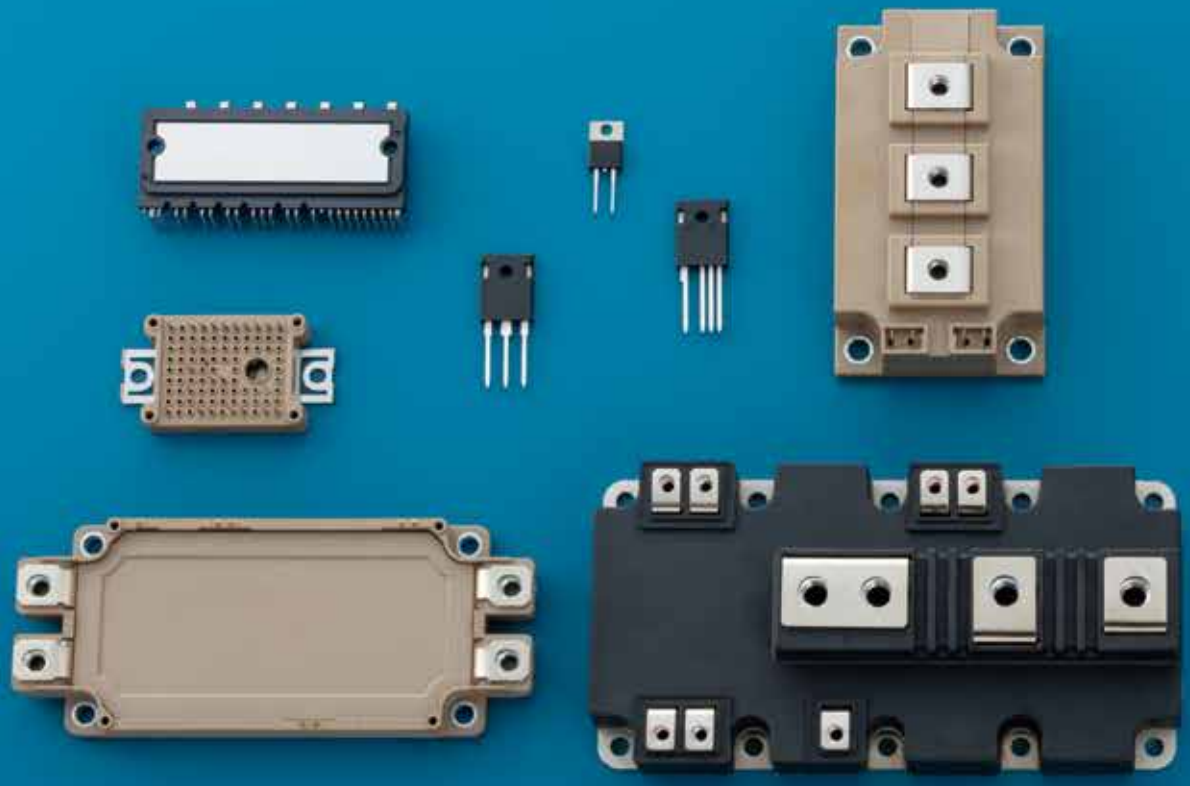
富士電機

Innovating Energy Technology

富士電機 パワー半導体

IGBT/SiC デバイス セレクションガイド



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注 : PrimePACK™ は Infineon Technologies 社の登録商標です。

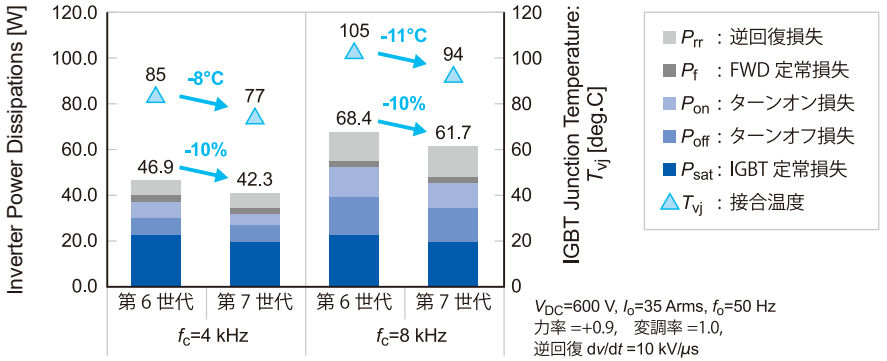
25A2-J-0005d

IGBTモジュール　Xシリーズの特長

1. 低損失

本モジュールを構成する IGBT 素子およびダイオード素子の厚みを薄くし微細化することで、素子構造を最適化。これにより、従来製品（当社第 6 世代 V シリーズ）に比べてインバータ動作時の電力損失を低減。

インバータロスを 10%、チップ温度を 11℃低減
（第 6 世代 V シリーズ 75A, f_c=8kHz 比較）

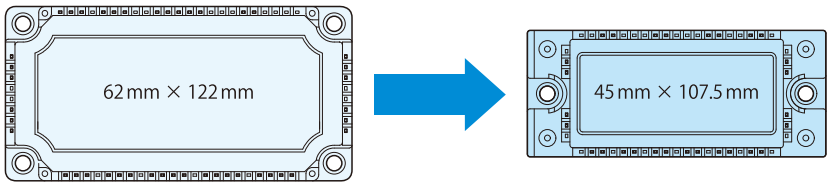


2. 小型化

新たに開発した絶縁基板を適用し、モジュールの放熱性を向上。
電力損失低減と併せて発熱を抑制することで、従来製品に比べて約 36%の小型化を達成。

適用例）

36% 小型化



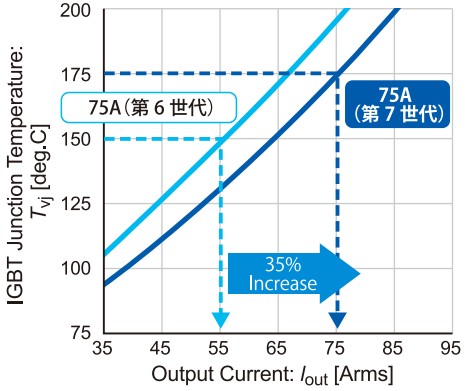
75A（第 6 世代 V シリーズ）　　75A（第 7 世代 X シリーズ）

3. 高温動作

高信頼性・高耐熱パッケージおよびチップの最適化により 175℃連続動作を実現。

- 従来製品より更に 35% の出力アップも可能
- ΔT_{vj} パワーサイクル耐量向上（従来比2 倍）

$T_{vj(op)}$=175℃化による更なる出力アップ



IGBT スイッチ数	製品カテゴリ	ページ	内部構成							最大電圧					定格電流					
			IGBT モジュール				Discrete IGBT	Rectifier Diode	Discrete SiC-SBD	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
			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							✓		✓	✓			✓					

注：PrimePACK™ は Infineon Technologies 社の登録商標です。
EconoPIM™ は Infineon Technologies 社の登録商標です。
EconoPACK™, EconoPACK™+ は Infineon Technologies 社の登録商標です。

IGBTモジュール製品型式

6 MB I 300 X □…□ - 120 - 50

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

ディスクリートIGBT製品型式

F G W 50 N 65 W D

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

F G W 40 XS 65 C

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

整流ダイオード製品型式

F DR W 50 C 65 L

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

SiCショットキーバリアダイオード製品型式

●SiC-SBD 1G

F DC P 10 S 65

- F — Company Code : Fuji
- DC — Device Code : DC = SiC-SBD
- P — 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)
- 10 — Rated Current I_F [A]
- S — Configuration : C = Dual (Cathode common), S or T = Single
- 65 — Max V_{RRM} : 65 = 650V, 120 = 1200V

●SiC-SBD 2G

F DC 2 PT 10 S 65

- F — Company Code : Fuji
- DC — Device Code : DC = SiC-SBD
- 2 — Generation
- PT — AT:TO-220F-2, PT：TO-220-2 (Type: A), WT：TO-247-2 (Type: A)
- 10 — Rated Current I_F [A]
- S — Configuration : C = Dual (Cathode common), S or T = Single
- 65 — Max V_{RRM} : 65 = 650V, 120 = 1200V

SiC-SBD搭載 IGBT ハイブリッドモジュール製品型式

2 MS I 300 V A H 120 C - 53

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

All-SiCモジュール製品型式

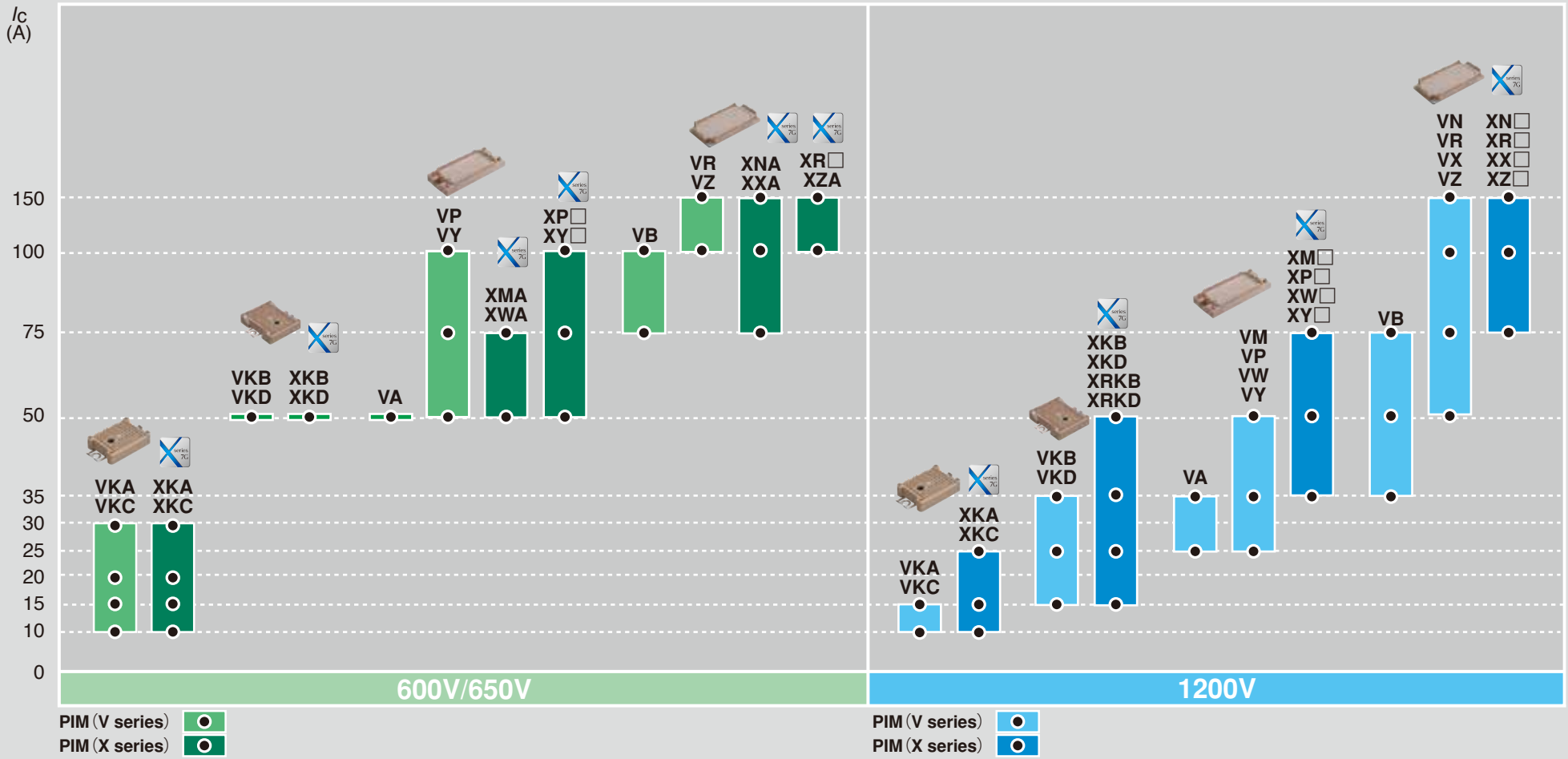
2 CS I 300 D A HE 120 - 50

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

PIM (Power Integrated Modules) 製品系列マップ

7MBR	定格電流 *Ic*	IGBT series & Package type				サイズ	ページ	
		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	EconoPIM™
		VB, VN, VR	VX, VZ	XN□, XR□	XX□, XZ□	62×122mm	10,11	

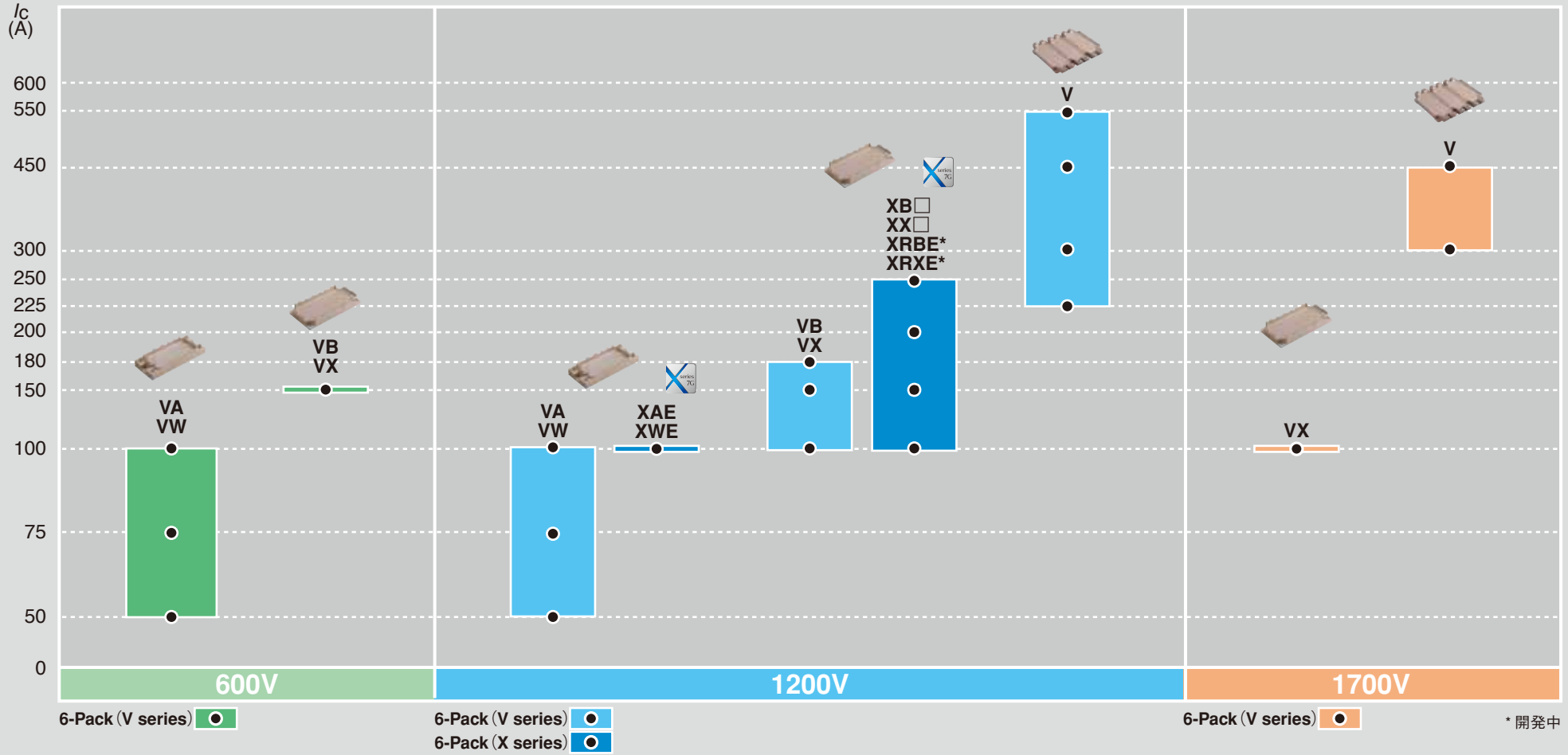
注：EconoPIM™ は Infineon Technologies 社の登録商標です。



6-Pack 製品系列マップ

6MBI	定格電流 Ic	IGBT series & Package type				サイズ	ページ	
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA	VW	XAE	XWE	45×107.5mm	12,13	EconoPACK™
		VB	VX	XB□, XRBE	XX□, XRXE	62×122mm	12,13	
		V				150×162mm	13	EconoPACK™+

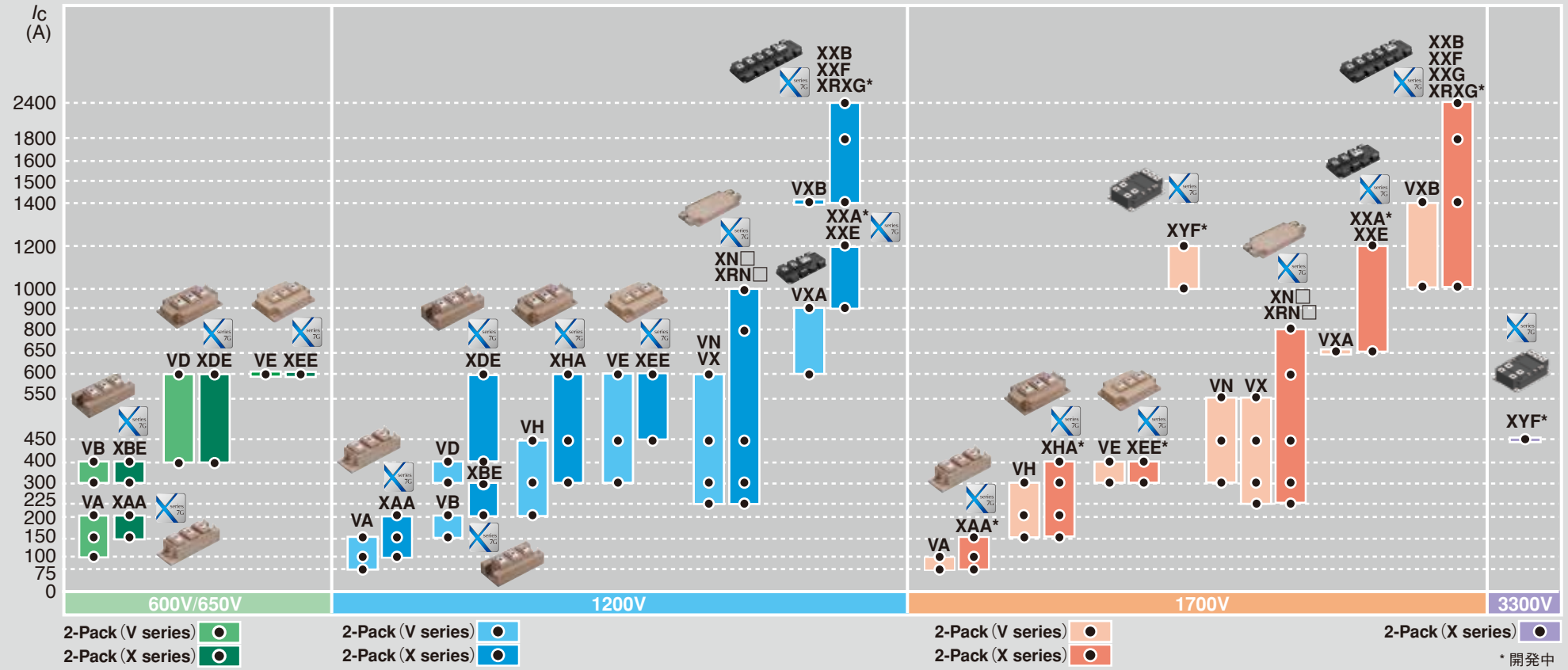
注：EconoPACK™, EconoPACK™+ は Infineon Technologies 社の登録商標です。



2-Pack 製品系列マップ

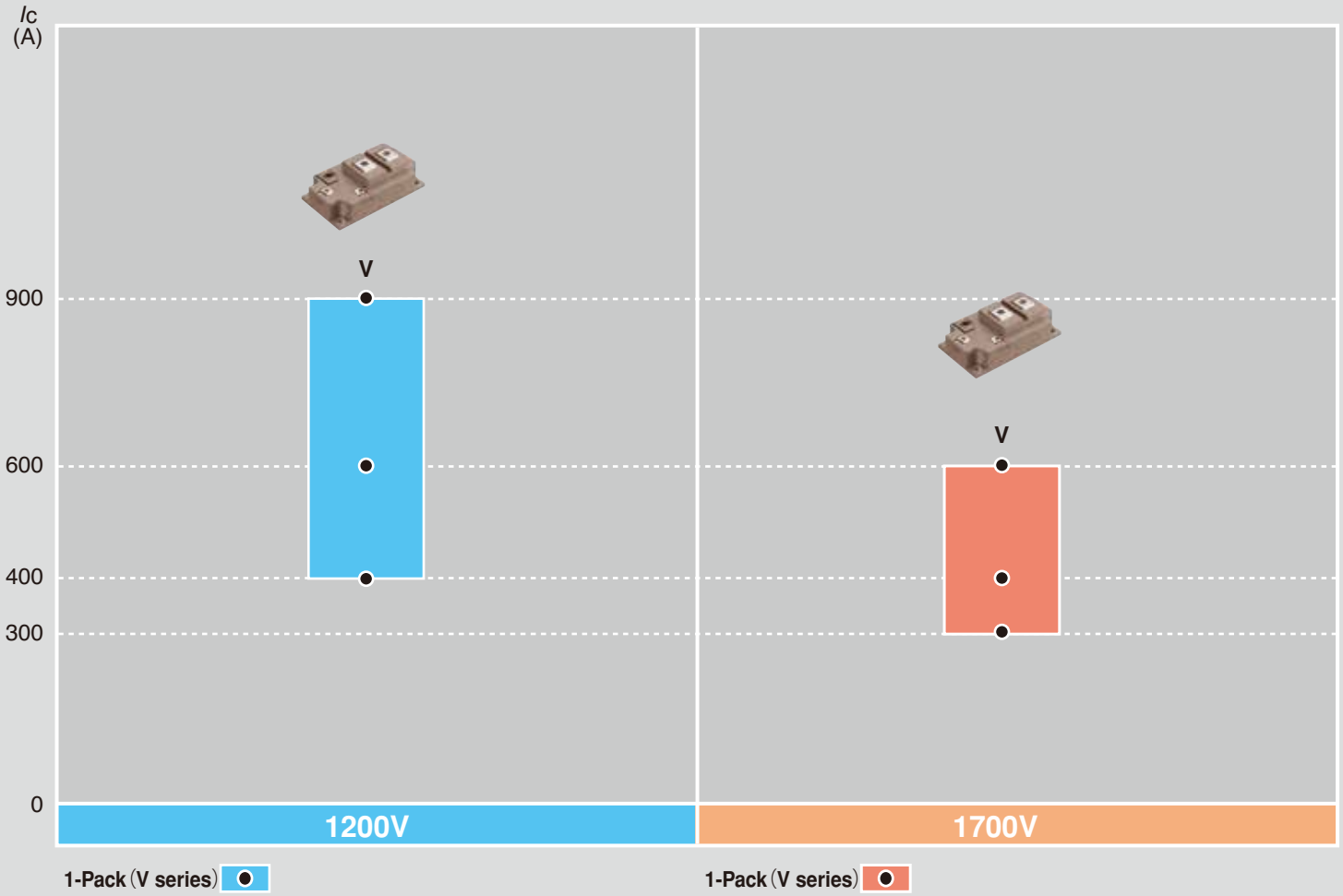
2MBI	定格電流 *Ic*	IGBT series & Package type		サイズ	ページ	
		V series	X series			
		VA	XAA	34×94mm	14	Standard Pack
		VB	XBE	45×92mm	14	
		VD, VH	XDE, XHA	62×108mm	14	
		VE	XEE	80×110mm	14	
		VN, VX	XN□, XRN□	62×150mm	15	Dual XT
		-	XYF	100×140mm	18	HPnC
		VXA	XXA, XXE	89×172mm	19	PrimePACK™
		VXB	XXB, XXF,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

注 : PrimePACK™ は Infineon Technologies 社の登録商標です。



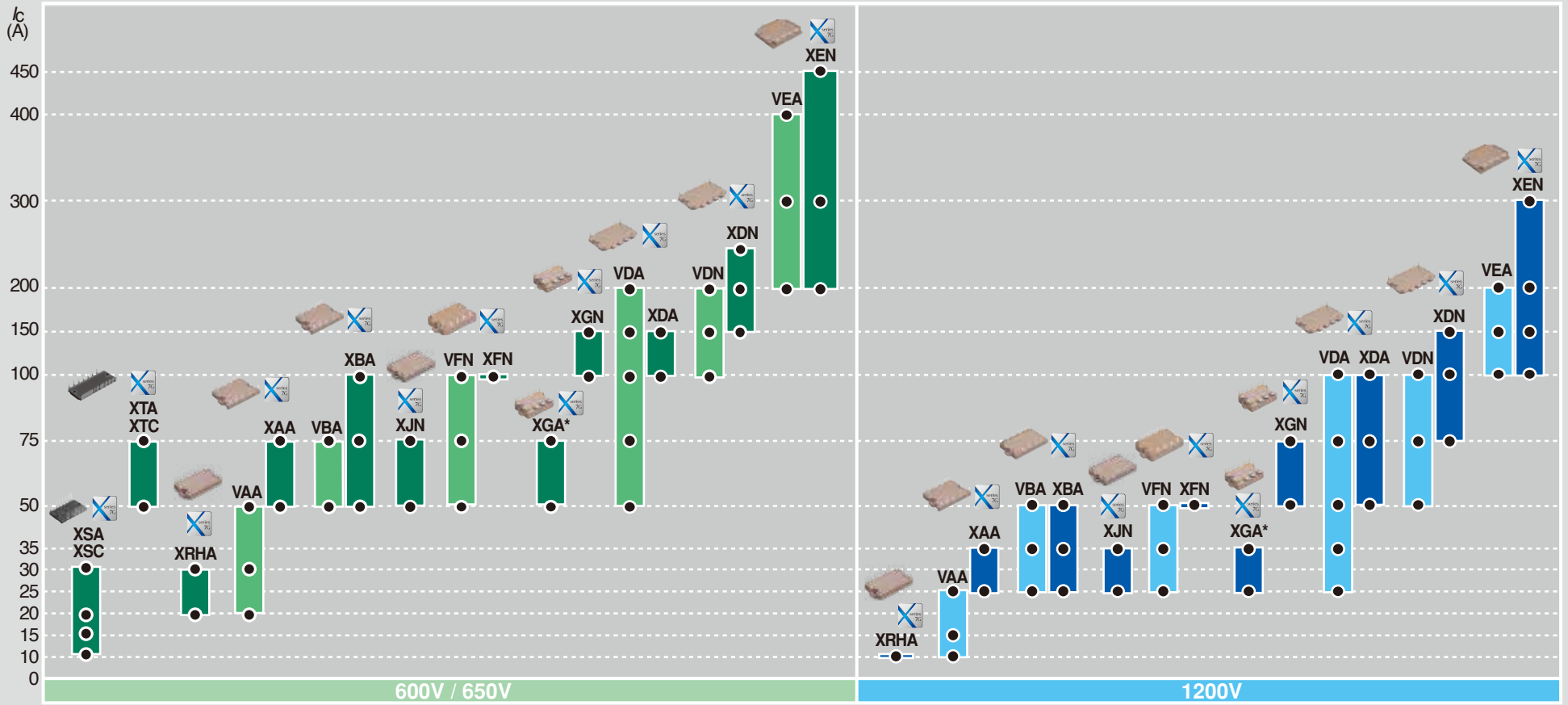
1-Pack 製品系列マップ

1MBI	定格電流 Ic	IGBT series & Package type			
		V series	サイズ	ページ	
		V	62×108mm	16	Standard Pack



IPM (Intelligent Power Modules) 製品系列マップ

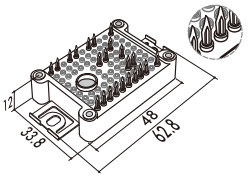
6/7MBP	定格電流 Ic	IGBT series & Package type			V series		X series		
		V series	X series	サイズ	7 in 1	6 in 1	7 in 1	6 in 1	ページ
		–	XSA, XSC	26×43mm	–	–	–	✓	22
		–	XTA, XTC	31×79mm	–	–	–	✓	22
		–	XRHA	36×70mm	–	–	–	✓	23
		VAA	XAA	49.5×70mm	–	✓	–	✓	23
		VBA	XBA	50.2×87mm	–	✓	–	✓	23
		–	XJN	50.2×87mm	–	–	✓	–	23
		VFN	XFN	55×90mm	✓	✓	✓	✓	24
		–	XGA, XGN	55×90mm	–	–	–	✓	24
		VDA, VDN	XDA, XDN	84×128.5mm	✓	✓	✓	✓	25
		VEA	XEN	110×142mm	✓	✓	✓	✓	26



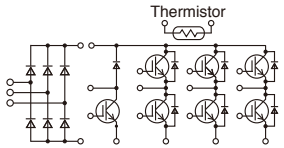
Small PIM (Power Integrated Modules)

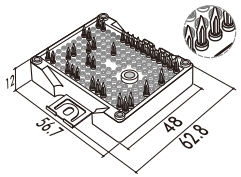
外形寸法 [mm]

With NTC, Press fit pins

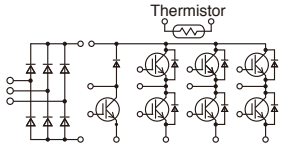


V: M726, X: M730

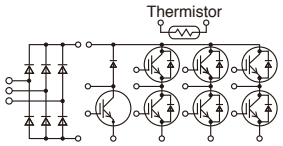




V: M727, X: M731

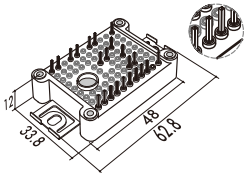


XKB, VKB

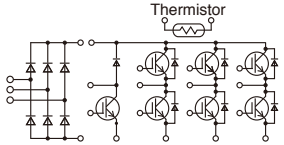


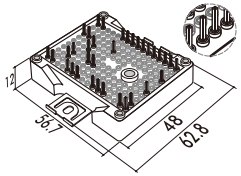
XRKB

With NTC, Solder pins

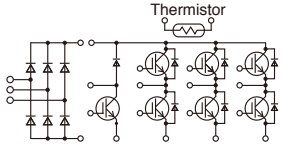


V: M728, X: M732

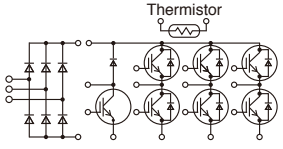




V: M729, X: M733



XKD, VKD



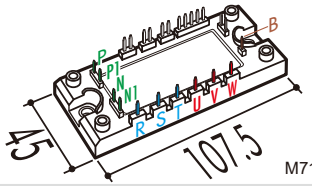
XRKD

	650V	600V	1200V	
Ic	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	

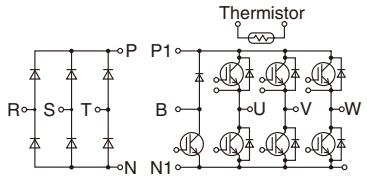
PIM (Power Integrated Modules) EconoPIM™

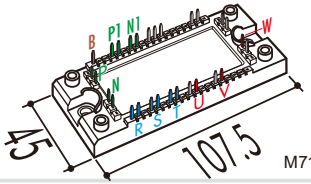
With NTC, Solder pins, PIM

外形寸法 [mm]

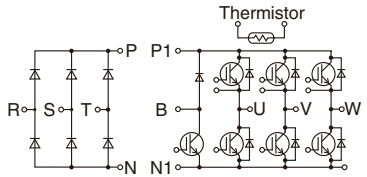


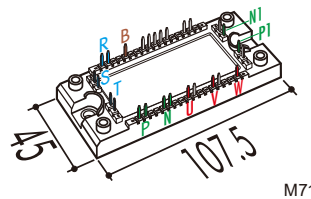
M711



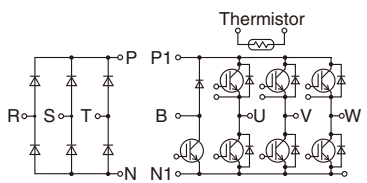


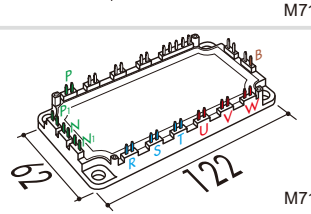
M719



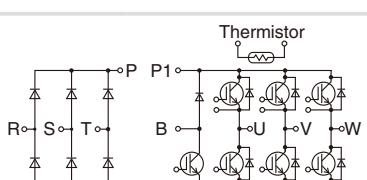


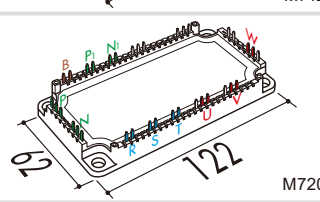
M719



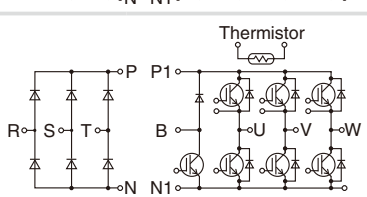


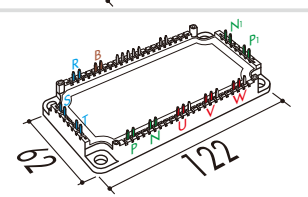
M712





M720





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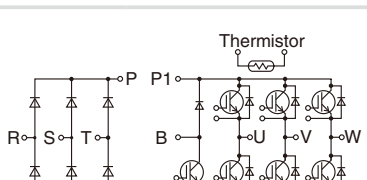


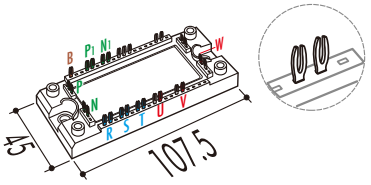
Ic	650V X series	600V V series	1200V X series	1200V V series
25A				7MBR25VA120-50
35A				7MBR35VA120-50
50A		7MBR50VA060-50		
25A				7MBR25VM120-50
35A			7MBR35XMA120-50	7MBR35VM120-50
50A	7MBR50XMA065-50		7MBR50XMA120-50	7MBR50VM120-50
75A	7MBR75XMA065-50		7MBR75XME120-50	
25A				7MBR25VP120-50
35A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

注：EconoPIM™ は Infineon Technologies 社の登録商標です。

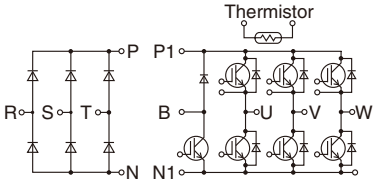
PIM (Power Integrated Modules) EconoPIM™

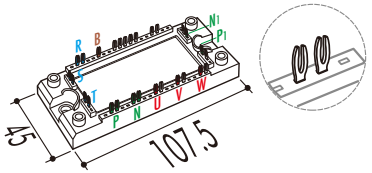
外形寸法 [mm]

With NTC, Press fit pins. PIM



M721





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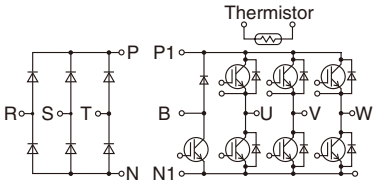
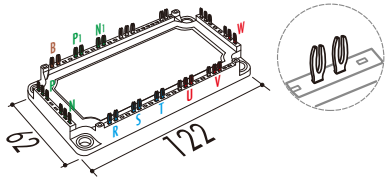
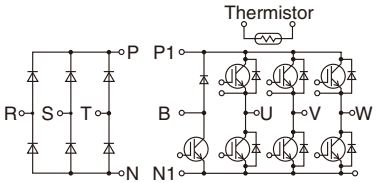
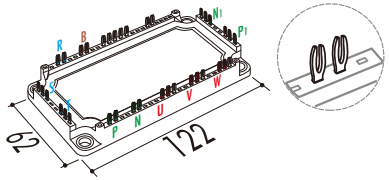


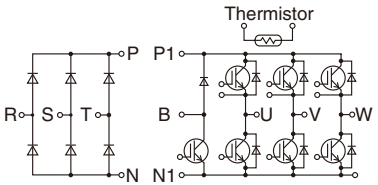


M722





M722



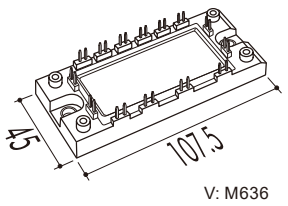
	650V	600V	1200V	
Ic	X series	V series	X series	V series
25A				7MBR25VW120-50
35A			7MBR35XWA120-50	7MBR35VW120-50
50A	7MBR50XWA065-50		7MBR50XWA120-50	7MBR50VW120-50
75A	7MBR75XWA065-50		7MBR75XWE120-50	
25A				7MBR25VY120-50
35A			7MBR35XYA120-50	7MBR35VY120-50
50A	7MBR50XYA065-50	7MBR50VY060-50	7MBR50XYA120-50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

注 1：EconoPIM™ は Infineon Technologies 社の登録商標です。

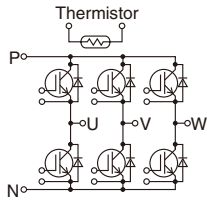
6-Pack EconoPACK™

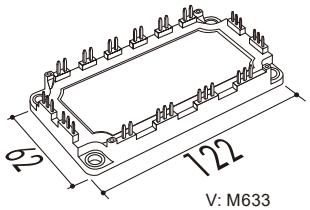
With NTC, Solder pins

外形寸法 [mm]

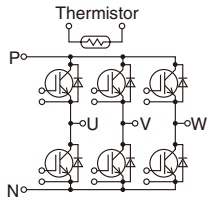


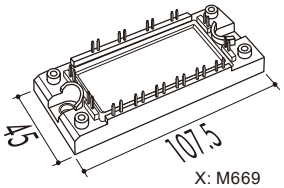
V: M636



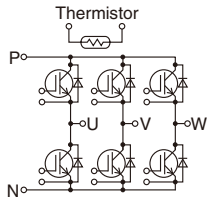


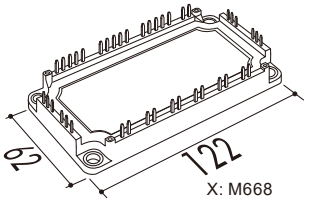
V: M633



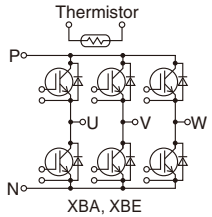


X: M669

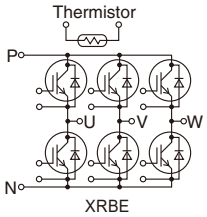




X: M668



XBA, XBE



XRBE

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

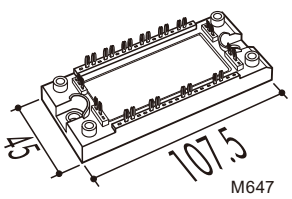
注 1: 6MBI180VB-120-55; プレミアムタイプ（低熱抵抗バージョン）
注 2: EconoPACK™ は Infineon Technologies 社の登録商標です。

* 開発中

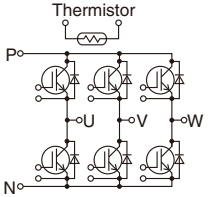
6-Pack EconoPACK™

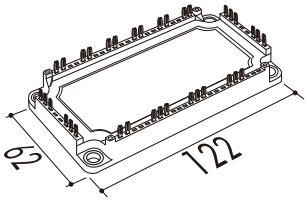
外形寸法 [mm]

With NTC, Press fit pins

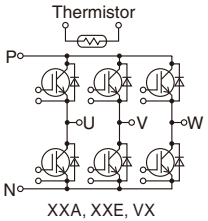


M647

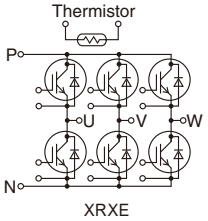




M648



XXA, XXE, VX



XRXE

Ic	600V	1200V		1700V
	V series	X series	V series	V series
50A	6MBI50VW-060-50		6MBI50VW-120-50	
75A	6MBI75VW-060-50		6MBI75VW-120-50	
100A	6MBI100VW-060-50	6MBI100XWE-120-50	6MBI100VW-120-50	
100A		6MBI100XXA120-50	6MBI100VX-120-50	6MBI100VX-170-50
150A	6MBI150VX-060-50	6MBI150XXA120-50	6MBI150VX-120-50	
180A			6MBI180VX-120-50	
			6MBI180VX-120-55	
200A		6MBI200XXA120-50		
		6MBI200XXE120-50		
250A		6MBI250XRXE120-50*		

注 1：6MBI180VX-120-55; プレミアムタイプ（低熱抵抗バージョン）

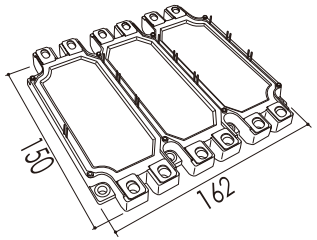
注 2: EconoPACK™ は Infineon Technologies 社の登録商標です。

* 開発中

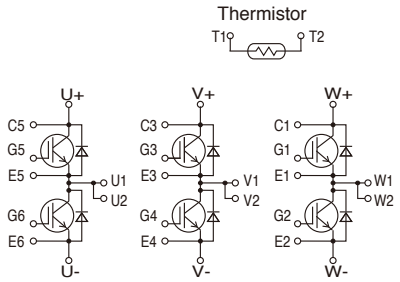
6-Pack EconoPACK™+

外形寸法 [mm]

With NTC, High power 6-Pack



M629



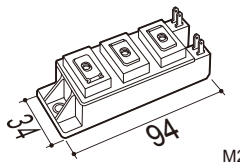
Ic	1200V	1700V
	V series	V series
225A	6MBI225V-120-50	
300A	6MBI300V-120-50	6MBI300V-170-50
450A	6MBI450V-120-50	6MBI450V-170-50
550A	6MBI550V-120-50	

注 1：EconoPACK™+ は Infineon Technologies 社の登録商標です。

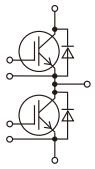
Standard 2-Pack

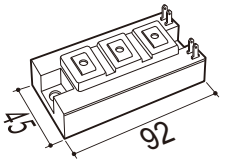
2-Pack

外形寸法 [mm]

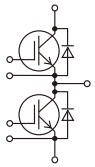


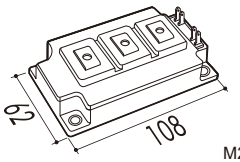
M263



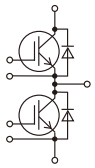


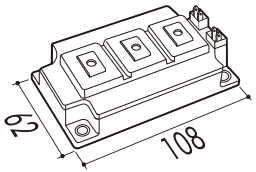
M274



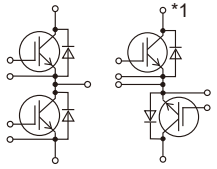


M275

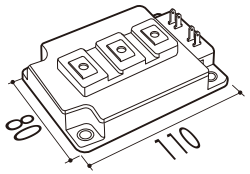




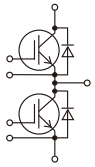
M276



2MBI450VH-120F
Common Emitter



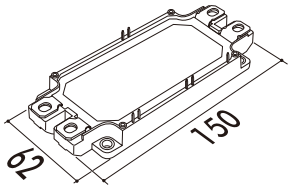
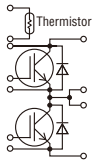
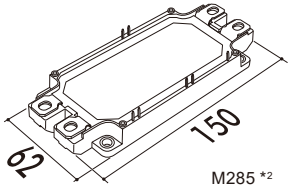
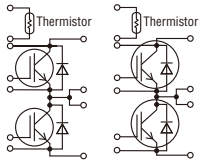
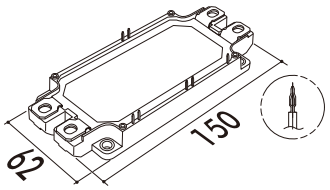
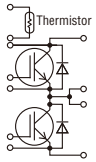
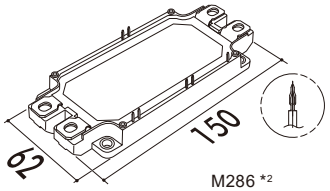
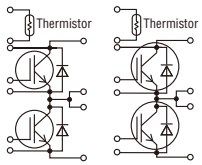
M277



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

Standard 2-Pack

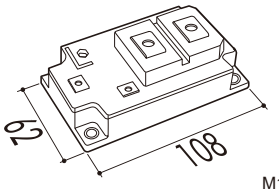
外形寸法 [mm]

		Ic	1200V			1700V		
			X series	V series	V series With SiN substrate *1	X series	V series	V series With SiN substrate *1
With NTC, Solder pins	 M254 	225A	2MBI225XNA120-50	2MBI225VN-120-50	2MBI225VN-120S-50	2MBI225XNA170-50		
		300A	2MBI300XNA120-50	2MBI300VN-120-50	2MBI300VN-120S-50	2MBI300XNA170-50	2MBI300VN-170-50	
		450A	2MBI450XNA120-50	2MBI450VN-120-50	2MBI450VN-120S-50	2MBI450XNA170-50	2MBI450VN-170-50	
		550A						2MBI550VN-170-50
		600A	2MBI600XNG120-50		2MBI600VN-120-50	2MBI600XNG170-50		
	 M285 *2  XNE XRNE	600A	2MBI600XNE120-50			2MBI600XNE170-50		
		800A	2MBI800XNE120-50			2MBI800XRNE170-50		
		1000A	2MBI1000XRNE120-50					
With NTC, Press fit pins	 M282 	225A	2MBI225XNB120-50	2MBI225VX-120-50		2MBI225XNB170-50	2MBI225VX-170-50	
		300A	2MBI300XNB120-50	2MBI300VX-120-50		2MBI300XNB170-50	2MBI300VX-170-50	
		450A	2MBI450XNB120-50	2MBI450VX-120-50		2MBI450XNB170-50	2MBI450VX-170-50	
		550A						2MBI550VX-170-50
		600A	2MBI600XNH120-50		2MBI600VX-120-50	2MBI600XNH170-50		
	 M286 *2  XNF XRNF	600A	2MBI600XNF120-50			2MBI600XNF170-50		
		800A	2MBI800XNF120-50			2MBI800XRNF170-50		
		1000A	2MBI1000XRNF120-50					

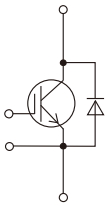
*1 低熱抵抗バージョン
*2 高放熱、高耐トラッキング性パッケージ

Standard 1-Pack

外形寸法 [mm]



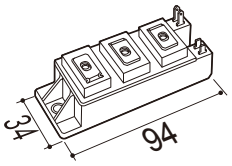
M153



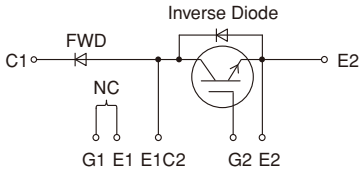
Ic	1200V V series	1200V V series with AlN substrate	1700V V series
300A			1MBI300V-170-50
400A	1MBI400V-120-50	1MBI400VF-120-50	1MBI400V-170-50
600A	1MBI600V-120-50	1MBI600VF-120-50	1MBI600V-170-50
900A	1MBI900V-120-50		

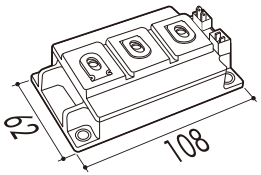
Chopper

外形寸法 [mm]

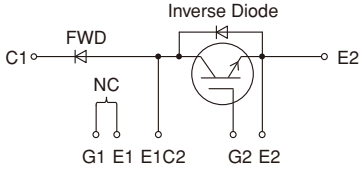


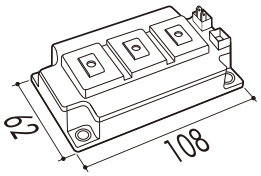
M262





M259





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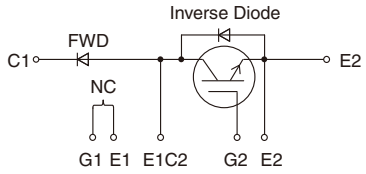
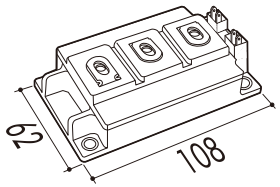
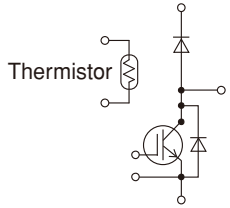
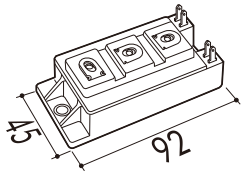
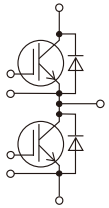
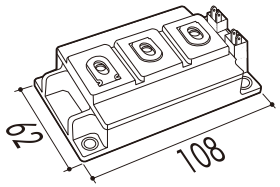
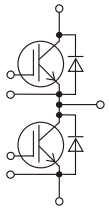


Ic	600V U series	600V V series	1200V U series	1200V V series
50A			1MBI50U4F-120L-50	
75A			1MBI75U4F-120L-50	
100A			1MBI100U4F-120L-50	
150A				1MBI150VA-120L-50
200A				1MBI200VA-120L-50
200A			1MBI200U4H-120L-50	
300A	1MBI300U2H-060L-50			
400A		1MBI400VH-060L-50		

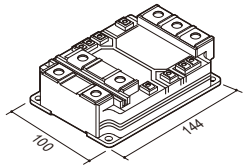
High Speed Modules

		外形寸法 [mm]	Ic	1200V High Speed IGBT
Chopper	 M249		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

High Power Modules HPnC

2-Pack

外形寸法 [mm]



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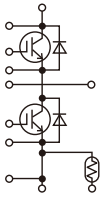
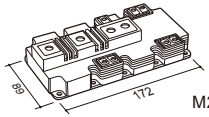
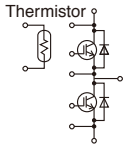
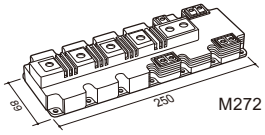
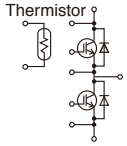
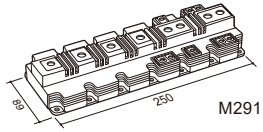
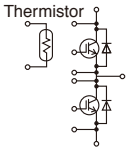
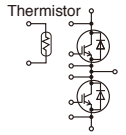


Ic	1700V X series	3300V X series
450A		2MBI450XYF330-50*
1000A	2MBI1000XYF170-50*	
1200A	2MBI1200XYF170-50*	

* 開発中

PrimePACK™

2-Pack

外形寸法 [mm]	Ic	1200V X series	1200V V series Low switching loss	1200V V series Soft turn off	1700V X series Low switching loss	1700V V series Low switching loss	1700V V series Soft turn off
 M271 	600A		2MBI600VXA-120E-50				
			2MBI600VXA-120E-54				
	650A				2MBI650XXA170-50	2MBI650VXA-170E-50	
						2MBI650VXA-170E-54	
						2MBI650VXA-170EA-50	
						2MBI650VXA-170EA-54	
	900A	2MBI900XXA120P-50	2MBI900VXA-120E-50	2MBI900VXA-120P-50			
			2MBI900VXA-120E-54	2MBI900VXA-120P-54			
	1200A	2MBI1200XXE120P-50			2MBI1200XXE170-50		
 M272 	1000A				2MBI1000XXB170-50	2MBI1000VXB-170E-50	
						2MBI1000VXB-170E-54	
						2MBI1000VXB-170EA-50	
						2MBI1000VXB-170EA-54	
	1400A	2MBI1400XXB120P-50	2MBI1400VXB-120E-50	2MBI1400VXB-120P-50	2MBI1400XXB170-50	2MBI1400VXB-170E-50	2MBI1400VXB-170P-50
			2MBI1400VXB-120E-54	2MBI1400VXB-120P-54		2MBI1400VXB-170E-54	2MBI1400VXB-170P-54
	1800A	2MBI1800XXF120P-50			2MBI1800XXF170-50		
 M291  XXG  XRXG	1800A				2MBI1800XXG170-50		
	2400A	2MBI2400XRXG120-50*			2MBI2400XRXG170-50*		

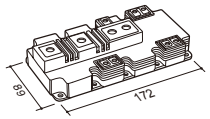
注 1：“ -54”：$V_{CE(sat)}$ 及び V_F のランクをラベルに表示
注 2：EA の付く型式は、ダイオードの負荷が厳しいアプリケーションに対応し、FWD を最適化したことにより、V_F および熱抵抗を低減。
注 3：PrimePACK™ は Infineon Technologies 社の登録商標です。
注 4：P の付く型式は Soft turn off タイプ

* 開発中

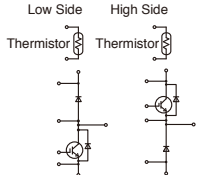
PrimePACK™

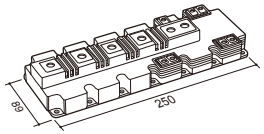
Chopper

外形寸法 [mm]



M271





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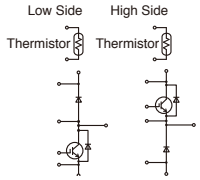
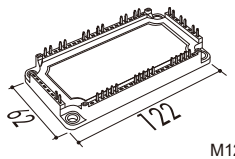
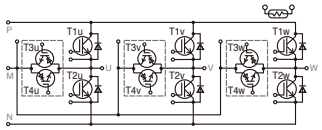
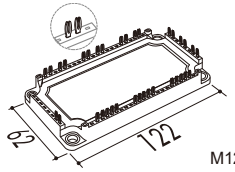
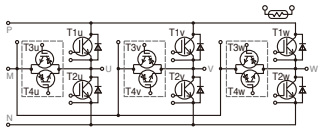
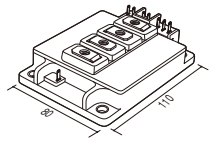
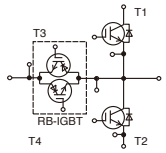
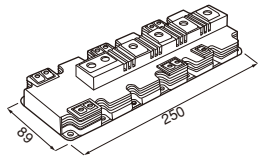
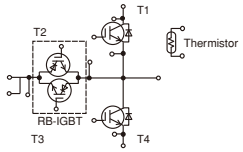


Ic	1200V		1700V	
	V series		V series	
	Low side configuration	High side configuration	Low side configuration	High side configuration
650A			1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
			1MBI650VXA-170EL-54	1MBI650VXA-170EH-54
900A	1MBI900VXA-120PD-50 *1	1MBI900VXA-120PC-50 *1		
	1MBI900VXA-120PD-54 *1	1MBI900VXA-120PC-54 *1		
1000A			1MBI1000VXB-170EL-50	1MBI1000VXB-170EH-50
			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

注 1：“ -54”：$V_{CE(sat)}$ 及び V_F のランクをラベルに表示
注 2：PrimePACK™ は Infineon Technologies 社の登録商標です。

*1 逆並列接続ダイオードの電流定格は 120A です。Boost/Buck chopper 回路にのみ適用願います。

Advanced T-type NPC 3-level Modules 外形寸法 [mm]

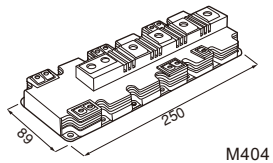
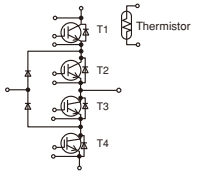
		Ic	600V V series	600V RB-IGBT	1200V V series	1200V RB-IGBT	1700V V series	1700V RB-IGBT
3 Phase With NTC, Solder pins	 M1203 	50A			12MBI50VN-120-50	600V		
		75A			12MBI75VN-120-50	600V		
		100A			12MBI100VN-120-50	600V		
3 Phase With NTC, Press fit pins	 M1202 	50A			12MBI50VX-120-50	600V		
		75A			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		

注：RB-IGBT は逆阻止（Reverse-Blocking）IGBT の略で，逆方向（エミッタ - コレクタ間）の耐圧を持った素子

*1 PCS インバータ専用

I-type NPC 3-level Module

外形寸法 [mm]

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

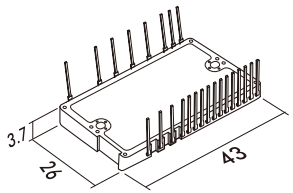
Small IPM (Intelligent Power Modules)

Built-in protection functions

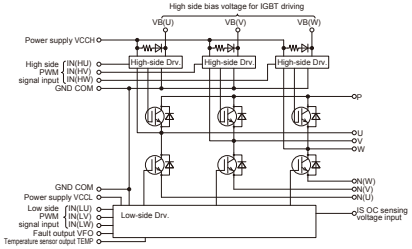
P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)
Temperature sensor output (Vtemp, out)

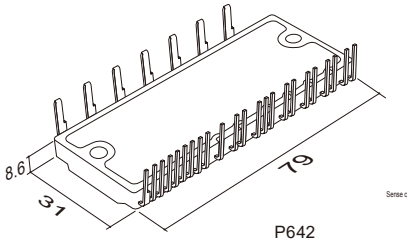
外形寸法 [mm]

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

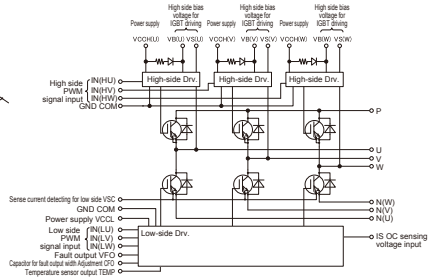


P633A





P642



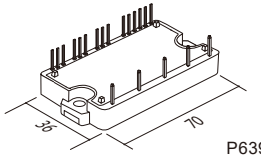
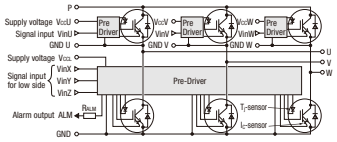
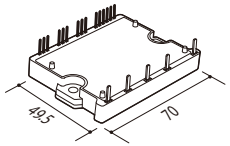
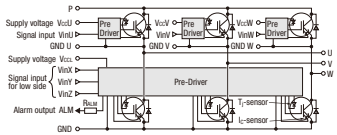
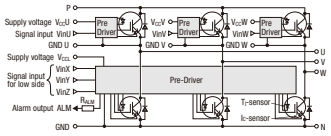
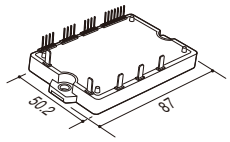
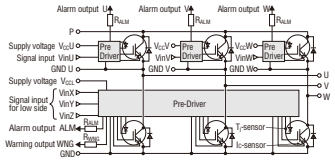
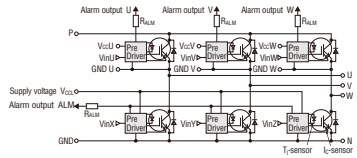
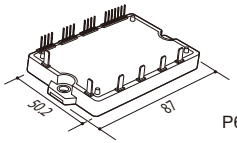
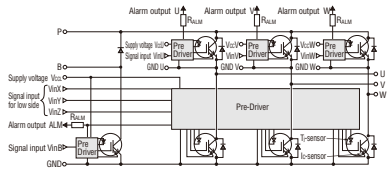
P-side fault status output (Alarm)	N-side fault status output (Alarm)	Under voltage protection (self shutdown)	Over current protection (self shutdown)	Overheating protection (self shutdown)	Temperature sensor output (Vtemp, out)	Ic	600 / 650V X series
✓	–	✓	✓	✓	–	10A	6MBP10XSA060-50
						15A	6MBP15XSA060-50
						20A	6MBP20XSA060-50
						30A	6MBP30XSA060-50
✓	✓	✓	✓	✓	–	10A	6MBP10XSC060-50
						15A	6MBP15XSC060-50
						20A	6MBP20XSC060-50
						30A	6MBP30XSC060-50
✓	–	✓	✓	✓	–	50A	6MBP50XTA065-50
						75A	6MBP75XTA065-50
✓	✓	✓	✓	✓	–	50A	6MBP50XTC065-50
						75A	6MBP75XTC065-50

IPM (Intelligent Power Modules)

Built-in protection functions

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

外形寸法 [mm]

			P-side	N-side	Under voltage	Over current	Overheating	Ic	650V X series	600V V series	1200V X series	1200V V series
Without Brake-Chopper	 P639		✓	✓	✓	✓	–	10A			6MBP10XRHA120-50	
								20A	6MBP20XRHA065-50			
								30A	6MBP30XRHA065-50			
	 P629	・6MBP□XAA□-50  ・6MBP□VAA□-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			
	 P626	・6MBP□XBA□-50  ・6MBP□VBA□-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			
With Brake-Chopper	 P644	・7MBP□XJN□-50 	✓	✓	✓	✓	✓	25A			7MBP25XJN120-50	
								35A			7MBP35XJN120-50	
								50A	7MBP50XJN065-50			
								75A	7MBP75XJN065-50			

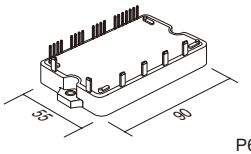
IPM (Intelligent Power Modules)

Built-in protection functions

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

外形寸法 [mm]

		Ic	650V X series	600V V series	1200V X series	1200V V series
Without Brake-Chopper	・6MBP□XFN□-50 ・6MBP□VFN□-50	25A				6MBP25VFN120-50
		35A				6MBP35VFN120-50
		50A		6MBP50VFN060-50	6MBP50XFN120-50	6MBP50VFN120-50
		75A		6MBP75VFN060-50		
		100A	6MBP100XFN065-50	6MBP100VFN060-50		
With Brake-Chopper	・7MBP□XFN□-50 ・7MBP□VFN□-50	25A				7MBP25VFN120-50
		35A				7MBP35VFN120-50
		50A		7MBP50VFN060-50	7MBP50XFN120-50	7MBP50VFN120-50
		75A		7MBP75VFN060-50		
		100A	7MBP100XFN065-50	7MBP100VFN060-50		
Without Brake-Chopper		25A			6MBP25XGA120-50*	
		35A			6MBP35XGA120-50*	
		50A	6MBP50XGA065-50*		6MBP50XGN120-50	
		75A	6MBP75XGA065-50*		6MBP75XGN120-50	
		100A	6MBP100XGN065-50			
		150A	6MBP150XGN065-50			



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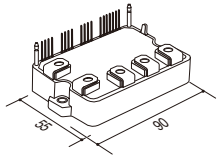

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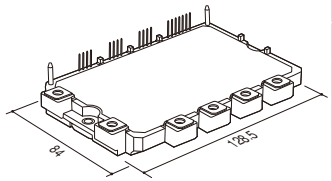
* 開発中

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)

外形寸法 [mm]



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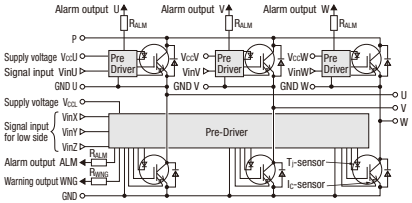
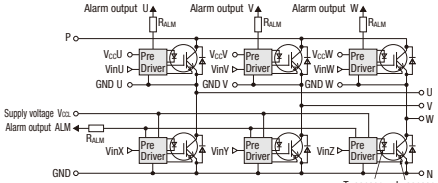
Without Brake-Chopper

・6MBP□XDA□-50
・6MBP□XDN□-50

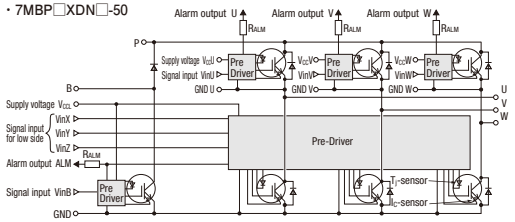


・6MBP□VDA□-50
・6MBP□VDN□-50

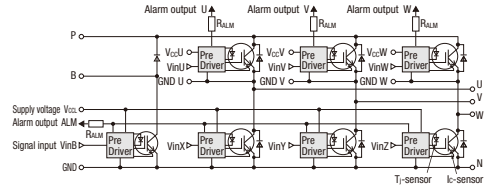


With Brake-Chopper

・7MBP□XDA□-50
・7MBP□XDN□-50



・7MBP□VDA□-50
・7MBP□VDN□-50



	Ic	650V X series	600V V series	1200V X series	1200V V series
Without Brake-Chopper	25A				6MBP25VDA120-50
	35A				6MBP35VDA120-50
	50A		6MBP50VDA060-50	6MBP50XDA120-50	6MBP50VDA120-50
					6MBP50VDN120-50
	75A		6MBP75VDA060-50	6MBP75XDA120-50	6MBP75VDA120-50
				6MBP75XDN120-50	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			
With Brake-Chopper	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			

✓ ✓ ✓ ✓ ✓

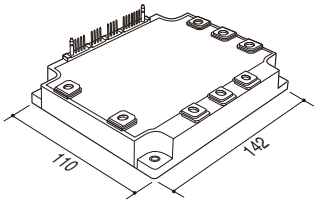
注：本ページで VDN, XDN の付く型式は低熱抵抗バージョン

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)

外形寸法 [mm]



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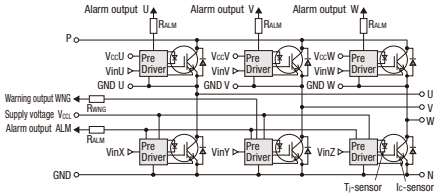
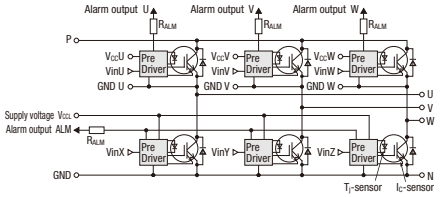
Without Brake-Chopper

・6MBP□XEN□-50

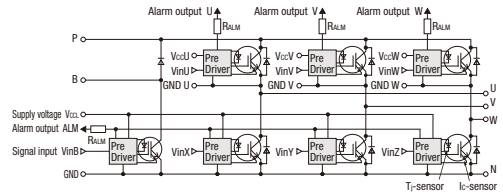


・6MBP□VEA□-50

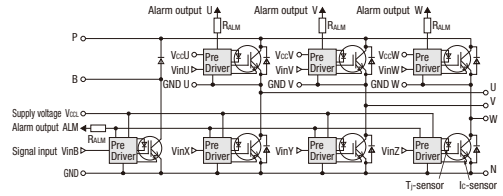


With Brake-Chopper

・7MBP□XEN□-50



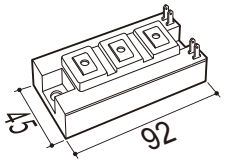
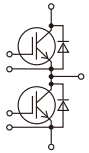
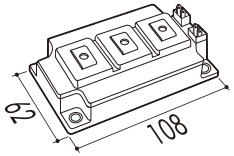
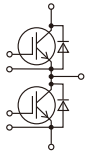
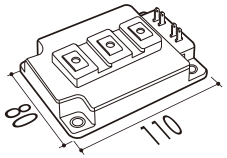
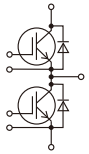
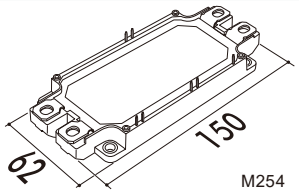
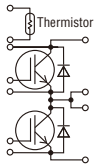
・7MBP□VEA□-50



							650V	600V	1200V	
						Ic	X series	V series	X series	V series
						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			
✓	✓	✓	✓	✓						
						100A			7MBP100XEN120-50	7MBP100VEA120-50
						150A			7MBP150XEN120-50	7MBP150VEA120-50
						200A	7MBP200XEN065-50	7MBP200VEA060-50	7MBP200XEN120-50	7MBP200VEA120-50
						300A	7MBP300XEN065-50	7MBP300VEA060-50	7MBP300XEN120-50	
						400A		7MBP400VEA060-50		
						450A	7MBP450XEN065-50			
✓	✓	✓	✓	✓						

Hybrid SiC Modules

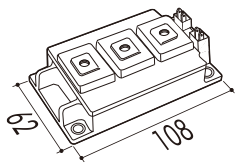
外形寸法 [mm]

			Ic	1200V V series	1200V VW series	1700V V series
2-Pack	 M274		200A	2MSI200VAB-120-53		
	 M276		200A		2MSI200VWAH-120-53	
			300A	2MSI300VAH-120C-53	2MSI300VWAH-120-53	
	 M277		400A			2MSI400VAE-170-53
	 M254		300A	2MSI300VAN-120-53		
			450A	2MSI450VAN-120-53		
			600A	2MSI600VAN-120-53		

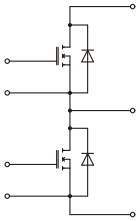
All-SiC Modules

2-Pack

外形寸法 [mm]



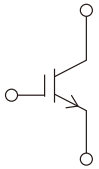
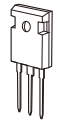
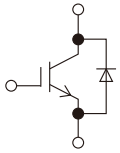
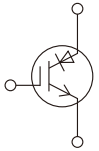
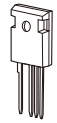
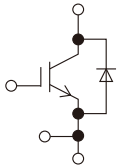
M295



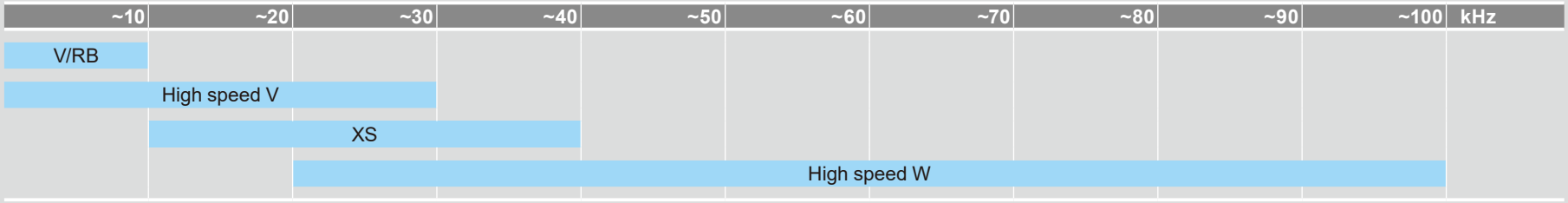
Ic	1200V	1700V
	2G SiC-MOSFET Modules with 1G SiC-SBD	
200A		2CSI200DAHE170-50*
300A	2CSI300DAHE120-50*	2CSI300DAHE170-50*
400A		2CSI400DAHE170-50*
450A	2CSI450DAHE120-50*	
600A	2CSI600DAHE120-50*	

* 開発中

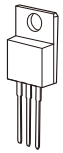
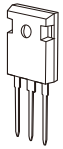
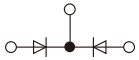
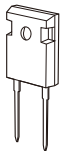
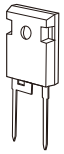
Discrete IGBT

		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					
	 RB-IGBT	85A			FGW85N60RB						
TO-247-4		40A							FGZ40N120WE		
		50A					FGZ50N65WD				
							FGZ50N65WE				
		75A				FGZ75XS65C	FGZ75N65WE	FGZ75XS120C			

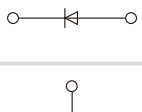
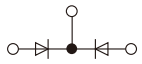
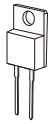
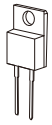
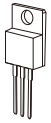
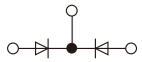
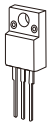
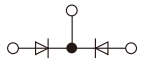
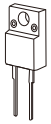
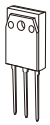
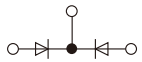
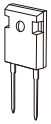
シリーズ別推奨動作周波数



Rectifier Diode

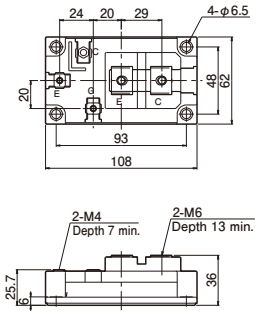
	I_F	600V		650V	1200V	
		Ultra Fast Recovery Diodes			Soft Recovery Fast Recovery Diodes	
TO-220 	15A	FDRP15S60L				
	25A	FDRP25S60L				
TO-247 (Type:B)  	40A					FDRW40C120J
	50A		FDRW50C60L			
	60A					FDRW60C120J
	70A		FDRW70C60L			
TO-247-2 (Type:A) 	60A			FDRW60T65L		
	75A	FDRW75T60L				
TO-247-2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

SiC-SBD

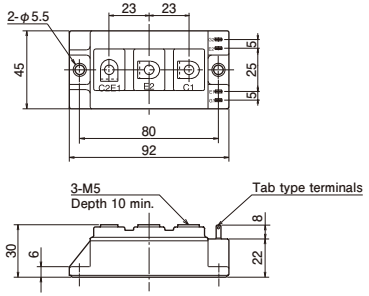
		650V		1200V	
	I_F	SiC-SBD 2G	SiC-SBD 1G	SiC-SBD 2G	SiC-SBD 1G
T-Pack(s)  	10A		FDCC10S65		
	20A				
	25A		FDCC25S65		
	20A		FDCC20C65		
TO-220-2 (Type:A) 	6A	FDC2PT06S65			
	8A	FDC2PT08S65			
	10A	FDC2PT10S65			
TO-220-2 (Type:B) 	10A		FDCP10S65		
	25A		FDCP25S65		
TO-220  	20A		FDCP20C65		
TO-220F  	20A		FDCA20C65		
TO-220F-2 	6A	FDC2AT06S65			
	8A	FDC2AT08S65			
	10A	FDC2AT10S65	FDCA10S65		
	18A				FDCA18S120
	25A		FDCA25S65		
TO-247 (Type:A)  	10A		FDCY10S65		
	18A				FDCY18S120
	25A		FDCY25S65		
	20A		FDCY20C65		
	36A				FDCY36C120
	50A		FDCY50C65		
TO-247-2 (Type:A) 	18A				FDCW18T120
	20A			FDC2WT20S120	
	40A			FDC2WT40S120	

外形図 mm

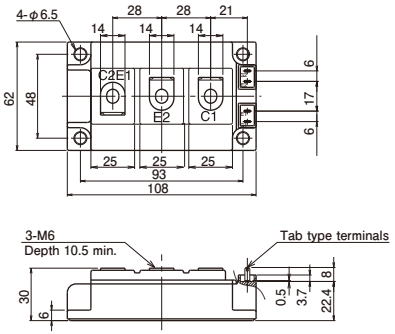
M153



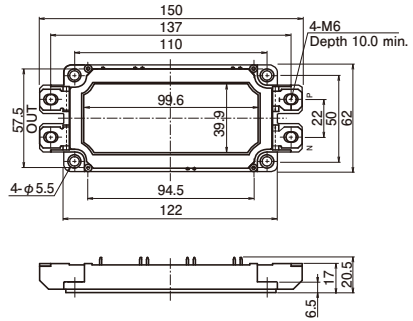
M233



M249

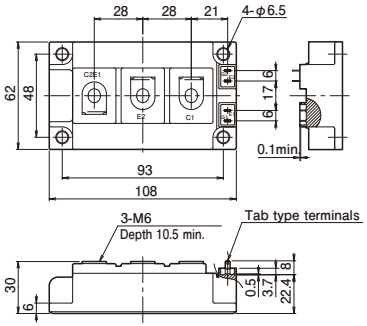


M254

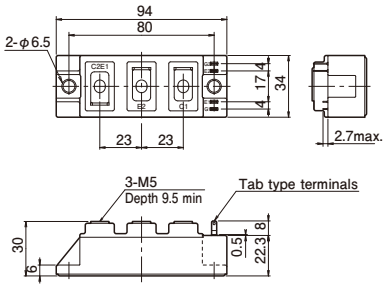


Solder pins

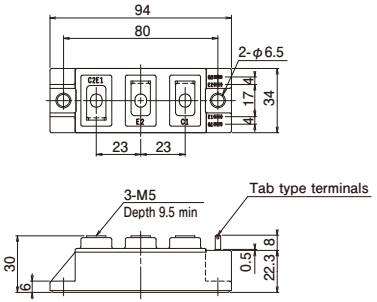
M259



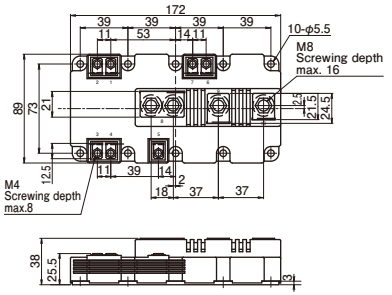
M262



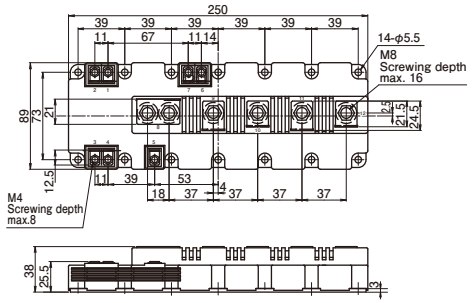
M263



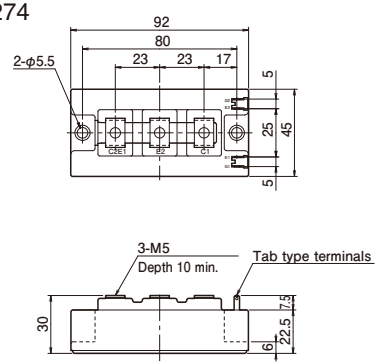
M271



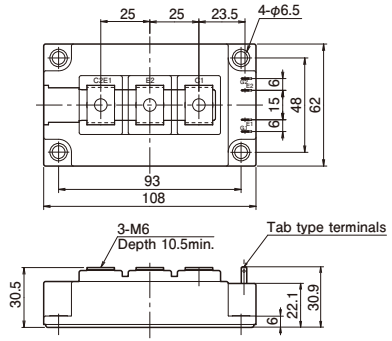
M272



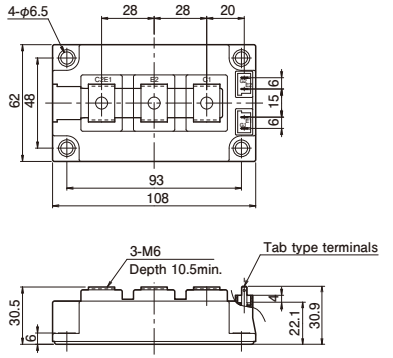
M274



M275

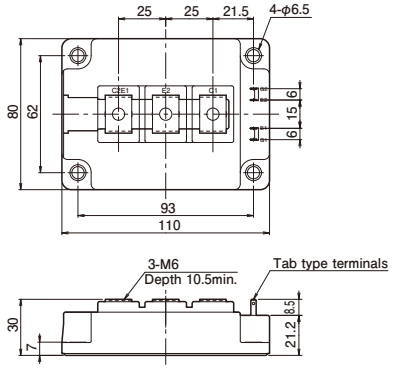


M276

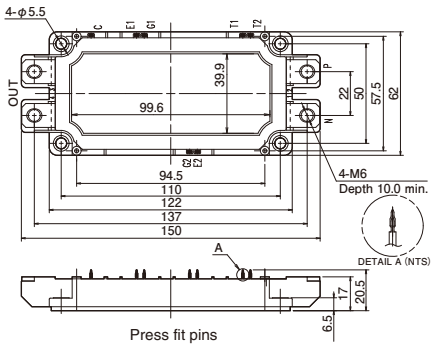


外形図 mm

M277

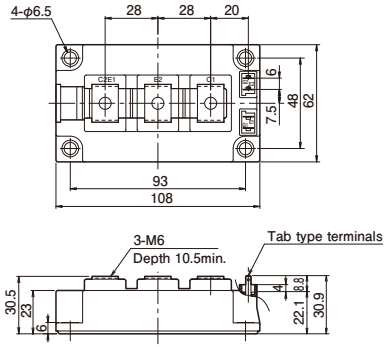


M282

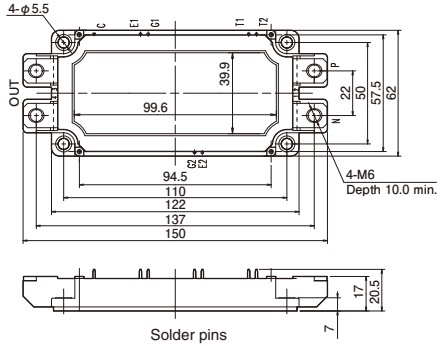


Press fit pins

M283

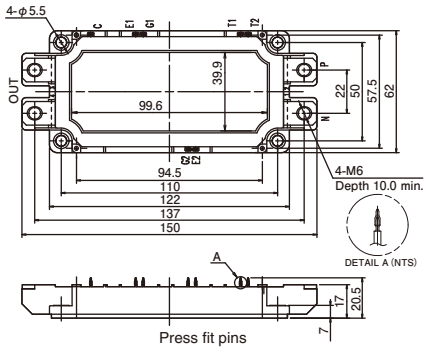


M285



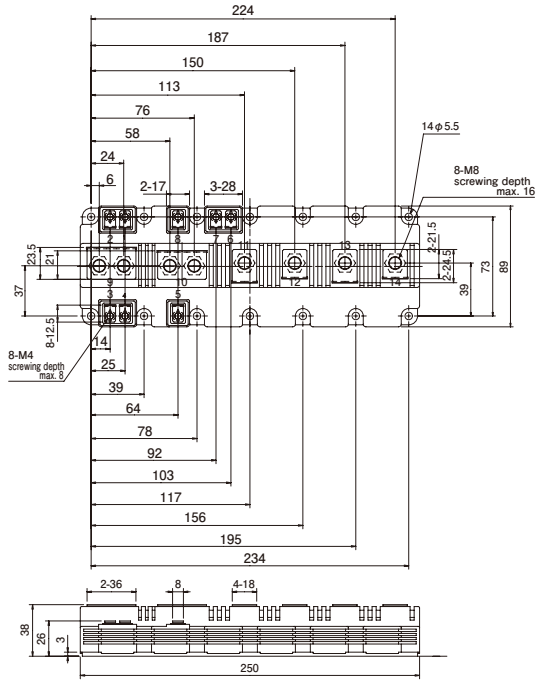
Solder pins

M286

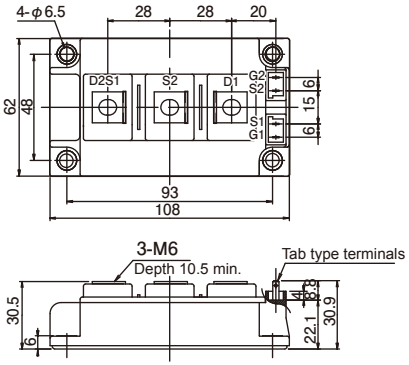


Press fit pins

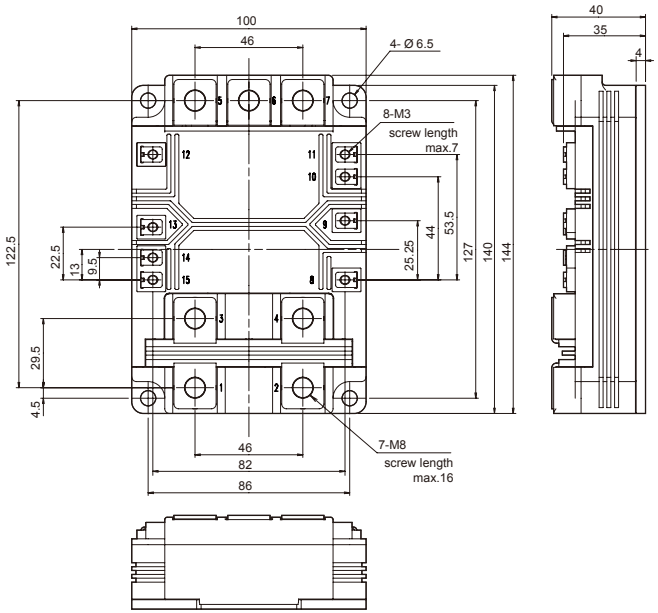
M291



M295

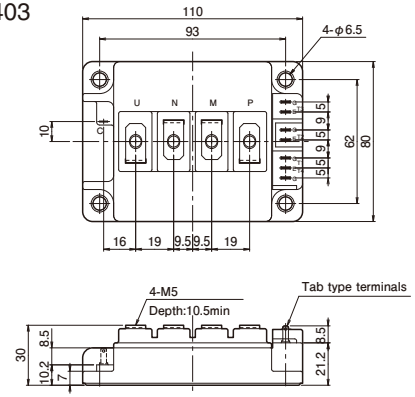


M297

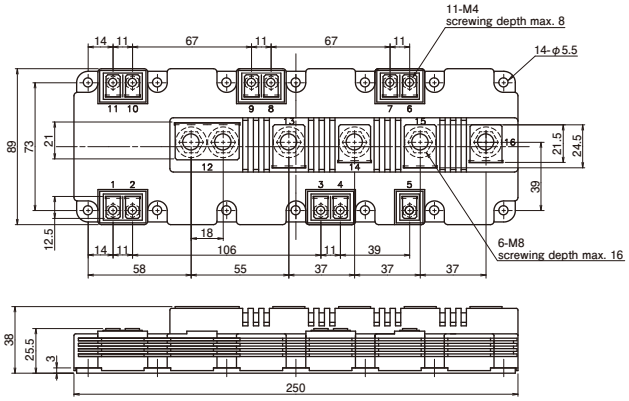


外形図 mm

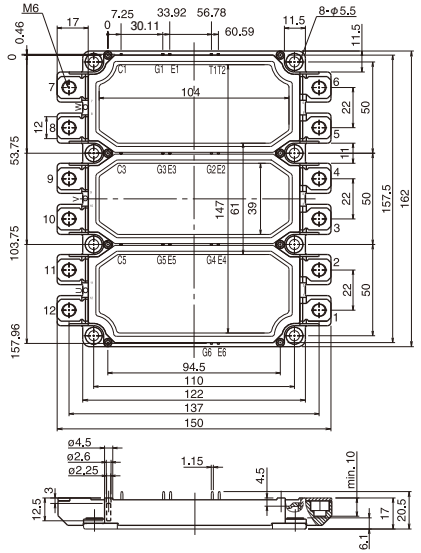
M403



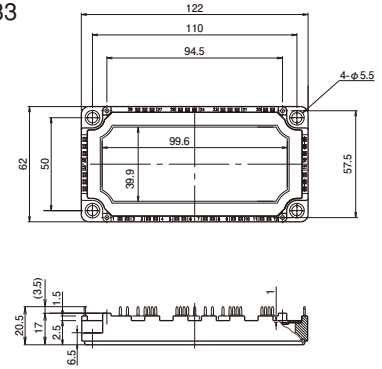
M404



M629

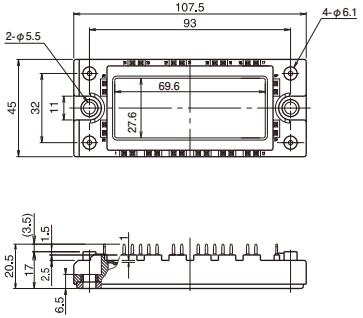


M633



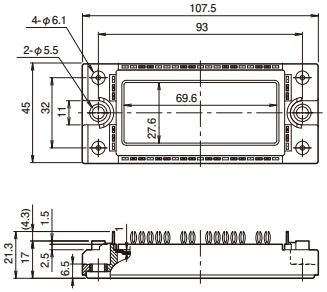
Solder pins

M636



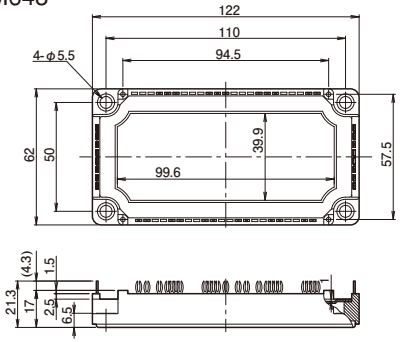
Solder pins

M647



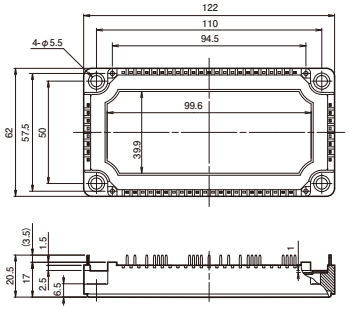
Press fit pins

M648



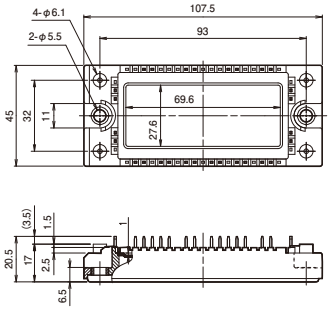
Press fit pins

M668



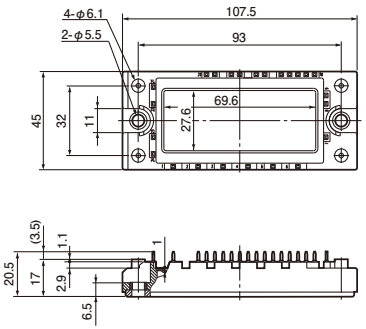
Solder pins

M669



Solder pins

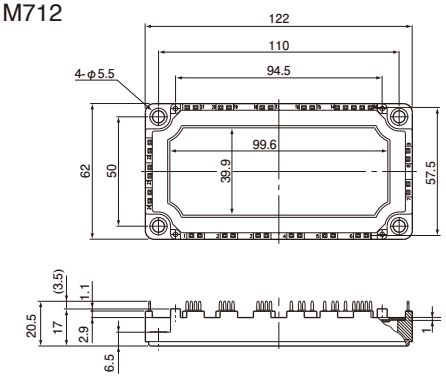
M711



Solder pins

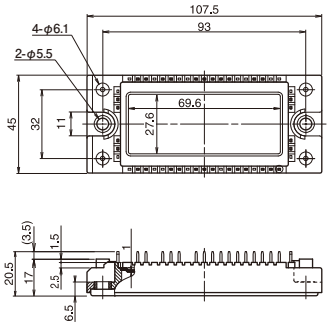
外形図 mm

M712



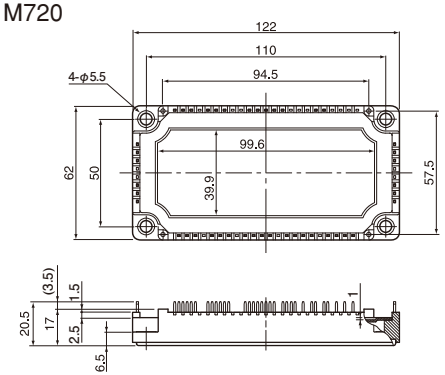
Solder pins

M719



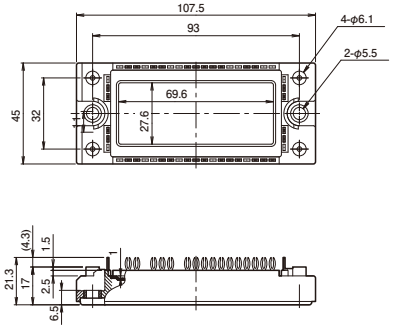
Solder pins

M720



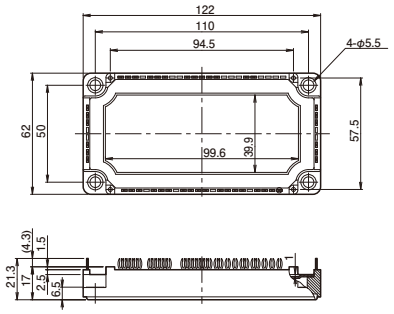
Solder pins

M721



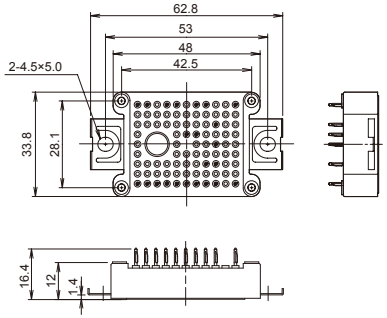
Press fit pins

M722



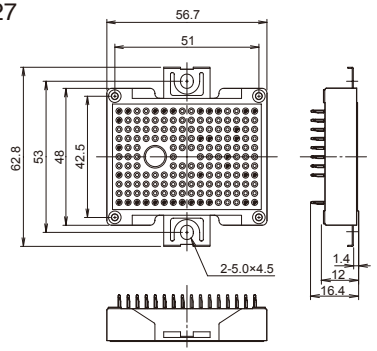
Press fit pins

M726



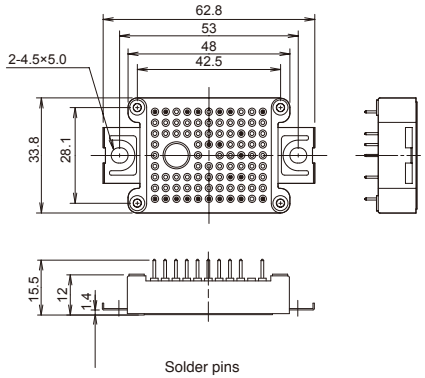
Press fit pins

M727



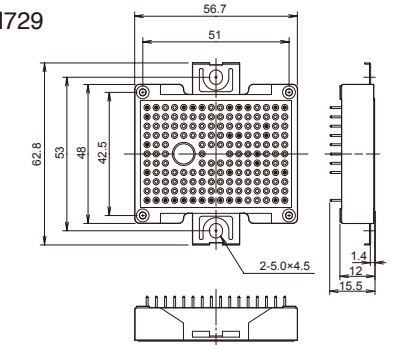
Press fit pins

M728



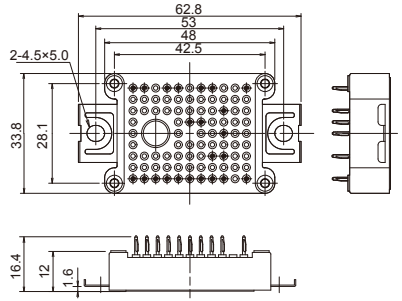
Solder pins

M729



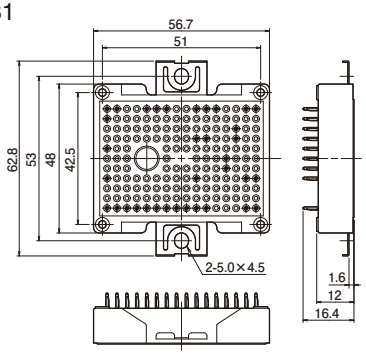
Solder pins

M730



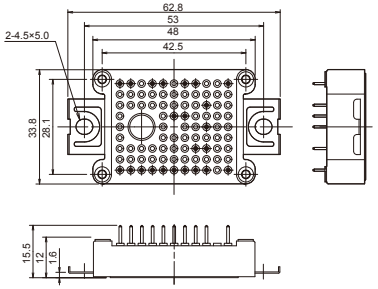
Press fit pins

M731



Press fit pins

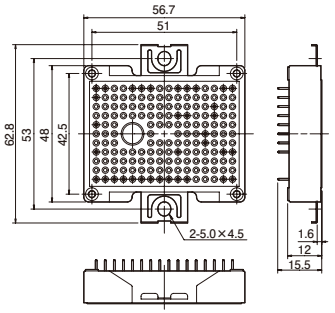
M732



Solder pins

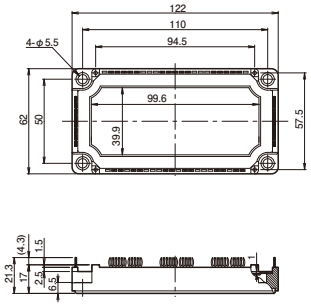
外形図 mm

M733



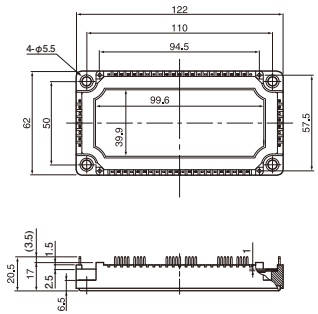
Solder pins

M1202



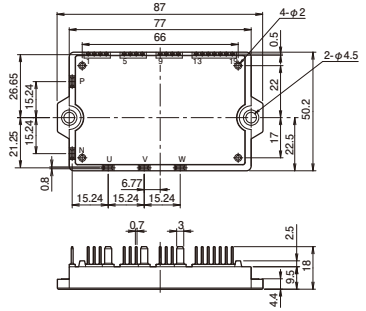
Press fit pins

M1203

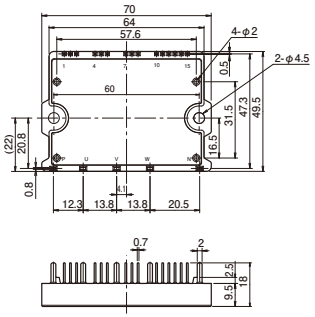


Solder pins

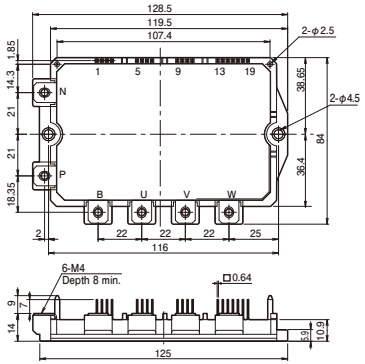
P626



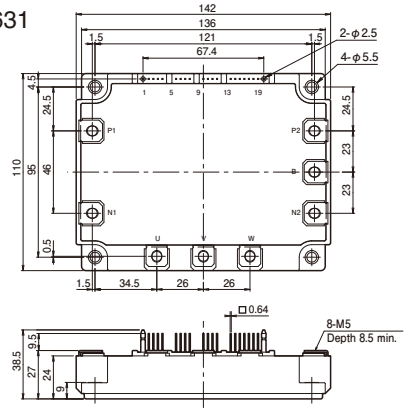
P629



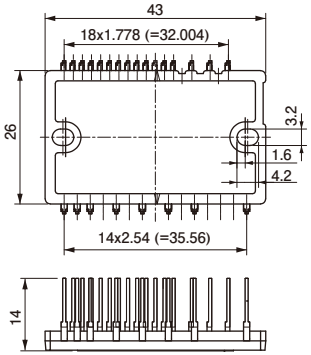
P630



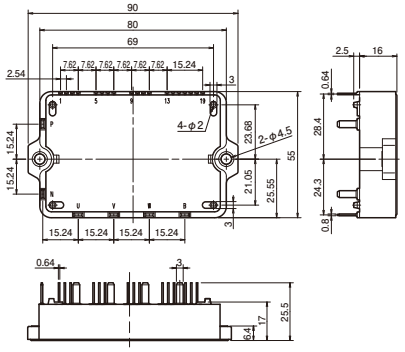
P631



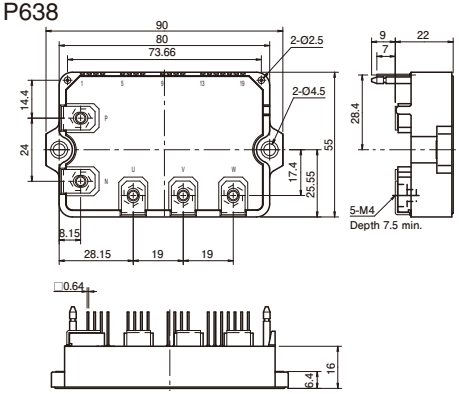
P633A



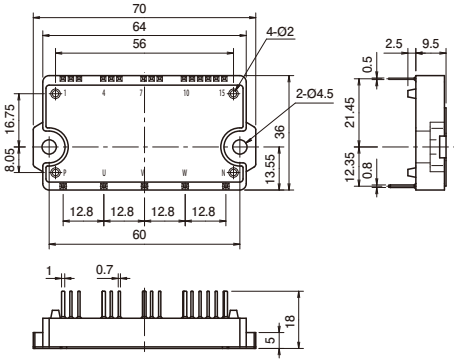
P636



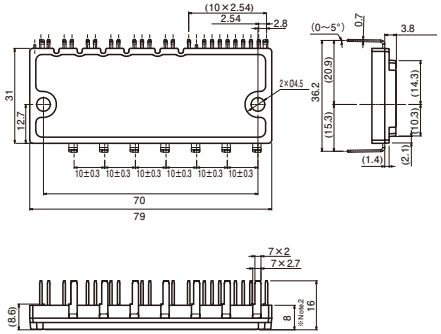
P638



P639

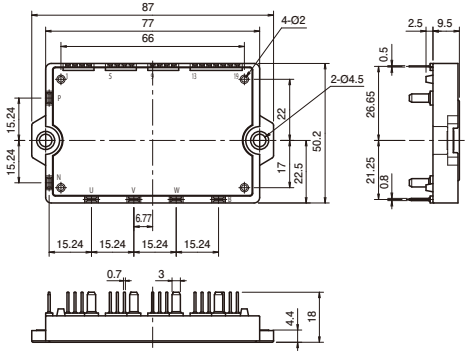


P642

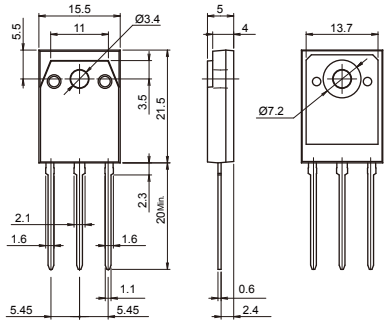


外形図 mm

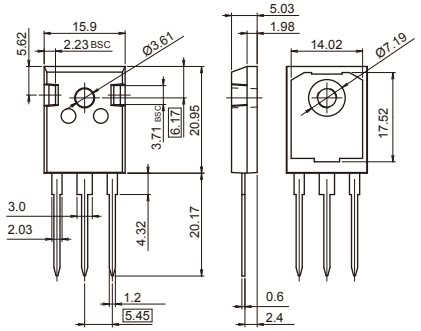
P644



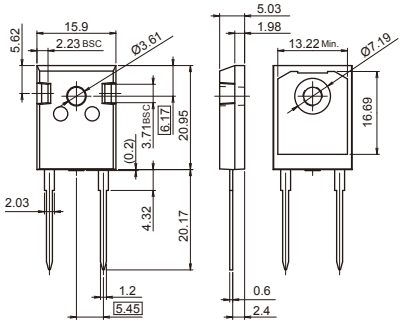
TO-247 (Type:A)



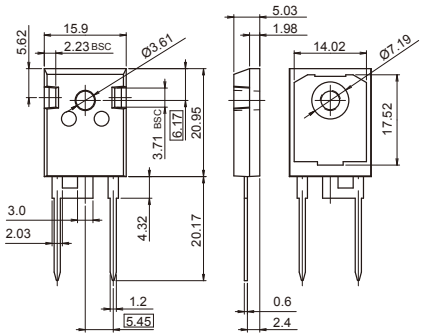
TO-247 (Type:B)



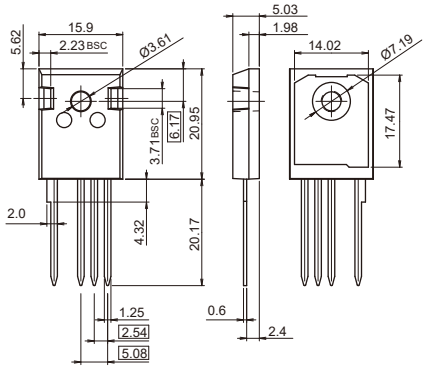
TO-247-2 (Type:A)



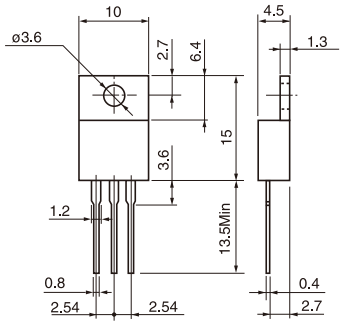
TO-247-2 (Type:B)



TO-247-4



TO-220



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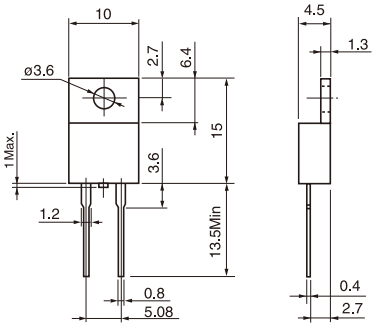

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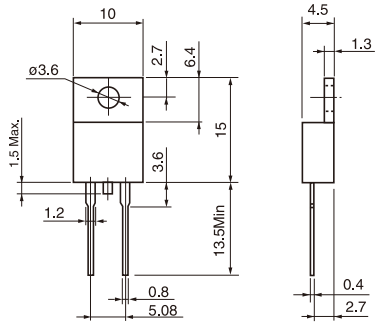
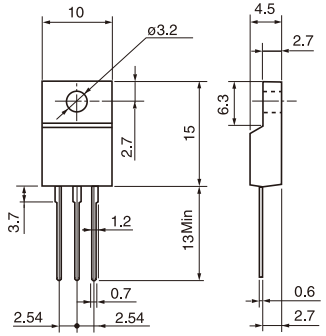
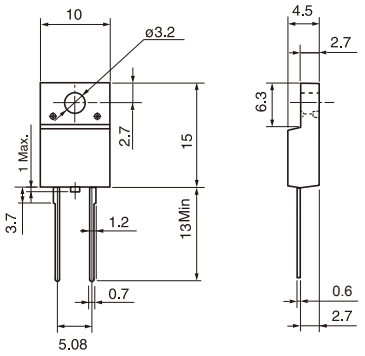


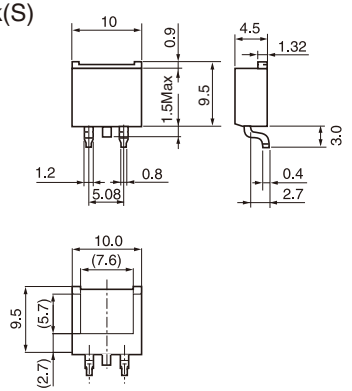
TO-220F



TO-220F-2



T-Pack(S)



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