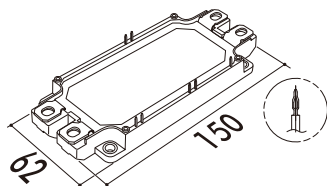
M285 *2



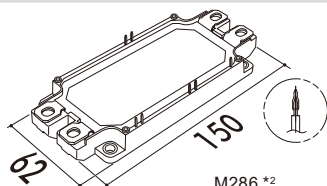
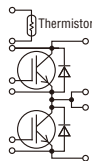
XNE

XRNE

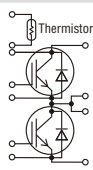
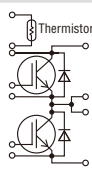
With NTC, Press fit pins



M282



M286 *2



XNF

XRNF

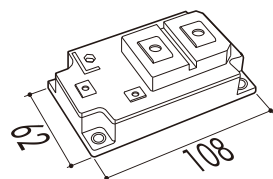
225A	2MBI225XNA120-50	2MBI225VN-120-50	2MBI225VN-120S-50	2MBI225XNA170-50		
		2MBI225VN-120-80	2MBI225VN-120S-80			
300A	2MBI300XNA120-50	2MBI300VN-120-50	2MBI300VN-120S-50	2MBI300XNA170-50	2MBI300VN-170-50	
		2MBI300VN-120-80	2MBI300VN-120S-80		2MBI300VN-170-80	
450A	2MBI450XNA120-50	2MBI450VN-120-50	2MBI450VN-120S-50	2MBI450XNA170-50	2MBI450VN-170-50	
		2MBI450VN-120-80	2MBI450VN-120S-80		2MBI450VN-170-80	
550A						2MBI550VN-170-50
						2MBI550VN-170-80
600A	2MBI600XNG120-50		2MBI600VN-120-50	2MBI600XNG170-50		
			2MBI600VN-120-80			
600A	2MBI600XNE120-50			2MBI600XNE170-50		
800A	2MBI800XNE120-50			2MBI800XRNE170-50		
1000A	2MBI1000XRNE120-50					
225A	2MBI225XNB120-50	2MBI225VX-120-50		2MBI225XNB170-50	2MBI225VX-170-50	
		2MBI225VX-120-80			2MBI225VX-170-80	
300A	2MBI300XNB120-50	2MBI300VX-120-50		2MBI300XNB170-50	2MBI300VX-170-50	
		2MBI300VX-120-80			2MBI300VX-170-80	
450A	2MBI450XNB120-50	2MBI450VX-120-50		2MBI450XNB170-50	2MBI450VX-170-50	
		2MBI450VX-120-80			2MBI450VX-170-80	
550A						2MBI550VX-170-50
						2MBI550VX-170-80
600A	2MBI600XNH120-50		2MBI600VX-120-50	2MBI600XNH170-50		
			2MBI600VX-120-80			
600A	2MBI600XNF120-50			2MBI600XNF170-50		
800A	2MBI800XNF120-50			2MBI800XRNF170-50		
1000A	2MBI1000XRNF120-50					

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

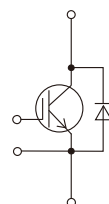
*1 Low thermal impedance version

*2 Low thermal impedance and high tracking capability type

Standard 1-Pack



M153

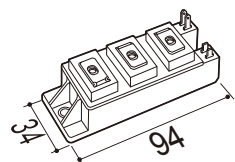


Dimension[mm]

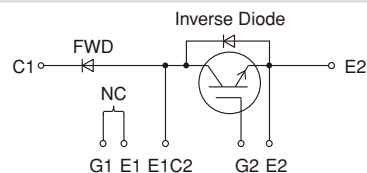
Ic

	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



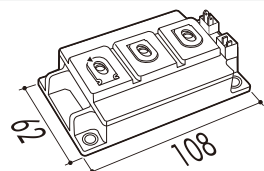
M262



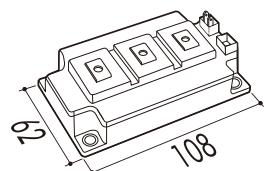
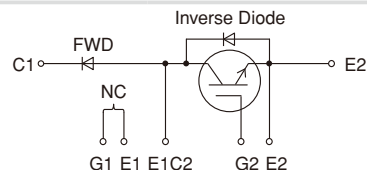
Dimension[mm]

Ic

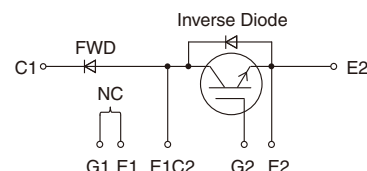
	600V		1200V	
	U series	V series	U series	V series
50A			1MBI50U4F-120L-50	
75A			1MBI75U4F-120L-50	
100A			1MBI100U4F-120L-50	
150A				1MBI150VA-120L-50
200A				1MBI200VA-120L-50
200A			1MBI200U4H-120L-50	
300A	1MBI300U2H-060L-50			
400A		1MBI400VH-060L-50		



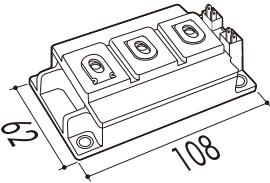
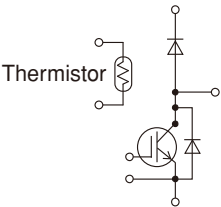
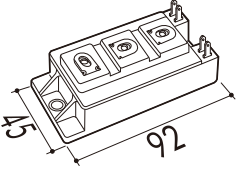
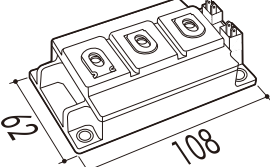
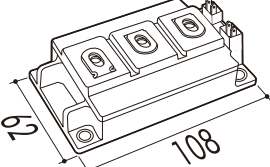
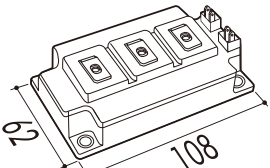
M259



M283



High Speed Modules

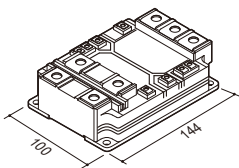
		1200V	
		High Speed IGBT	
Chopper	 M249	Dimension[mm]	
		I_c	
2-Pack	 M233		200A 1MBI200HH-120L-50
			300A 1MBI300HH-120L-50
			400A 1MBI400HH-120L-50
	 M249		100A 2MBI100HB-120-50
	 M249		150A 2MBI150HH-120-50
			200A 2MBI200HH-120-50
	 M276		100A 2MBI100HJ-120-50
			150A 2MBI150HJ-120-50
			200A 2MBI200HJ-120-50
			300A 2MBI300HJ-120-50

High Power Modules HPnC

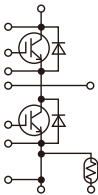
Dimension[mm]

Ic

	1700V	3300V
	X series	X series
450A		2MBI450XYF330-50*
1000A	2MBI1000XYF170-50*	
1200A	2MBI1200XYF170-50*	



M297

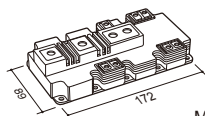


*Under development

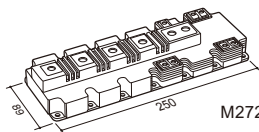
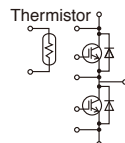
2-Pack

Dimension[mm]

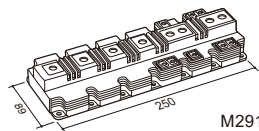
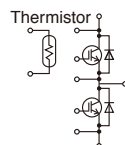
/c



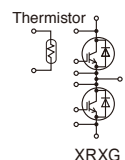
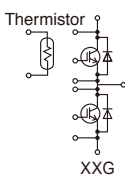
M271



M272



M291

[illegible]

*Under development

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

PrimePACK™

Dimension[mm]

I_c

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-54	1MBI650VXA-170EH-54
1MBI650VXA-170EL-80	1MBI650VXA-170EH-80

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-54	1MBI1000VXB-170EH-54
1MBI1000VXB-170EL-80	1MBI1000VXB-170EH-80

1400A

1MBI1400VXB-120PL-54	1MBI1400VXB-120PH-54
1MBI1400VXB-120PL-80	1MBI1400VXB-120PH-80

1MBI1400VXB-170PL-50	1MBI1400VXB-170PH-50
1MBI1400VXB-170PL-54	1MBI1400VXB-170PH-54

M271

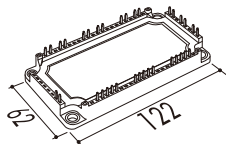
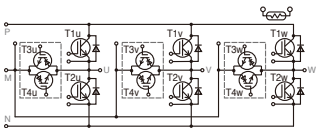
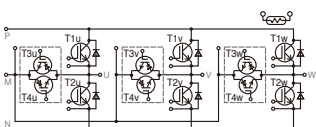
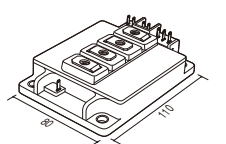
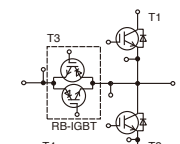
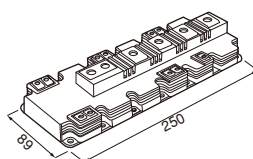
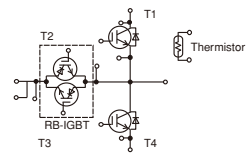
M272

Note1: The products with suffix '-54' on this page are labeled to specify the rank of V_{CE(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.

20

Advanced T-type NPC 3-level Modules

Dimension[mm] I_c

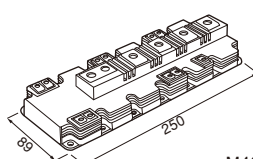
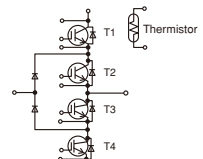
			600V		1200V		1700V	
			V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT
3 Phase With NTC, Solder pins	 M1203		50A		12MBI50VN-120-50	600V		
			75A		12MBI75VN-120-50	600V		
			100A		12MBI100VN-120-50	600V		
3 Phase With NTC, Press fit pins	 M1202		50A		12MBI50VX-120-50	600V		
			75A		12MBI75VX-120-50	600V		
			100A		12MBI100VX-120-50	600V		
1 Phase	 M403		220A				4MBI220VG-170R2-50	1200V
			300A		4MBI300VG-120R-50	600V		
					4MBI300VG-120R1-50	900V		
			340A		4MBI340VF-120R-50	600V		
			400A	4MBI400VG-060R-50	600V	4MBI400VF-120R-50*1	600V	
1 Phase	 M404		450A		4MBI450VB-120R1-50	900V	4MBI450VB-170R2-50	1200V
					4MBI450VB-120R1-60	900V	4MBI450VB-170R2-60	1200V
			600A				4MBI600VB-170R2-50	1200V
							4MBI600VB-170R2-60	1200V
			650A		4MBI650VB-120R1-50	900V		
					4MBI650VB-120R1-60	900V		
			900A		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 PCS

I-type NPC 3-level Module

Dimension[mm] I_c

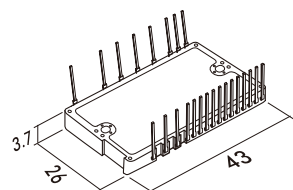
			600V		1200V		1700V	
			V series		V series		V series	
1 Phase	 M404		600A		4MBI600VC-120-50			
					4MBI600VC-120-60			

Small IPM (Intelligent Power Modules)

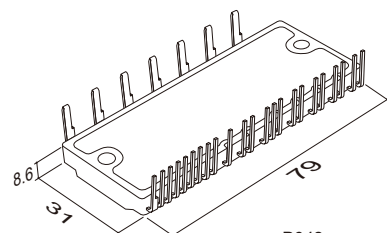
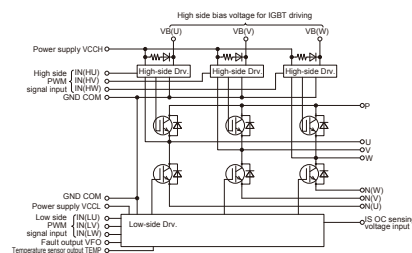
Built-in protection functions

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)

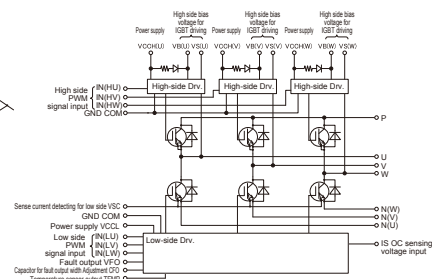
Dimension [mm]



P633A



P642



					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

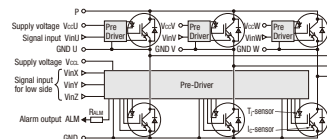
Small IPM with High Voltage
Driver-IC without
Brake-Chopper

Without Brake-Chopper

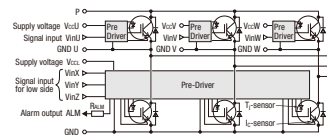
With Brake-Chopper

- 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)

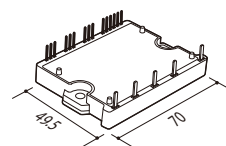
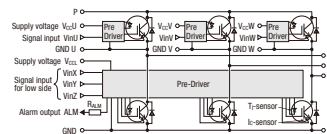
↓ ↓ ↓ ↓ ↓ *low*



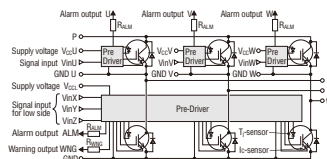
• 6MBP XAA-50



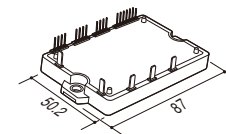
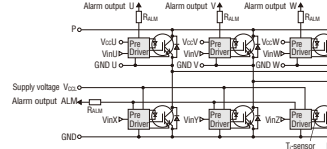
- 6MBP □ VAA □ -50



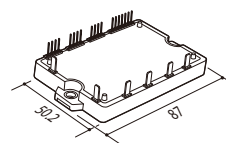
P629



• 6MBP VBA-50



P626



P644

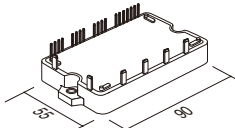
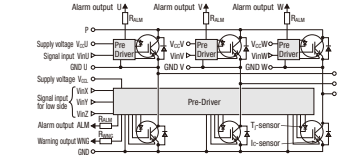
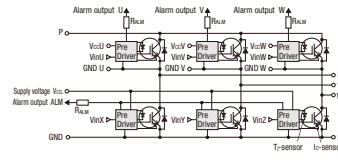
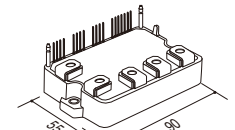
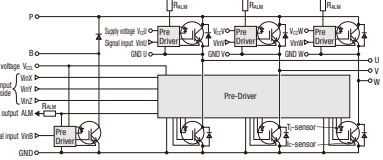
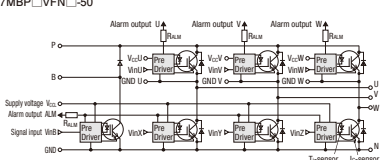
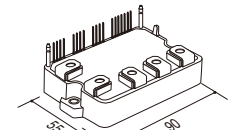
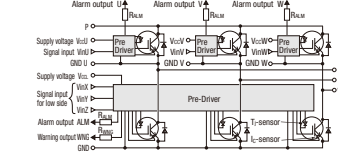
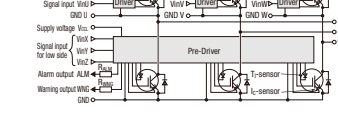
	650V	600V	1200V	
Ic	X series	V series	X series	V series
10A			6MBP10XRHA120-50	
20A	6MBP20XRHA065-50			
30A	6MBP30XRHA065-50			
10A				6MBP10VAA120-50
15A				6MBP15VAA120-50
20A		6MBP20VAA060-50		
25A			6MBP25XAA120-50	6MBP25VAA120-50
30A		6MBP30VAA060-50		
35A			6MBP35XAA120-50	
50A	6MBP50XAA065-50	6MBP50VAA060-50		
75A	6MBP75XAA065-50			
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			
25A			7MBP25XJN120-50	
35A			7MBP35XJN120-50	
50A	7MBP50XJN065-50			
75A	7MBP75XJN065-50			

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]

Without Brake-Chopper																					
	P636	• 6MBP□XFN□-50				✓	✓	✓	✓	✓											
		• 6MBP□VFN□-50																			
	P638	• 7MBP□XFN□-50				✓	✓	✓	✓	✓											
		• 7MBP□VFN□-50																			
	P638	• 6MBP□XGA□-50				✓	✓	✓	✓	✓											
		• 6MBP□XGN□-50																			

*Under development

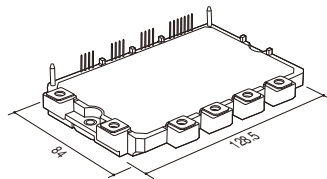
Built-in protection functions

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]

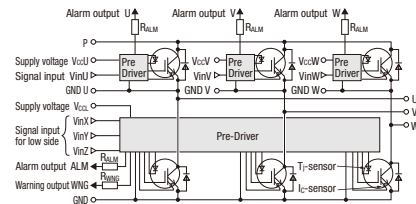
Without Brake-Chopper



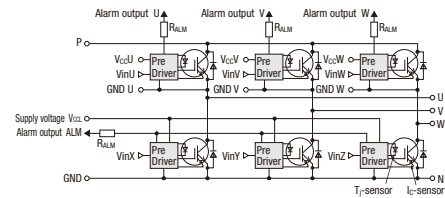
P630

With Brake-Chopper

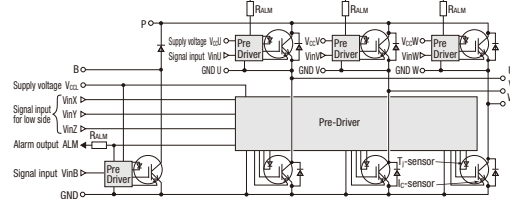
- 6MBP□XDA□-50
- 6MBP□XDN□-50



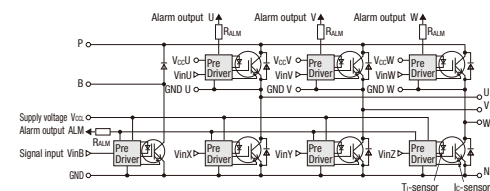
- 6MBP□VDA□-50
- 6MBP□VDN□-50



- 7MBP□XDA□-50
- 7MBP□XDN□-50



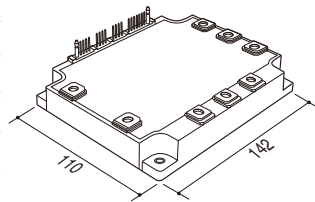
- 7MBP□VDA□-50
- 7MBP□VDN□-50



		650V	600V	1200V
		X series	V series	X series
Ic				
25A				6MBP25VDA120-50
35A				6MBP35VDA120-50
50A			6MBP50VDA060-50	6MBP50XDA120-50
				6MBP50VDN120-50
75A			6MBP75VDA060-50	6MBP75XDA120-50
				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
				7MBP50VDN120-50
75A			7MBP75VDA060-50	7MBP75XDA120-50
				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.

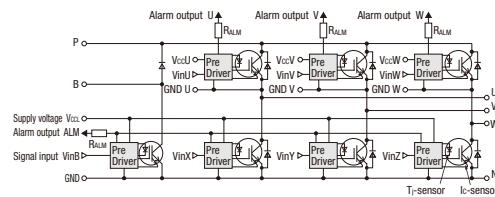
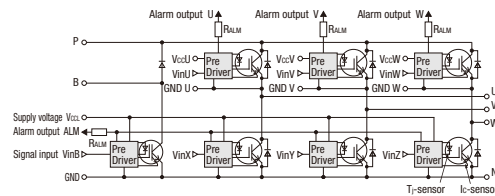
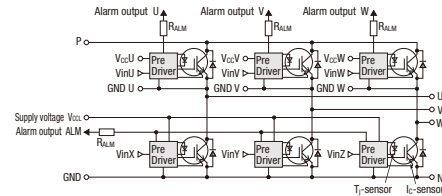
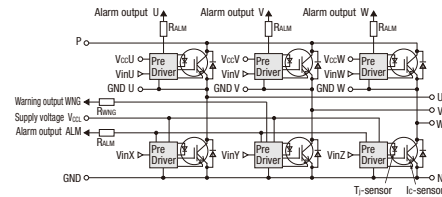
Without Brake-Chopper



With Brake-Chopper

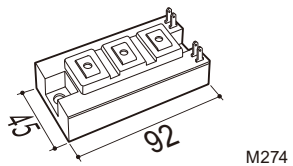
- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)

lc

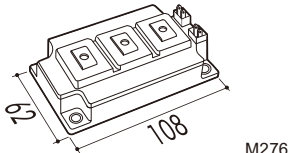
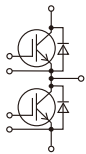
[illegible]

Hybrid SiC Modules

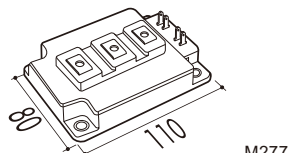
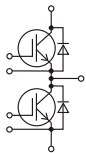
2-Pack



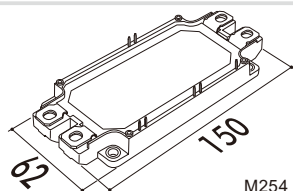
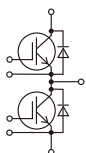
M274



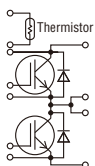
M276



M277



M254



Ic	1200V		1700V
	V series	VW series	V series
200A	2MSI200VAB-120-53		
200A		2MSI200VWAH-120-53	
300A	2MSI300VAH-120C-53	2MSI300VWAH-120-53	
400A			2MSI400VAE-170-53
300A	2MSI300VAN-120-53		
450A	2MSI450VAN-120-53		
600A	2MSI600VAN-120-53		

All-SiC Modules

Dimension[mm]

Ic

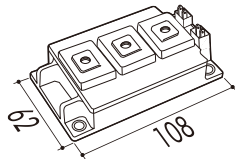
1200V



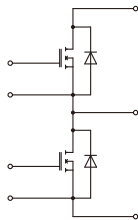
1700V



2-Pack



M295

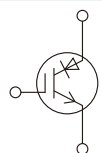
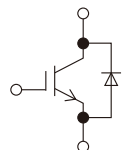
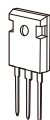
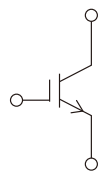


2G SiC-MOSFET Modules with 1G SiC-SBD

200A		2CSI200DAHE170-50*
300A	2CSI300DAHE120-50*	2CSI300DAHE170-50*
400A		2CSI400DAHE170-50*
450A	2CSI450DAHE120-50*	
600A	2CSI600DAHE120-50*	

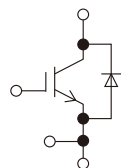
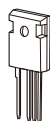
*Under development

TO-247
(Type:B)



RB-IGBT

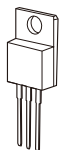
TO-247-4

[illegible]

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

Rectifier Diode

TO-220



I_F

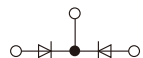
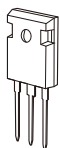
15A

FDRP15S60L

25A

FDRP25S60L

TO-247 (Type:B)



40A

50A

60A

70A

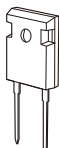
FDRW50C60L

FDRW70C60L

FDRW40C120J

FDRW60C120J

TO-247-2 (Type:A)



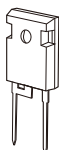
60A

75A

FDRW75T60L

FDRW60T65L

TO-247-2 (Type:B)



12A

15A

FDRW15S60L

20A

FDRW20S120J

25A

FDRW25S60L

30A

FDRW30S120J

35A

FDRW35S60L

FDRW12S120J

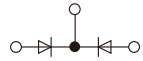
FDRW20S120J

FDRW30S120J

SiC-SBD



T-Pack(s)



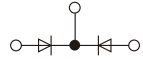
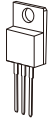
TO-220-2 (Type:A)



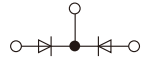
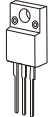
TO-220-2 (Type:B)



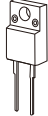
TO-220



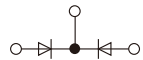
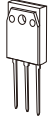
TO-220F



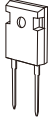
TO-220F-2



TO-247 (Type:A)



TO-247-2 (Type:A)



I/F

650V

SiC-SBD 2G

SiC-SBD 1G

1200V

SiC-SBD 2G

SiC-SBD 1G

10A

20A

25A

20A

6A

8A

10A

10A

25A

20A

20A

6A

8A

10A

18A

25A

10A

18A

25A

20A

36A

50A

18A

20A

40A

FDCC10S65

FDCC25S65

FDCC20C65

FDC2PT06S65

FDC2PT08S65

FDC2PT10S65

FDCP10S65

FDCP25S65

FDCP20C65

FDCA20C65

FDC2AT06S65

FDC2AT08S65

FDC2AT10S65

FDCA10S65

FDCA25S65

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FDCY25S65

FDCY20C65

FDCY50C65

FDCA18S120

FDCY18S120

FDCY36C120

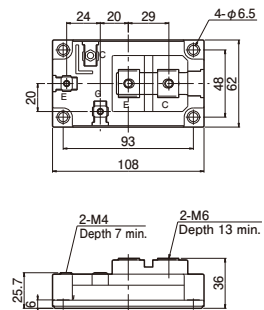
FDCW18T120

FDC2WT20S120

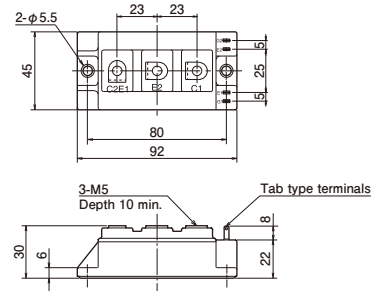
FDC2WT40S120

Package Outlines, mm

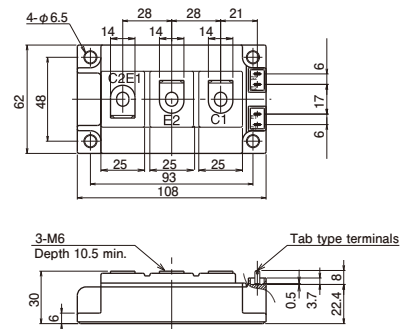
M153



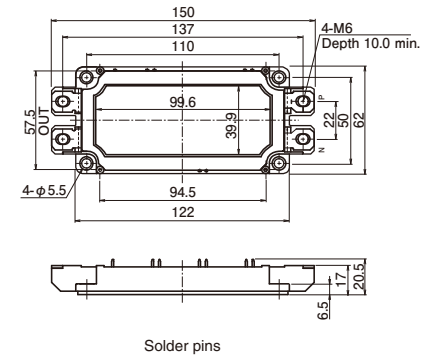
M233



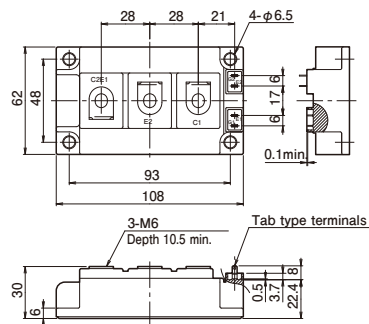
M249



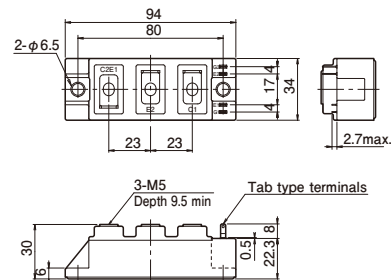
M254



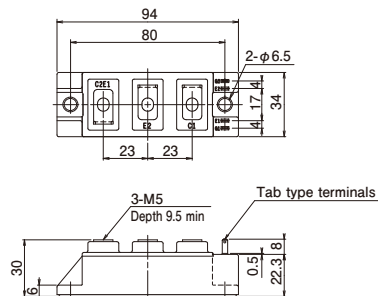
M259



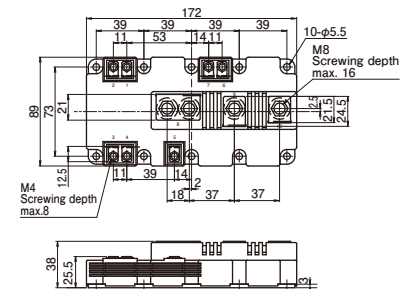
M262



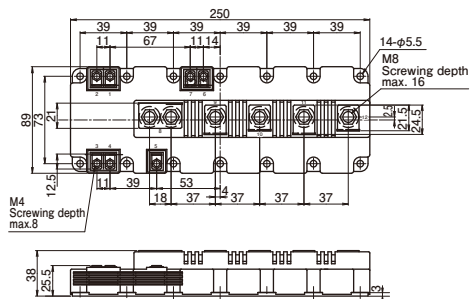
M263



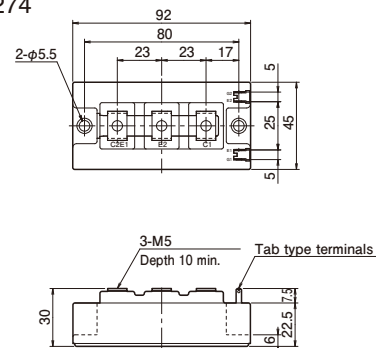
M271



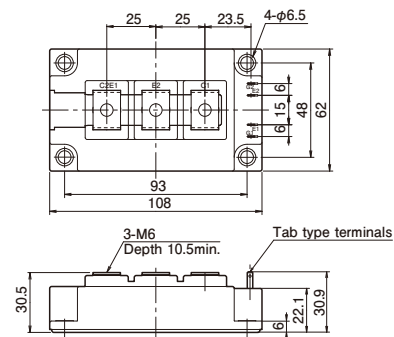
M272



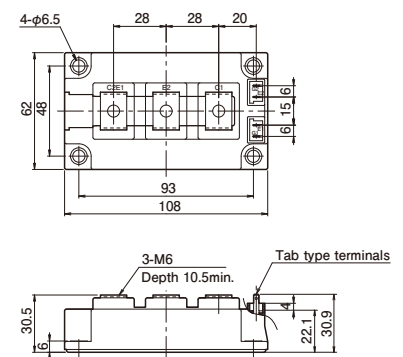
M274



M275

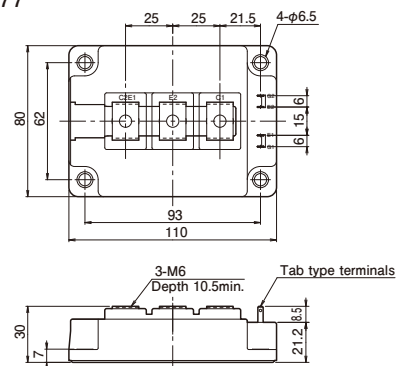


M276

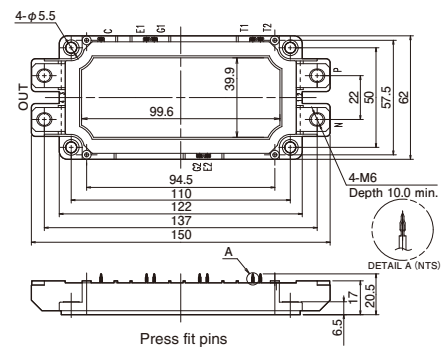


Package Outlines, mm

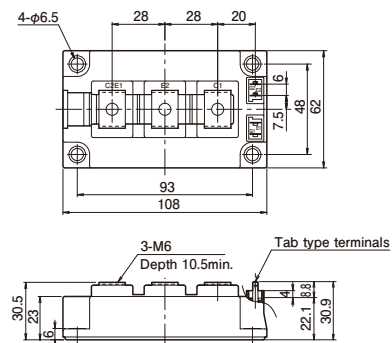
M277



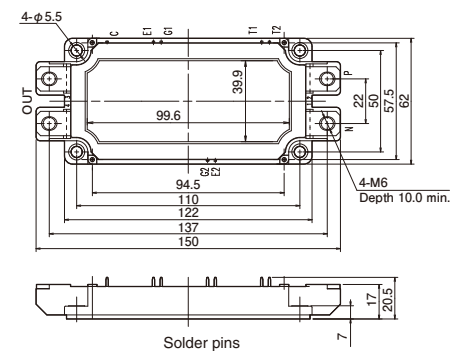
M282



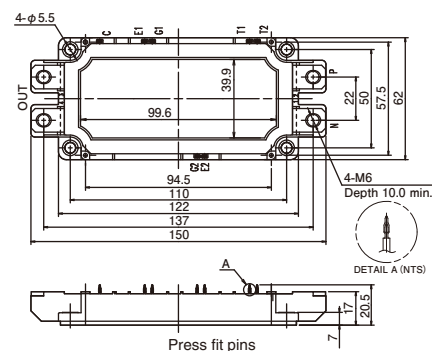
M283



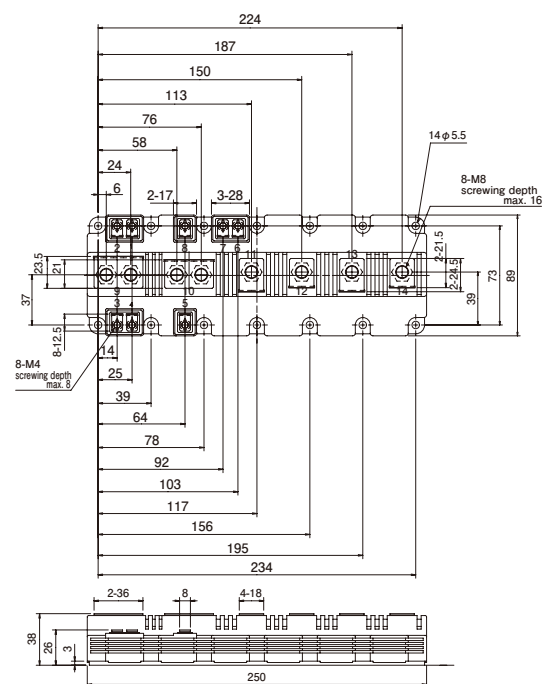
M285



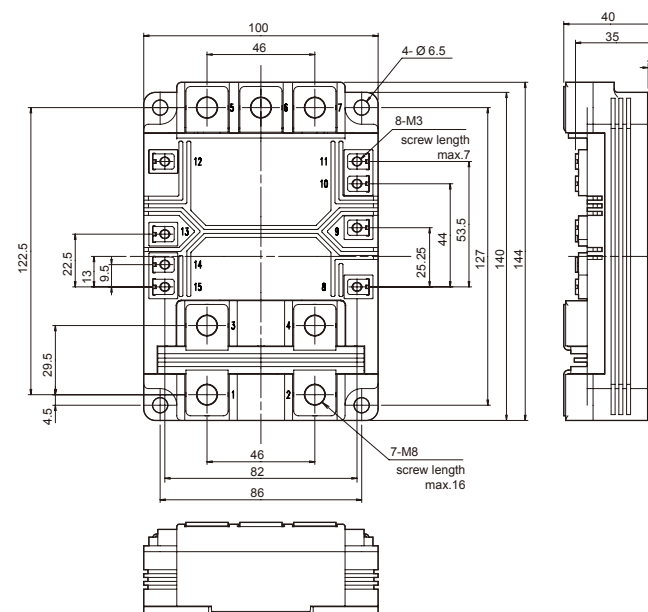
M286



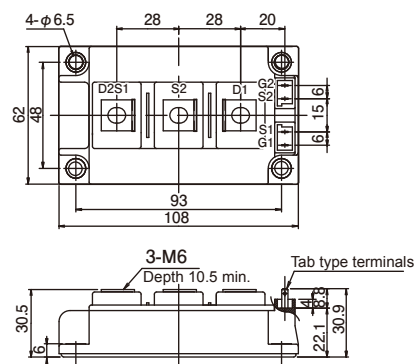
M291



M297

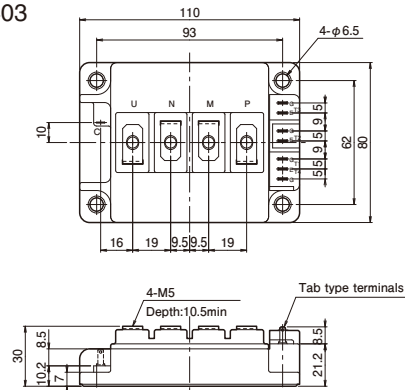


M295

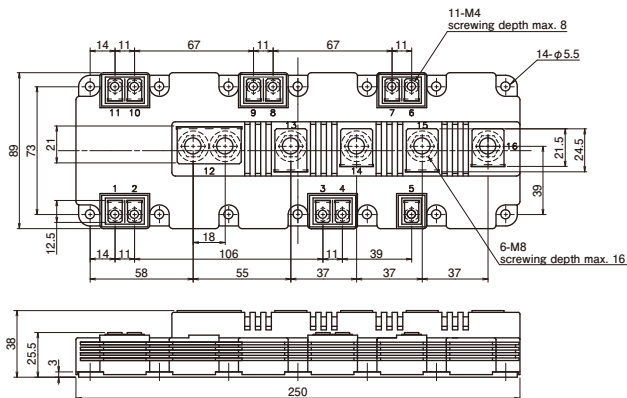


Package Outlines, mm

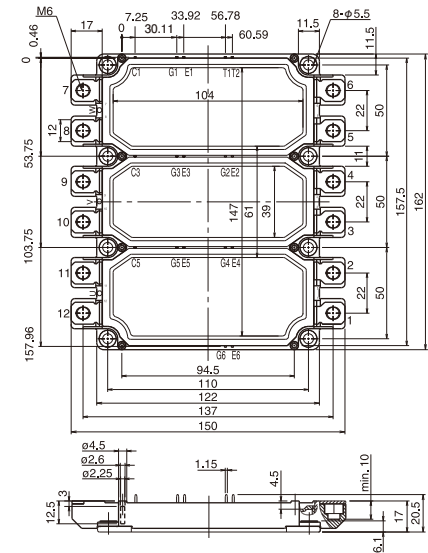
M403



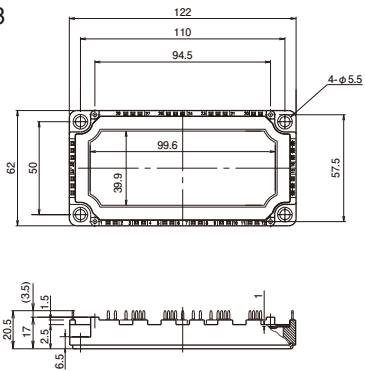
M404



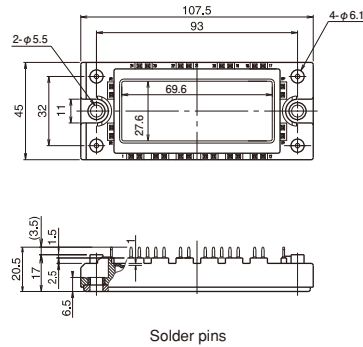
M629



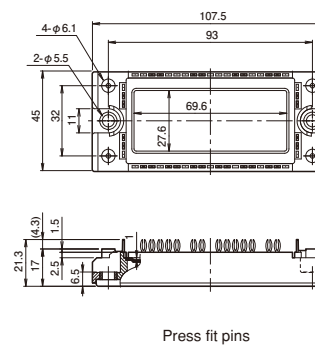
M633



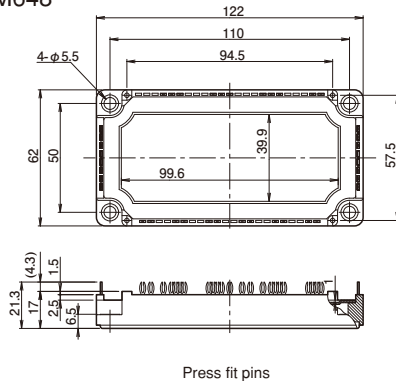
M636



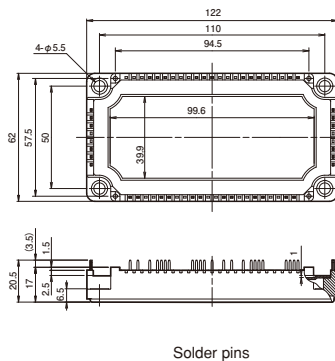
M647



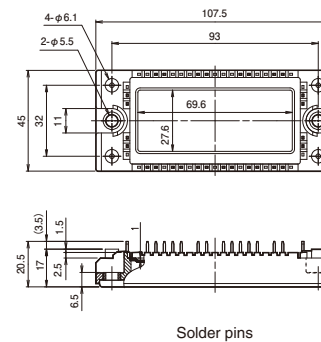
M648



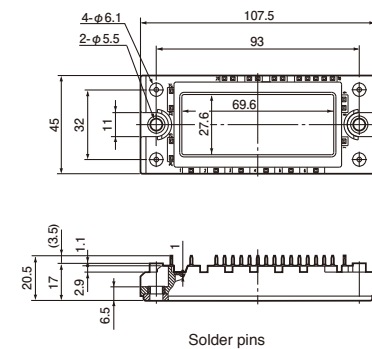
M668



M669

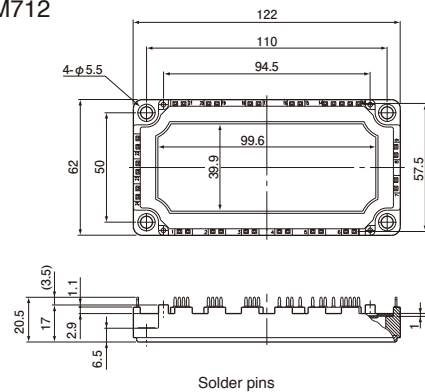


M711

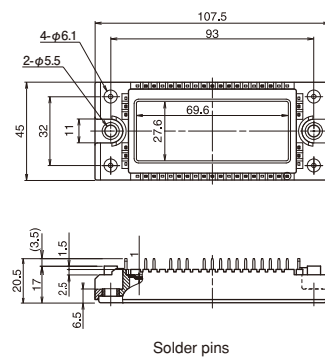


Package Outlines, mm

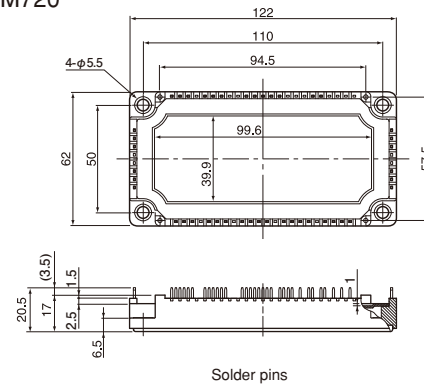
M712



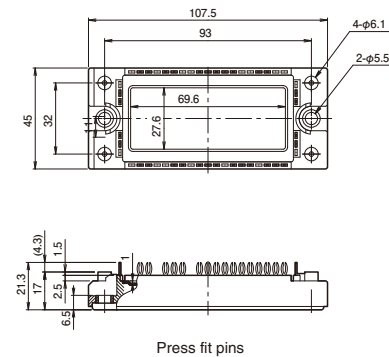
M719



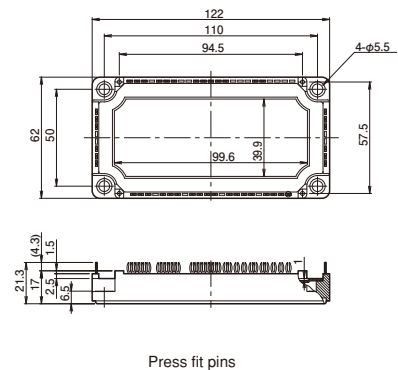
M720



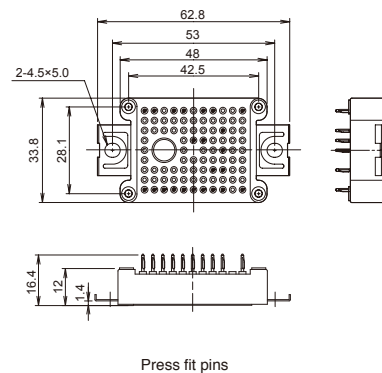
M721



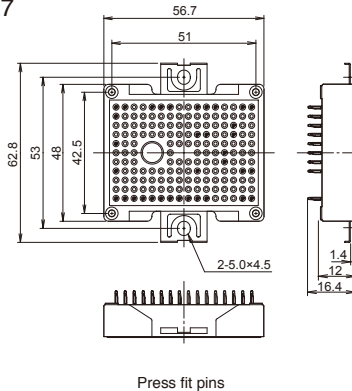
M722



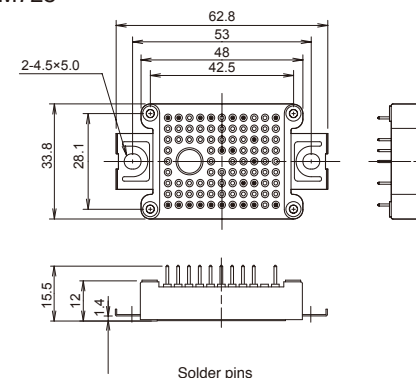
M726



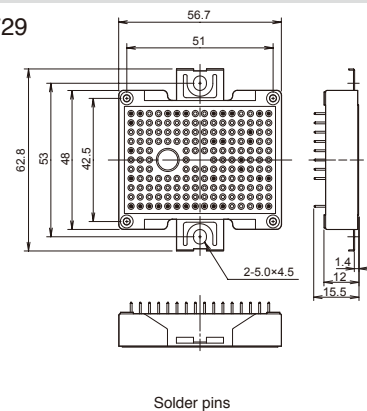
M727



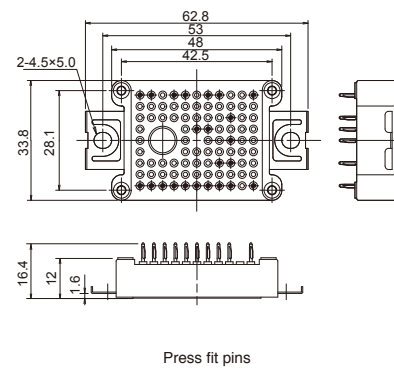
M728



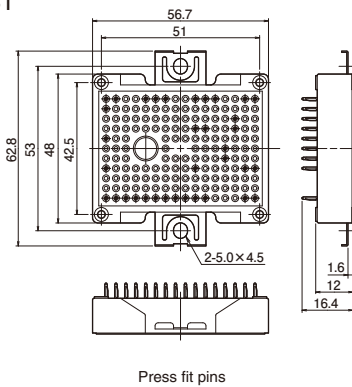
M729



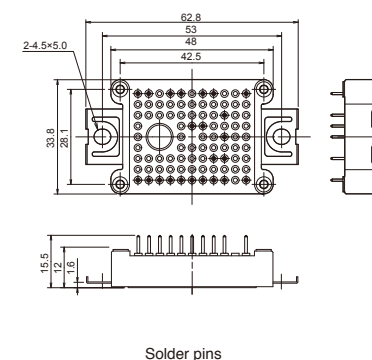
M730



M731

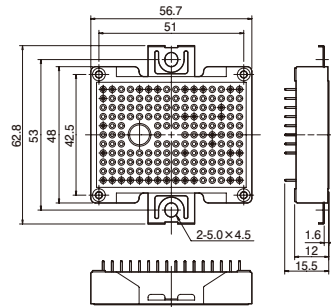


M732



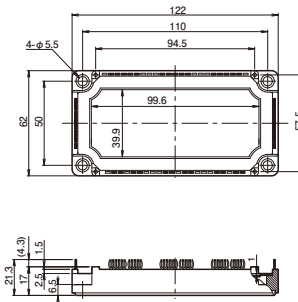
Package Outlines, mm

M733



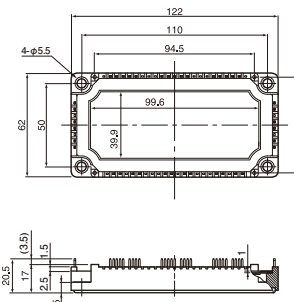
Solder pins

M1202



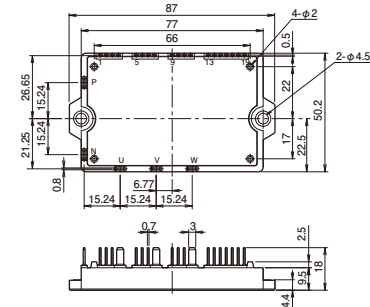
Press fit pins

M1203

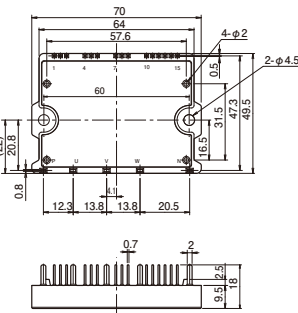


Solder pins

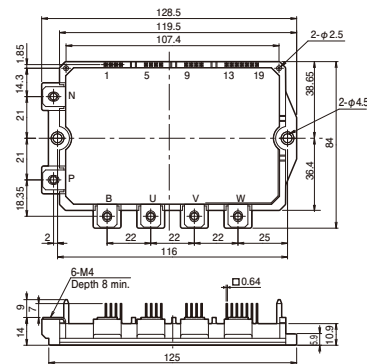
P626



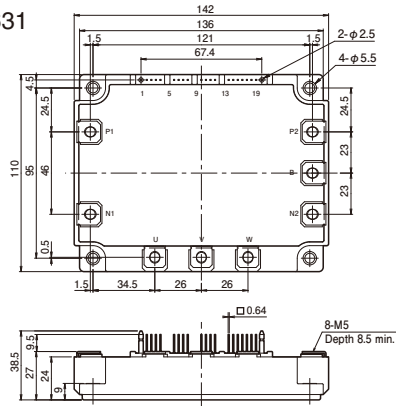
P629



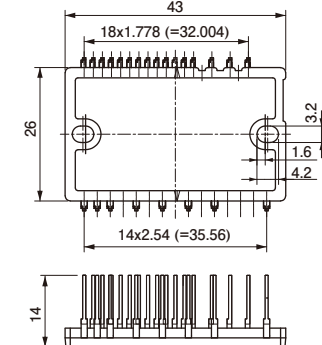
P630



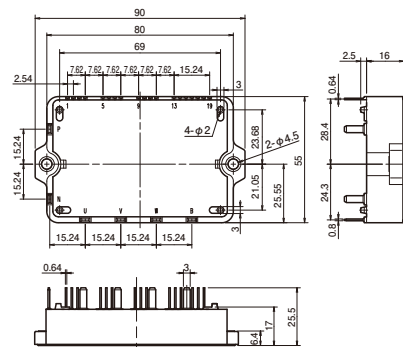
P631



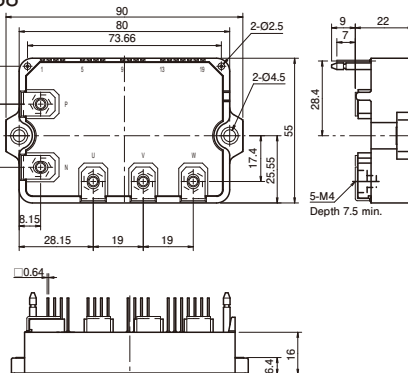
P633A



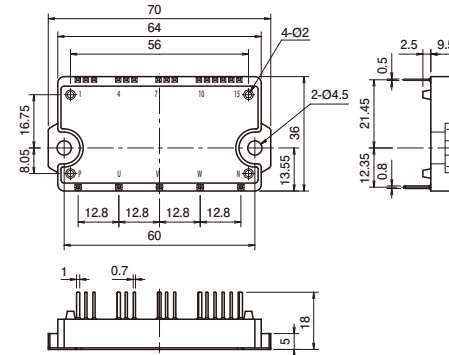
P636



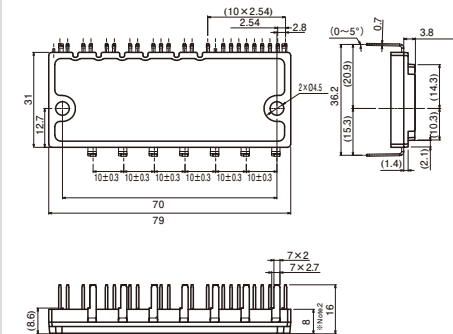
P638



P639

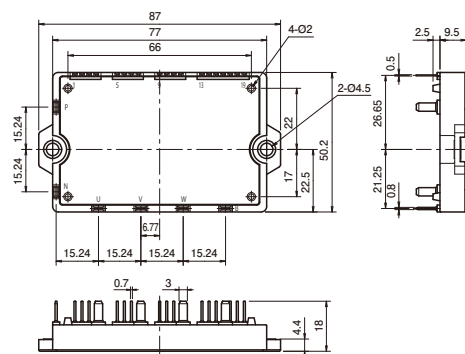


P642

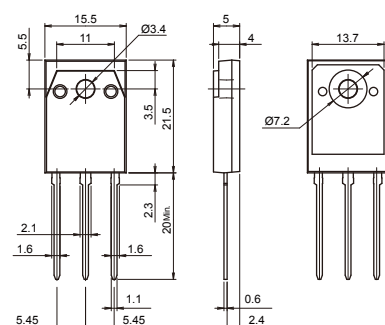


Package Outlines, mm

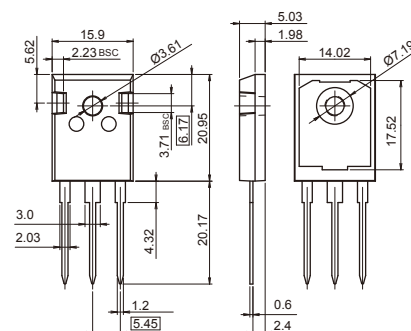
P644



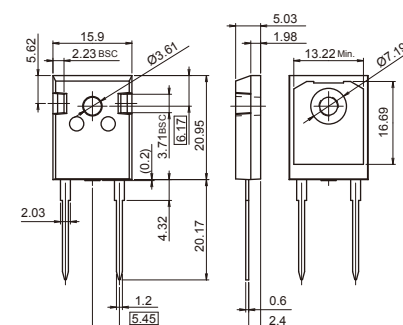
TO-247 (Type:A)



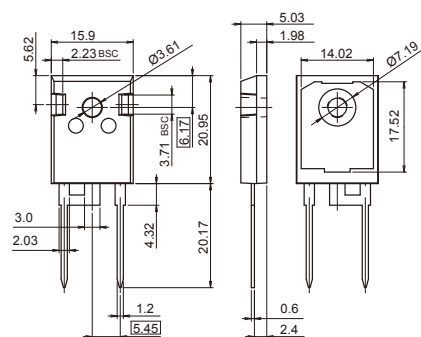
TO-247 (Type:B)



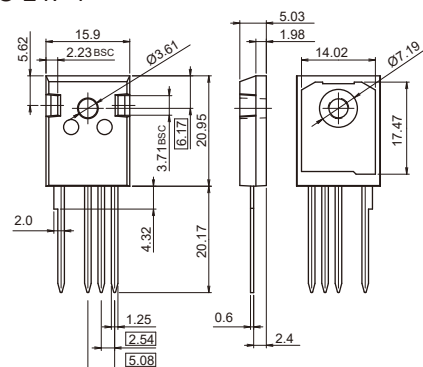
TO-247-2 (Type:A)



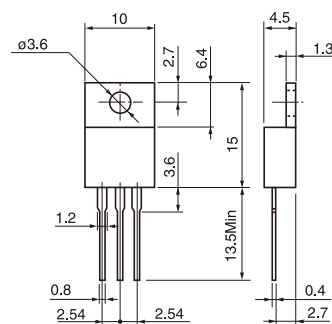
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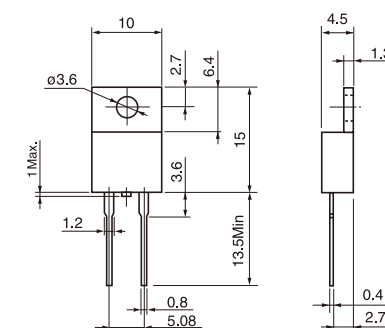
TO-247-4



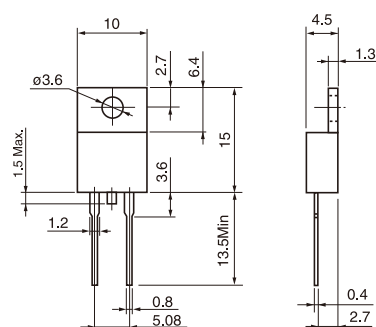
TO-220



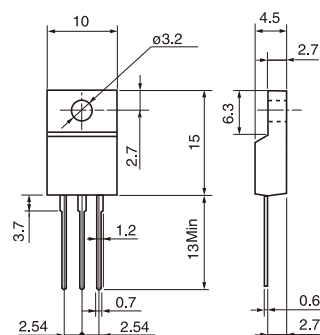
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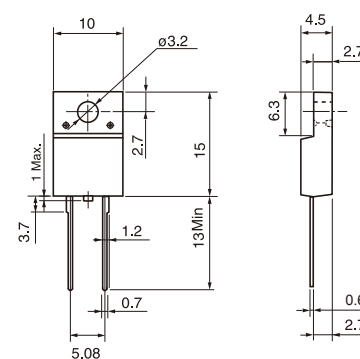
TO-220-2 (Type: B)



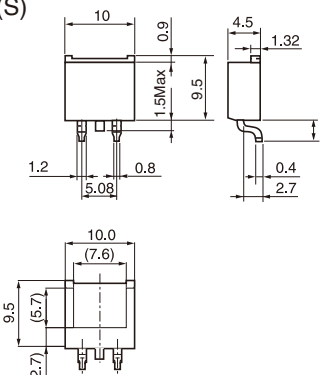
TO-220F



TO-220F-2



T-Pack(S)



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