

富士电机 功率半导体

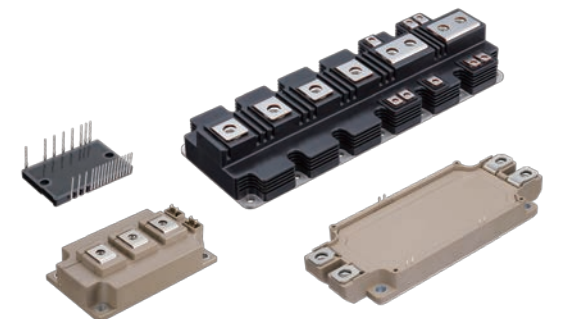
IGBT/SiC 器件选型手册



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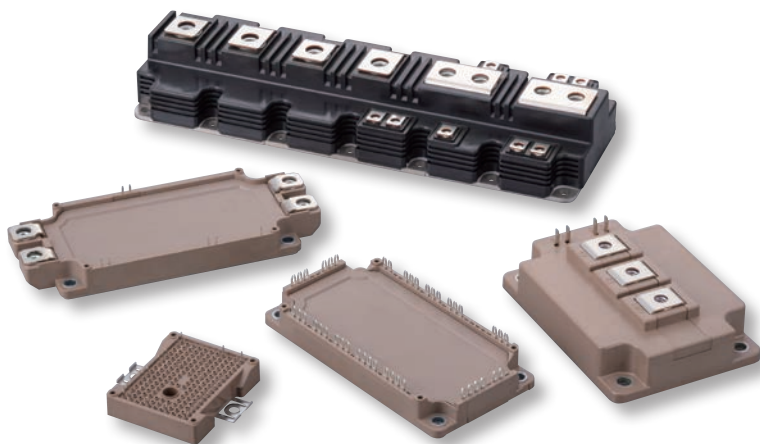
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注：PrimePACK™为Infineon Technologies 公司的注册商标。



25A2-C-0005a

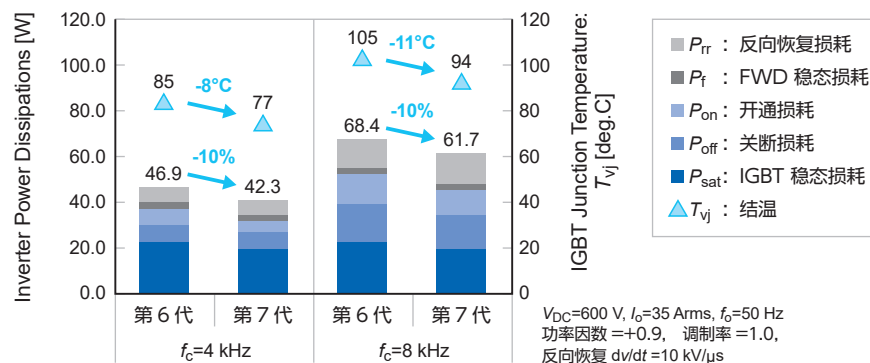
IGBT模块 X系列的优点



1. 低损耗

对构成成本模块的 IGBT 元件以及二极管元件的厚度进行了减薄以及精细化处理, 使得元件的结构得到优化。因此, 与以往产品相比 (本公司第 6 代“V 系列”), 降低变频器运行时的电力损耗。

变频器损耗降低 10%, 芯片温度降低 11°C
(与第 6 代 V 系列 75A, $f_c=8\text{kHz}$ 相比)

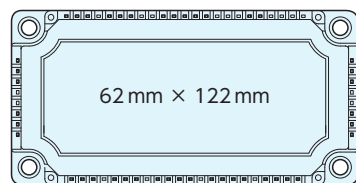


2. 小型化

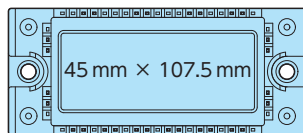
运用新开发的绝缘板, 提高模块的散热性能。结合降低电力损耗的特点, 可以抑制发热, 因此与以往产品相比, 尺寸减小 36%, 实现了小型化。

适用例)

36% 小型化



75A (第 6 代 V 系列)



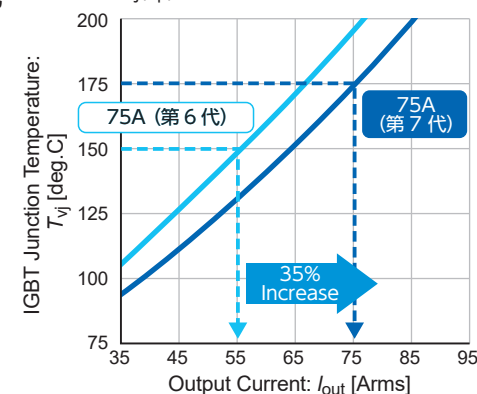
75A (第 7 代 X 系列)

3. 高温动作

高可靠性高耐热的封装, 加上优化的芯片, 实现了 175°C 连续动作。

- 与以往产品相比可进一步提高 35% 的输出
- 提高 ΔT_{vj} 功率循环寿命 (过去的 2 倍)

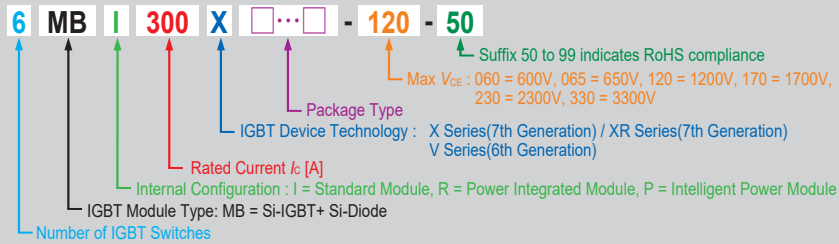
通过实现 $T_{vj(op)}=175^\circ\text{C}$, 进一步提高了输出



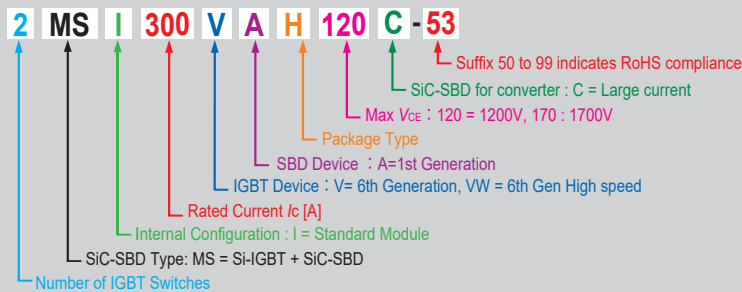
开关数		页次	内部结构						上限电压 Max V _{CE} (V _{RRM})						额定电流					
			功率模块 Standard Module	Power Integrated Module	Intelligent Power Module	3-level Module	Discrete IGBT	Discrete SiC-SBD	600V	650V	1200V	1700V	2300V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>600A ≤1200A	>1200A
7	Small PIM	9		✓					✓	✓	✓				✓					
	PIM EconoPIM™	10		✓					✓	✓	✓				✓	✓				
		11							✓	✓	✓				✓	✓				
6	6-Pack EconoPACK™ EconoPACK™+	12	✓						✓		✓				✓	✓	✓			
		13						✓		✓	✓		✓	✓	✓	✓				
2	Standard 2-Pack	14	✓						✓	✓	✓	✓				✓	✓	✓		
		15								✓	✓						✓	✓	✓	
1	Standard 1-Pack	16	✓								✓	✓					✓	✓	✓	
	Chopper	16	✓						✓		✓					✓	✓	✓		
1,2	HPnC	17	✓									✓	✓	✓				✓	✓	
	PrimePACK™	18,19	✓								✓	✓						✓	✓	✓
4,12	T/I-type NPC 3-level	20				✓			✓		✓	✓			✓	✓	✓	✓	✓	
6,7	Small IPM IPM	21							✓	✓					✓	✓				
		22,23							✓	✓	✓				✓	✓				
		24			✓				✓	✓	✓				✓	✓	✓			
		25						✓	✓	✓				✓	✓	✓				
2	Hybrid SiC Module	26	✓								✓	✓					✓	✓		
	All-SiC Module	27	✓								✓	✓					✓	✓		
1	Discrete IGBT	28					✓		✓	✓	✓				✓	✓				
—	SiC-SBD	29						✓		✓	✓				✓					

注：EconoPIM™, EconoPACK™, EconoPACK™+, PrimePACK™ 为 Infineon Technologies 公司的注册商标。

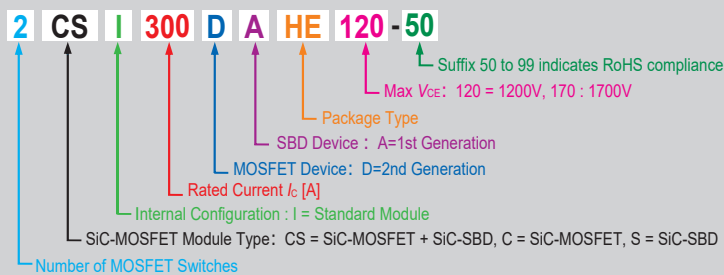
IGBT模块 产品型号



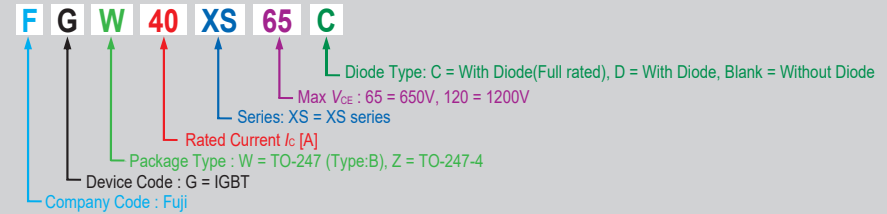
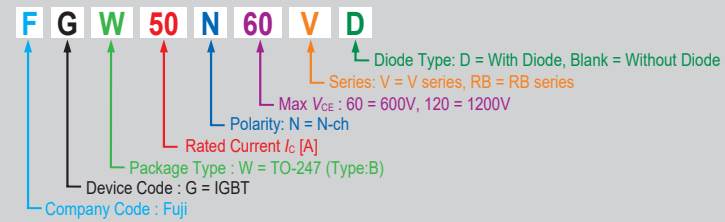
搭载SiC-SBD的IGBT混合模块



All-SiC器件 产品型号

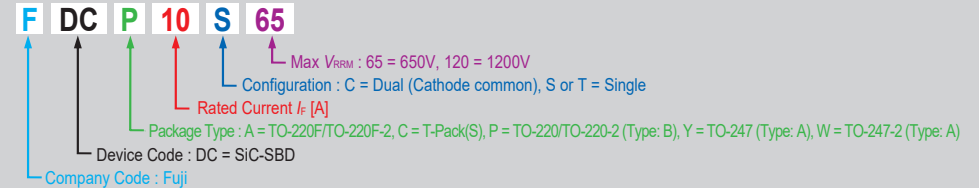


分立IGBT 产品型号

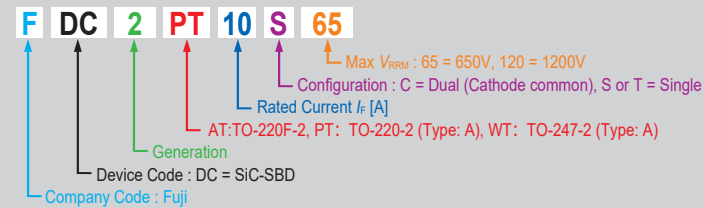


SiC肖特基势垒二极管 产品型号

•SiC-SBD 1G



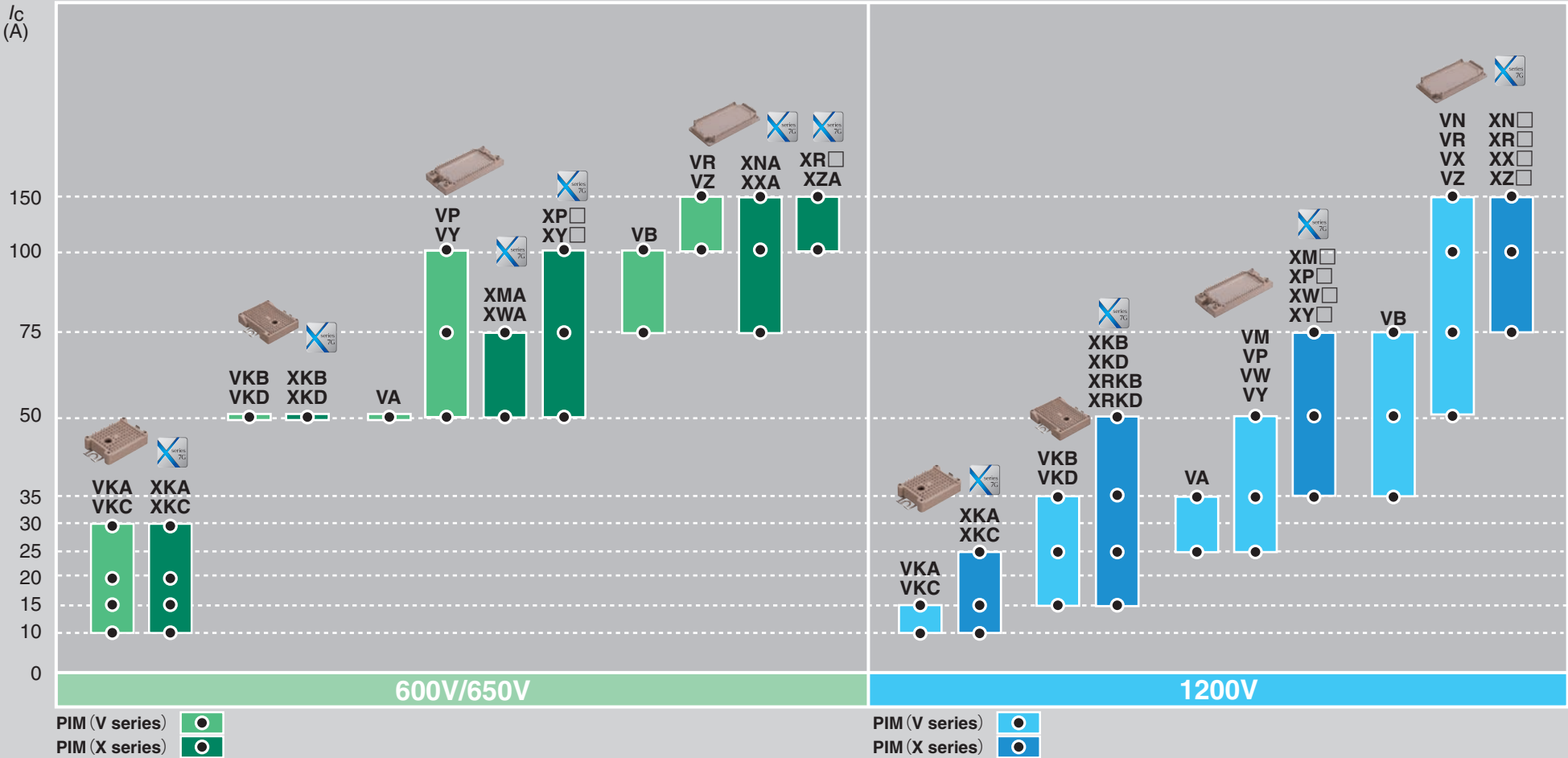
•SiC-SBD 2G



PIM (Power Integrated Modules) 产品系列图

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

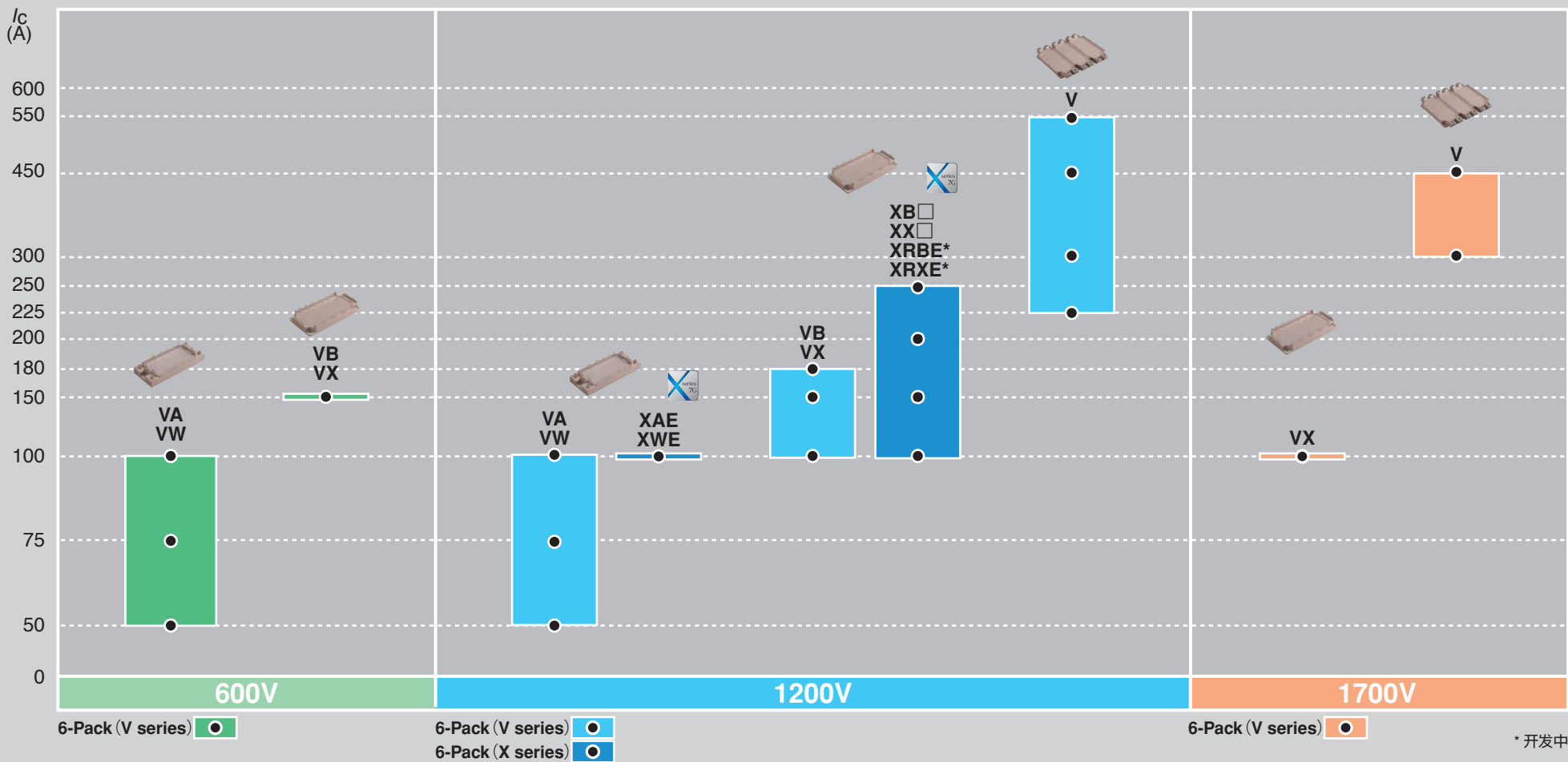
注：EconoPIM™ 为 Infineon Technologies 公司的注册商标。



6-Pack 产品系列图

6MBI	额定 电流 I _c	IGBT series & Package type				尺寸	页次	
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA	VW	XAE	XWE			
		VB	VX	XB□, XRBE	XX□, XRXE			
		V	-	-	-			
					45×107.5mm	12,13	EconoPACK™	
					62×122mm	12,13		
					150×162mm	13	EconoPACK™+	

注：EconoPACK™ 和 EconoPACK™+ 为 Infineon Technologies 公司的注册商标。

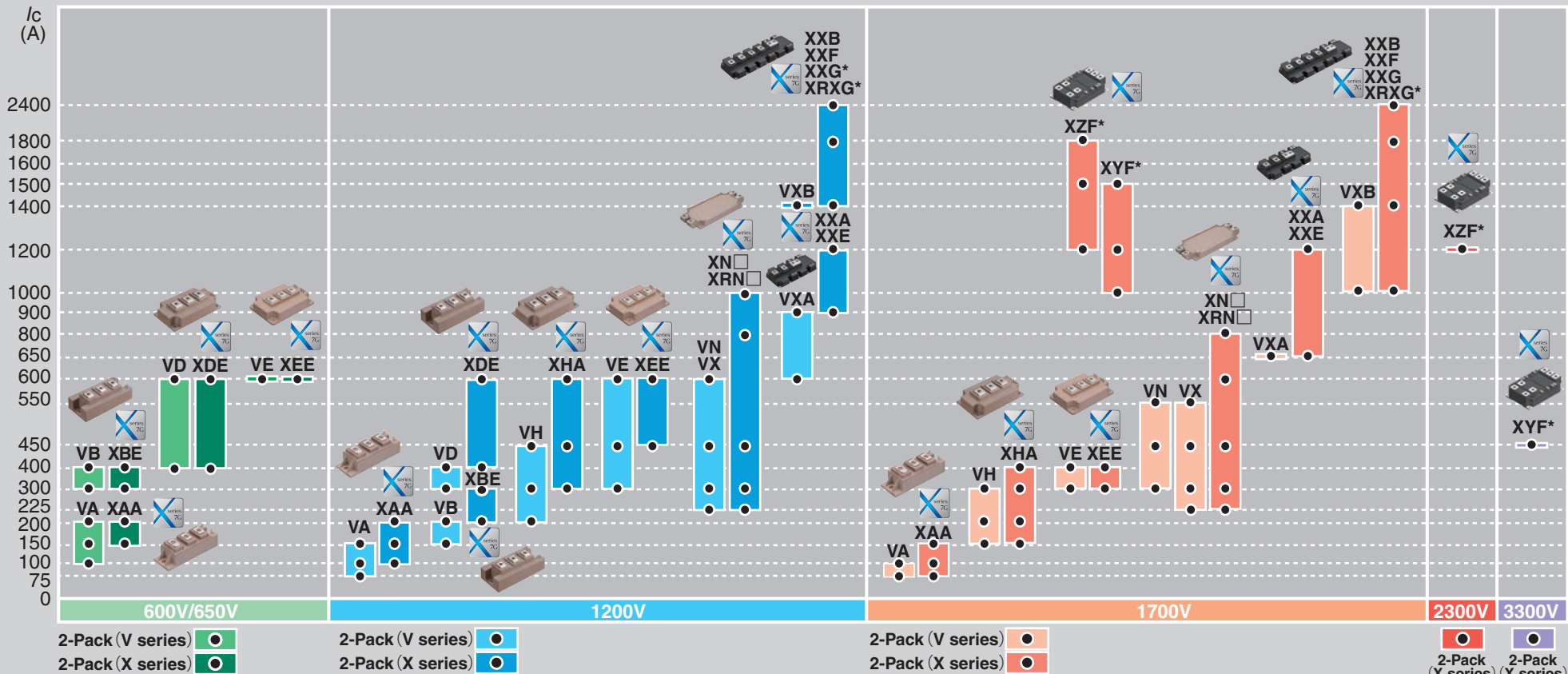


* 开发中

2-Pack 产品系列图

2MBI	额定 电流 I _c	IGBT series & Package type		尺寸	页次	
		V series	X series			
		VA	XAA			Standard Pack
		VB	XBE			
		VD, VH	XDE, XHA			
		VE	XEE			
		VN, VX	XN□, XRN□			Dual XT
		-	XYF, XZF			HPnC
		VXA	XXA, XXE			PrimePACK™
		VXB	XXB, XXF, XXG, XRXG			

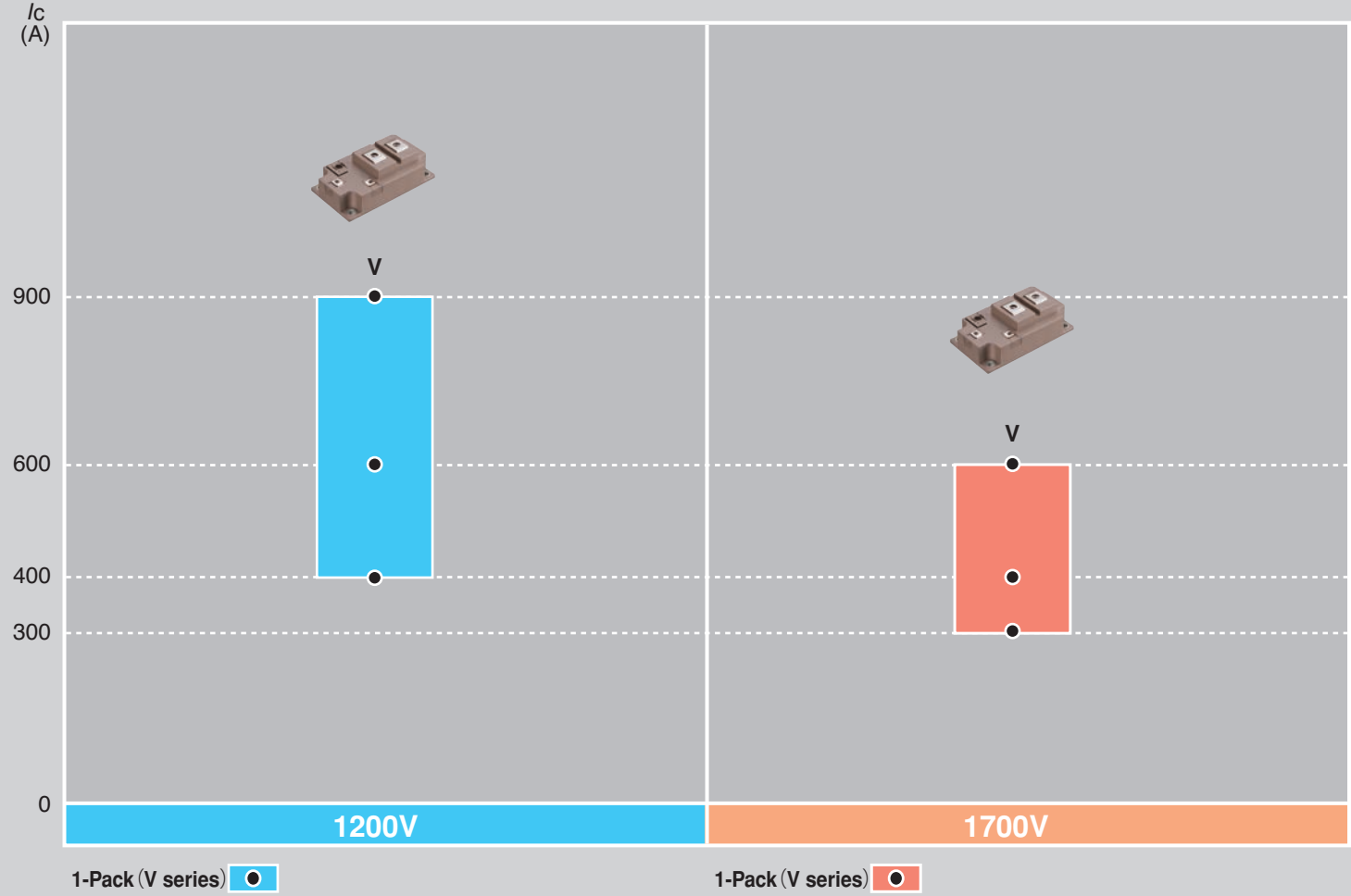
注：PrimePACK™ 为 Infineon Technologies 公司的注册商标。



* 开发中

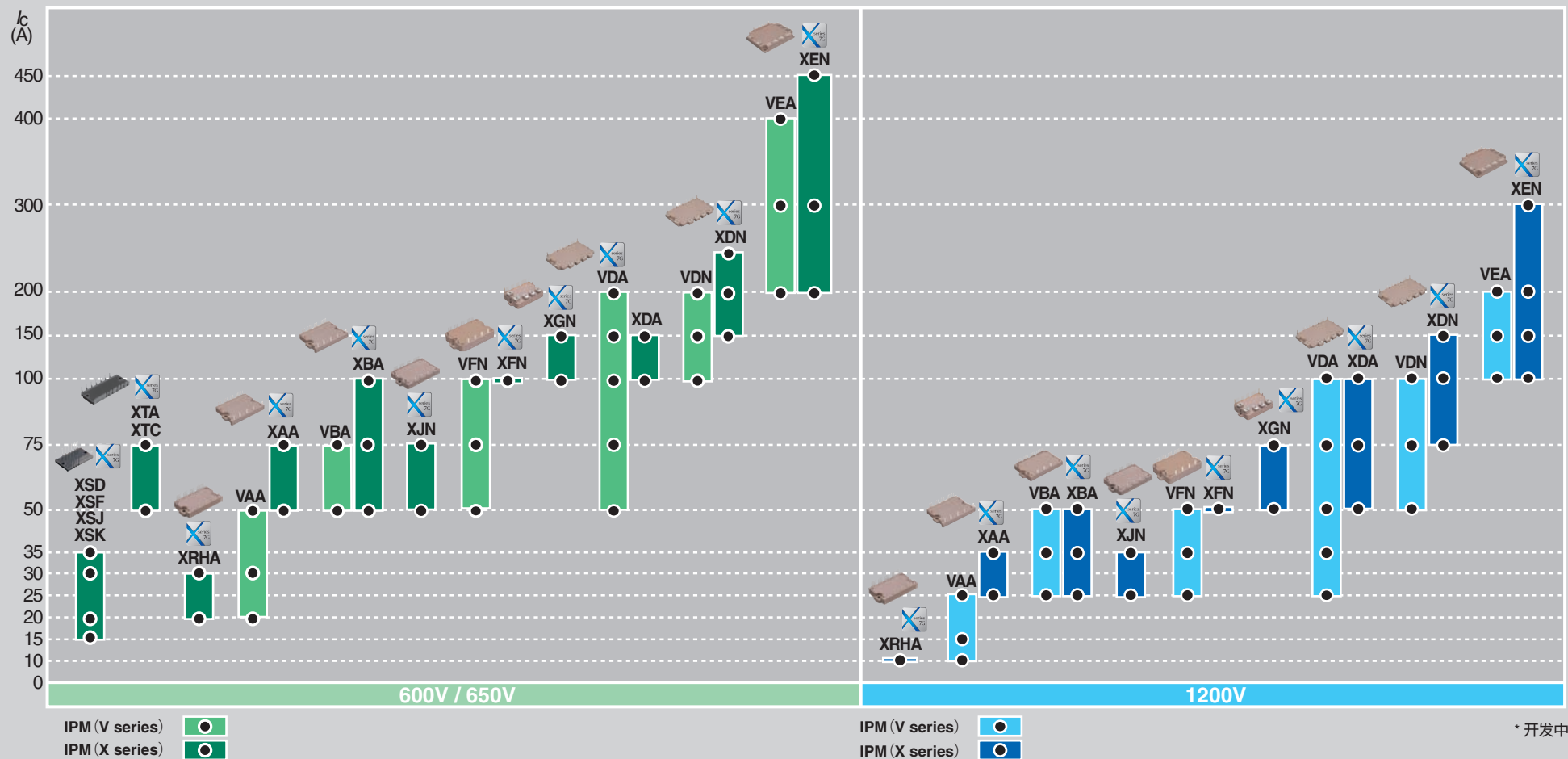
1-Pack 产品系列图

1MBI	额定 电流 I_c	IGBT series & Package type	尺寸	页次	
		V series			
		V	62×108mm	16	Standard Pack



IPM (Intelligent Power Modules) 产品系列图

6/7MBP 额定电流 I_c	IGBT series & Package type		尺寸	V series		X series		页次
	V series	X series		7 in 1	6 in 1	7 in 1	6 in 1	
—	—	XSD, XSF, XSJ, XSK	26×43mm	—	—	—	✓	21
—	—	XTA, XTC	31×79mm	—	—	—	✓	21
—	—	XRHA	36×70mm	—	—	—	✓	22
VAA	VAA	XAA	49.5×70mm	—	✓	—	✓	22
VBA	VBA	XBA	50.2×87mm	—	✓	—	✓	22
—	—	XJN	50.2×87mm	—	—	✓	—	22
VFN	VFN	XFN	55×90mm	✓	✓	✓	✓	23
—	—	XGN	55×90mm	—	—	—	✓	23
VDA, VDN	VDA, VDN	XDA, XDN	84×128.5mm	✓	✓	✓	✓	24
VEA	—	XEN	110×142mm	✓	✓	✓	✓	25

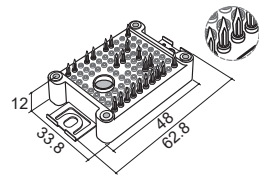


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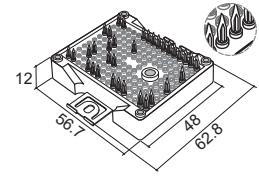
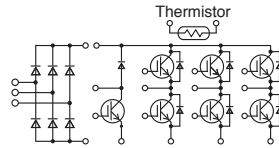
Small PIM (Power Integrated Modules)

外形尺寸 [mm]

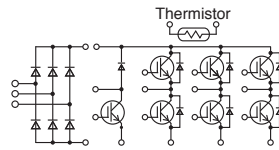
With NTC, Press fit pins



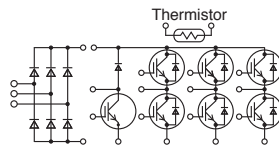
V: M726, X: M730



V: M727, X: M731

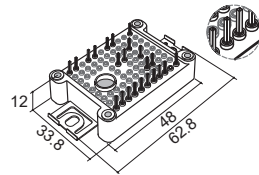


XKB, VKB

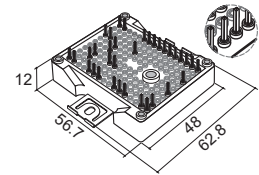
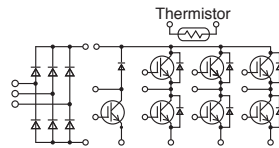


XRKB

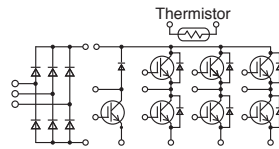
With NTC, Solder pins



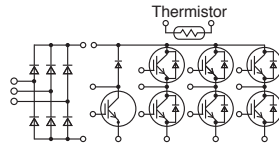
V: M728, X: M732



V: M729, X: M733



XKD, VKD

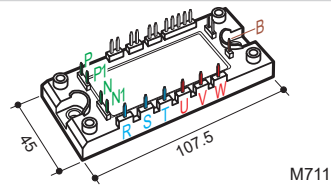


XRKD

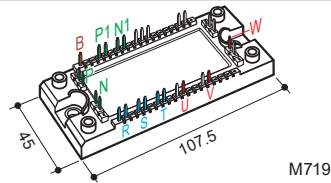
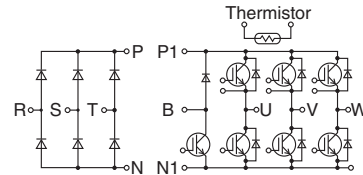
Ic	650V		600V		1200V	
	X series		V series		X series	
10A	7MBR10XKA065-50		7MBR10VKA060-50		7MBR10XKA120-50	
15A	7MBR15XKA065-50		7MBR15VKA060-50		7MBR15XKA120-50	
20A	7MBR20XKA065-50		7MBR20VKA060-50			
25A					7MBR25XKA120-50	
30A	7MBR30XKA065-50		7MBR30VKA060-50			
15A					7MBR15XKB120-50	
25A				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

PIM (Power Integrated Modules) EconoPIM™

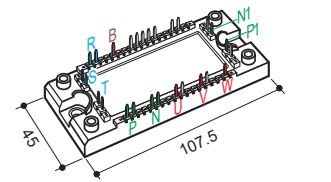
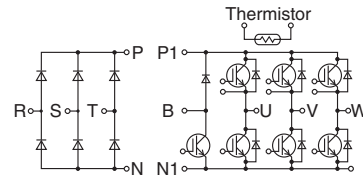
外形尺寸 [mm]



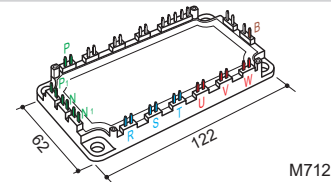
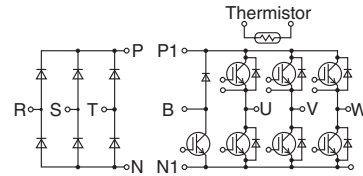
M711



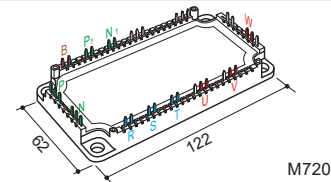
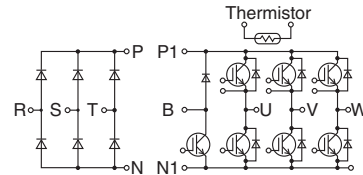
M719



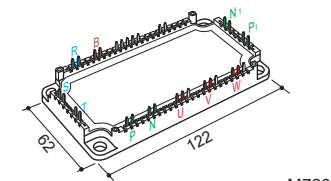
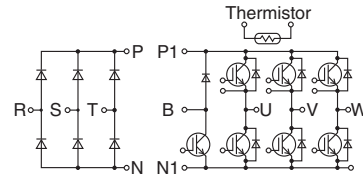
M719



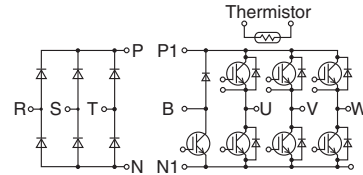
M712



M720



M720

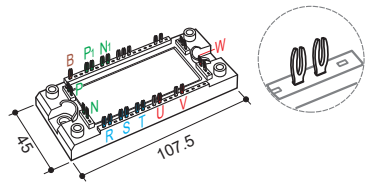


Ic	650V	600V	1200V	
	X series	V series	X series	V series
25A				7MBR25VA120-50
35A				7MBR35VA120-50
50A		7MBR50VA060-50		
25A				7MBR25VM120-50
35A			7MBR35XMA120-50	7MBR35VM120-50
50A	7MBR50XMA065-50		7MBR50XMA120-50	7MBR50VM120-50
75A	7MBR75XMA065-50		7MBR75XME120-50	
25A				7MBR25VP120-50
35A			7MBR35XPA120-50	7MBR35VP120-50
50A	7MBR50XPA065-50	7MBR50VP060-50	7MBR50XPA120-50	7MBR50VP120-50
			7MBR50XPE120-50	
75A	7MBR75XPA065-50	7MBR75VP060-50	7MBR75XPE120-50	
100A	7MBR100XPE065-50	7MBR100VP060-50		
35A				7MBR35VB120-50
50A				7MBR50VB120-50
75A		7MBR75VB060-50		7MBR75VB120-50
100A		7MBR100VB060-50		
50A				7MBR50VN120-50
75A	7MBR75XNA065-50		7MBR75XNA120-50	7MBR75VN120-50
100A	7MBR100XNA065-50		7MBR100XNA120-50	7MBR100VN120-50
150A	7MBR150XNA065-50		7MBR150XNE120-50	7MBR150VN120-50
50A				7MBR50VR120-50
75A			7MBR75XRA120-50	7MBR75VR120-50
			7MBR75XRE120-50	
100A	7MBR100XRA065-50	7MBR100VR060-50	7MBR100XRA120-50	7MBR100VR120-50
			7MBR100XRE120-50	
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	7MBR150XRE065-50			

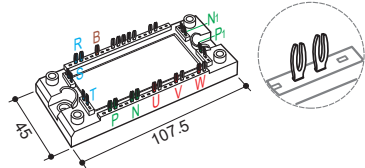
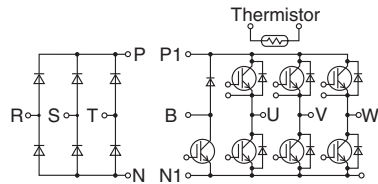
注：EconoPIM™ 为 Infineon Technologies 公司的注册商标。

PIM (Power Integrated Modules) EconoPIM™ 外形尺寸 [mm]

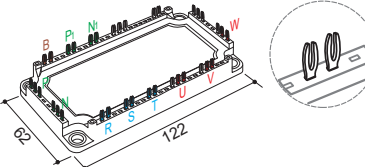
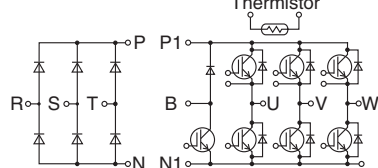
With NTC, Press fit pins, PIM



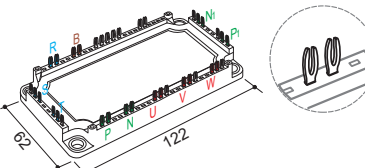
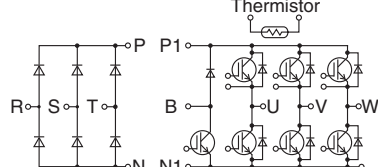
M721



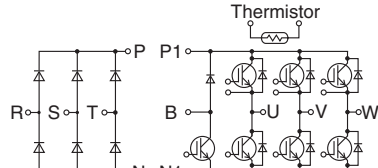
M721



M722



M722



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

注 1 : EconoPIM™ 为 Infineon Technologies 公司的注册商标。
注 2 : “-80” : 相对于 “-50” 将作为高导热体的 TIM (Thermal-Interface-Material) 涂布至模块底面。

6-Pack EconoPACK™

外形尺寸 [mm]

Ic

600V

V series

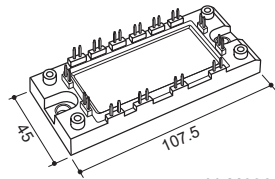
1200V

X series

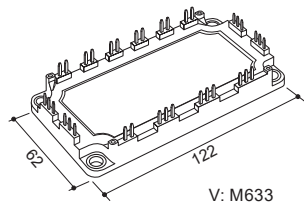
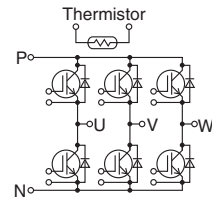


V series

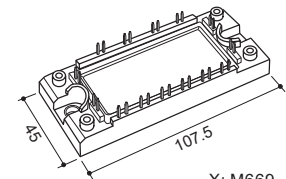
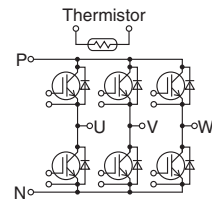
With NTC, Solder pins



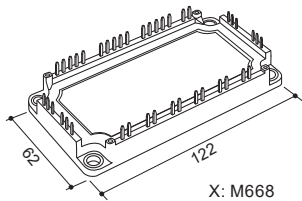
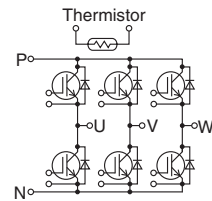
V: M636



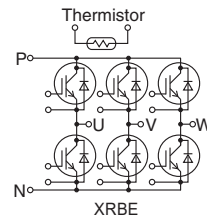
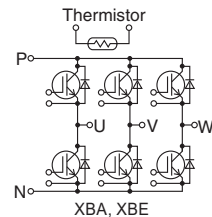
V: M633



X: M669



X: M668



600V	1200V
V series	X 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 使用低热阻封装

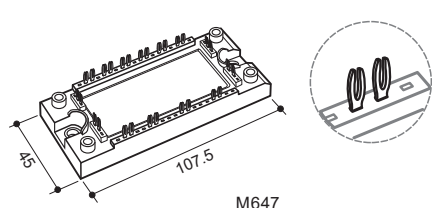
注 2 : EconoPACK™ 为 Infineon Technologies 公司的注册商标。

* 开发中

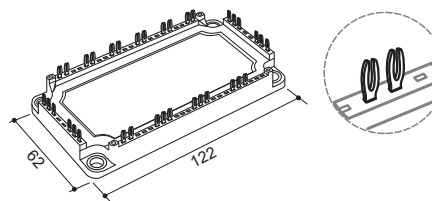
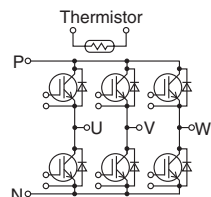
6-Pack EconoPACK™

外形尺寸 [mm]

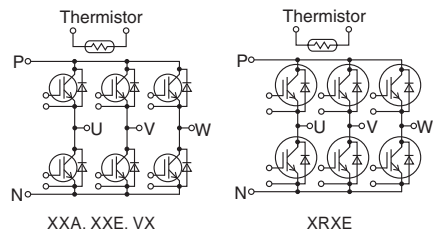
With NTC, Press fit pins



M647



M648



Ic	600V	X series	1200V	1700V
	V series		V series	V series
50A	6MBI50VW-060-50		6MBI50VW-120-50	
75A	6MBI75VW-060-50		6MBI75VW-120-50	
100A	6MBI100VW-060-50	6MBI100XWE120-50	6MBI100VW-120-50	
100A		6MBI100XXA120-50	6MBI100VX-120-50	6MBI100VX-170-50
			6MBI100VX-120-80	6MBI100VX-170-80
150A	6MBI150VX-060-50	6MBI150XXA120-50	6MBI150VX-120-50	
	6MBI150VX-060-80		6MBI150VX-120-80	
180A			6MBI180VX-120-50	
			6MBI180VX-120-80	
			6MBI180VX-120-55	
			6MBI180VX-120-81	
200A		6MBI200XXA120-50		
		6MBI200XXE120-50		
250A		6MBI250XRXE120-50*		

注 1: 6MBI180VX-120-55 使用低热阻封装

注 2: “-80”, “-81”: 相对于“-50”, “-55” 将作为高热体的 TIM (Thermal Interface Material) 涂布至模块底面。

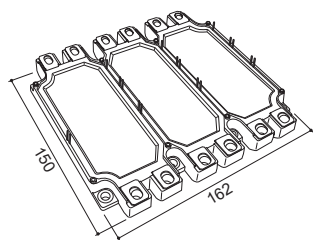
注 3: EconoPACK™ 为 Infineon Technologies 公司的注册商标。

* 开发中

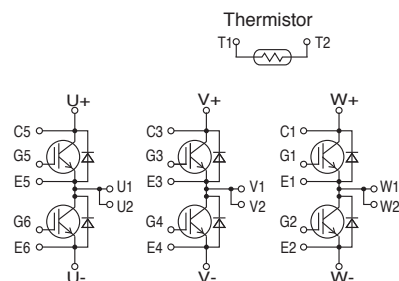
6-Pack EconoPACK™+

外形尺寸 [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
	6MBI300V-120-80	
450A	6MBI450V-120-50	6MBI450V-170-50
		6MBI450V-170-80
550A	6MBI550V-120-50	

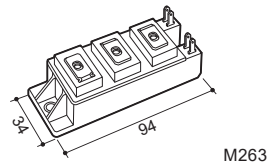
注 1: EconoPACK™+ 为 Infineon Technologies 公司的注册商标。

注 2: “-80”: 相对于“-50” 将作为高热体的 TIM (Thermal Interface Material) 涂布至模块底面。

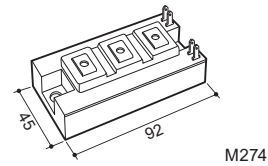
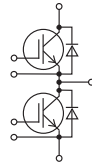
Standard 2-Pack

外形尺寸 [mm]

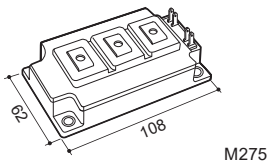
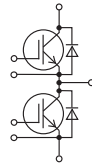
2-Pack



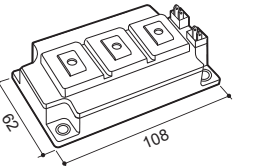
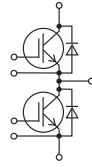
M263



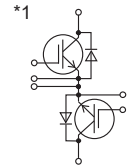
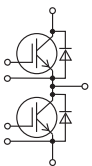
M274



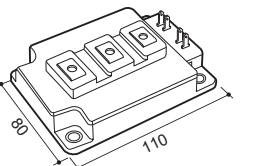
M275



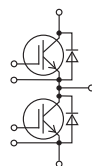
M276



2MBI450VH-120F
Common Emitter



M277



Ic	650V	600V	1200V	1700V
	X series	V series	X series	V series
75A				2MBI75VA-120-50
100A		2MBI100VA-060-50	2MBI100XAA120-50	2MBI100VA-120-50
150A	2MBI150XAA065-50	2MBI150VA-060-50	2MBI150XAA120-50	2MBI150VA-120-50
200A	2MBI200XAA065-50	2MBI200VA-060-50	2MBI200XAA120-50	2MBI200VA-120-50
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 2MBI400VD-060-80	2MBI400XDE120-50	2MBI400VD-120-50
600A	2MBI600XDE065-50	2MBI600VD-060-50 2MBI600VD-060-80	2MBI600XDE120-50	
150A				2MBI150XHA170-50
200A				2MBI150VH-170-80
300A			2MBI300XHA120-50	2MBI300VH-170-50
400A				2MBI300VH-170-80
450A			2MBI450XHA120-50	2MBI450VH-120-50
600A			2MBI600XHA120-50	2MBI600VH-120-50
300A				2MBI300VE-120-50
400A				2MBI400VE-120-50
450A			2MBI450XEE120-50	2MBI450VE-120-50
600A	2MBI600XEE065-50	2MBI600VE-060-50 2MBI600VE-060-80*	2MBI600XEE120-50	2MBI600VE-120-50

注：“-80”：相对于“-50”将作为高导热体的 TIM (Thermal Interface Material) 涂布至模块底面。

* 开发中

Standard 2-Pack

外形尺寸 [mm]

Ic

1200V

1700V

X series



V series

V series With
SiN substrate *1

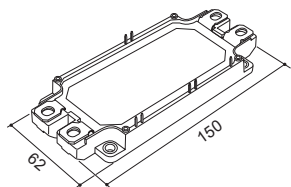
X series



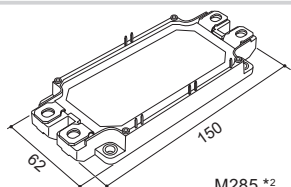
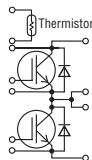
V series

V series With
SiN substrate *1

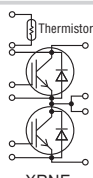
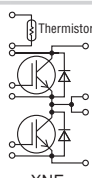
With NTC, Solder pins



M254



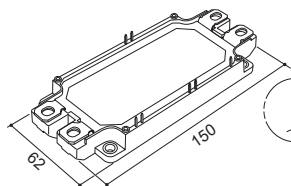
M285 *2



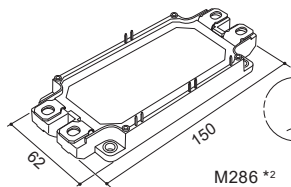
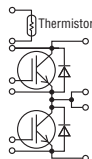
XNE

XRNE

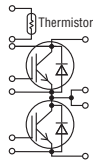
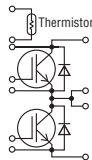
With NTC, Press fit pins



M282



M286 *2



XNF

XRNF

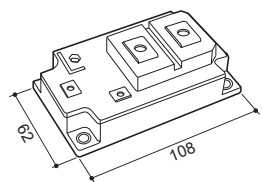
	X series	V series	V series With SiN substrate *1	X series	V series	V series With SiN substrate *1
225A	2MBI225XNA120-50	2MBI225VN-120-50 2MBI225VN-120-80	2MBI225VN-120S-80	2MBI225XNA170-50		
300A	2MBI300XNA120-50	2MBI300VN-120-50 2MBI300VN-120-80	2MBI300VN-120S-80	2MBI300XNA170-50	2MBI300VN-170-50 2MBI300VN-170-80	
450A	2MBI450XNA120-50	2MBI450VN-120-50 2MBI450VN-120-80	2MBI450VN-120S-80	2MBI450XNA170-50	2MBI450VN-170-50 2MBI450VN-170-80	
550A						2MBI550VN-170-50 2MBI550VN-170-80
600A	2MBI600XNG120-50		2MBI600VN-120-50 2MBI600VN-120-80	2MBI600XNG170-50		
600A	2MBI600XNE120-50			2MBI600XNE170-50		
800A	2MBI800XNE120-50			2MBI800XRNE170-50		
1000A	2MBI1000XRNE120-50					
225A	2MBI225XNB120-50	2MBI225VX-120-50 2MBI225VX-120-80		2MBI225XNB170-50	2MBI225VX-170-50 2MBI225VX-170-80	
300A	2MBI300XNB120-50	2MBI300VX-120-50 2MBI300VX-120-80		2MBI300XNB170-50	2MBI300VX-170-50 2MBI300VX-170-80	
450A	2MBI450XNB120-50	2MBI450VX-120-50 2MBI450VX-120-80		2MBI450XNB170-50	2MBI450VX-170-50 2MBI450VX-170-80	
550A						2MBI550VX-170-50 2MBI550VX-170-80
600A	2MBI600XNH120-50		2MBI600VX-120-50 2MBI600VX-120-80	2MBI600XNH170-50		
600A	2MBI600XNF120-50			2MBI600XNF170-50		
800A	2MBI800XNF120-50			2MBI800XRNF170-50		
1000A	2MBI1000XRNF120-50					

注：“-80”：相对于“-50”将作为高导热体的 TIM (Thermal Interface Material) 涂布至模块底面。

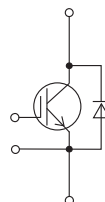
*1 低热阻封装

*2 高放热、高耐腐蚀性封装

Standard 1-Pack



M153



外形尺寸 [mm]

I_c

1200V

1700V

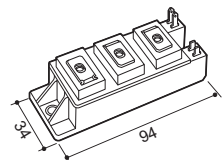
V series

V series
with AlN substrate

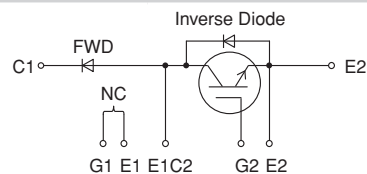
V series

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

Chopper



M262



外形尺寸 [mm]

I_c

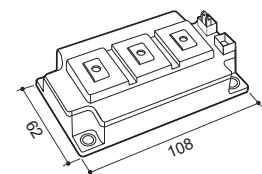
600V

1200V

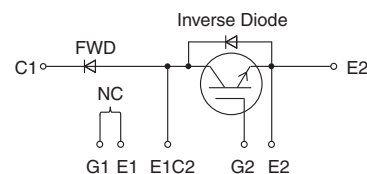
V series

V series

I _c	V series	V series
150A		1MBI150VA-120L-50
200A		1MBI200VA-120L-50
400A	1MBI400VH-060L-50	

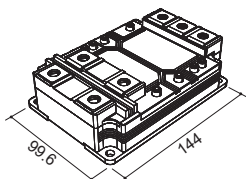


M283

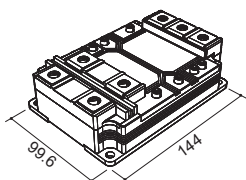
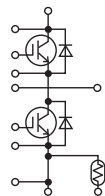


2-Pack

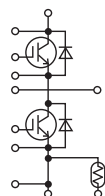
外形尺寸 [mm]



M297



M298



	1700V	2300V	3300V
lc	X series	X series	X series
450A			2MBI450XYF330-50*
1000A	2MBI1000XYF170-50*		
1200A	2MBI1200XYF170-50*		
1500A	2MBI1500XYF170-50*		
1200A	2MBI1200XZF170-50*	2MBI1200XZF230-50*	
1500A	2MBI1500XZF170-50*		
1800A	2MBI1800XZF170-50*		

注：M297: MgSiC-baseplate, M298: Cu-baseplate

* 开发中

2-Pack

外形尺寸 [mm]

[illegible]

注 1: -54 : $V_{CE(sat)}$ 和 V_F 的等级会显示在标签中
 注 2: “-80” : 相对于 “-54” 将作为高导热体的 TIM (Thermal Interface Material) 涂布至模块底面。
 注 3: 带 EA 的型号降低了 V_F 和热阻, 可支持对二极管负荷较大的应用。
 注 4: PrimePACK™ 为 Infineon Technologies 公司的注册商标。
 注 5: 本页带 “P” 的产品为 “soft turn off” 类型

* 开发中

PrimePACK™

外形尺寸 [mm]

I_c

1200V

1700V

V series

V series

Low side configuration

High side configuration

Low side configuration

High side configuration

650A

1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
1MBI650VXA-170EL-54	1MBI650VXA-170EH-54
1MBI650VXA-170EL-80	1MBI650VXA-170EH-80

900A

1MBI900VXA-120PD-50 *1	1MBI900VXA-120PC-50 *1
1MBI900VXA-120PD-54 *1	1MBI900VXA-120PC-54 *1
1MBI900VXA-120PD-80 *1	1MBI900VXA-120PC-80 *1

1000A

1MBI1000VXB-170EL-50	1MBI1000VXB-170EH-50
1MBI1000VXB-170EL-54	1MBI1000VXB-170EH-54
1MBI1000VXB-170EL-80	1MBI1000VXB-170EH-80

1400A

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

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

Chopper

M271

M272

注 1 : -54 : V_{CE(sat)} 和 VF 的等级会显示在标签中

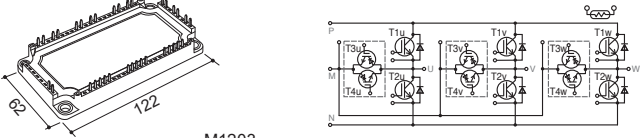
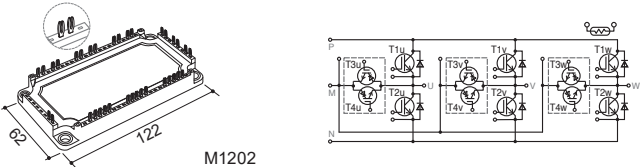
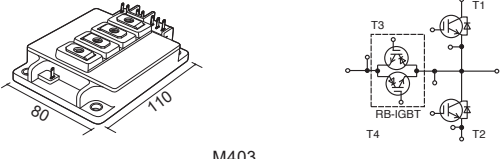
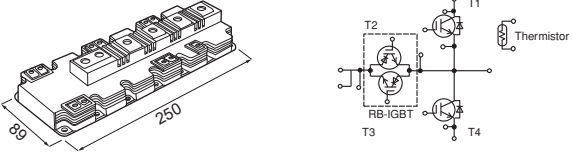
注 2 : “-80” : 相对于 “-54” 将作为高导热体的 TIM (Thermal Interface Material) 涂布至模块底面。

注 3 : PrimePACK™ 为 Infineon Technologies 公司的注册商标。

*1 反向并联二极管的额定电流为 120A。仅用于 Boost/Buck chopper 电路。

19

Advanced T-type NPC 3-level Modules 外形尺寸 [mm]

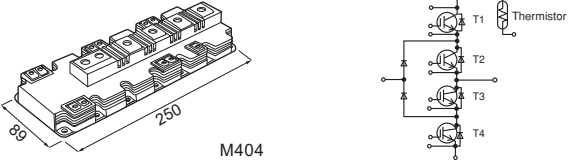
		Ic	600V		1200V		1700V	
			V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT
3 Phase With NTC, Solder pins		50A			12MBI50VN-120-50	600V		
		75A			12MBI75VN-120-50	600V		
		100A			12MBI100VN-120-50	600V		
3 Phase With NTC, Press fit pins		50A			12MBI50VX-120-50	600V		
		75A			12MBI75VX-120-50	600V		
		100A			12MBI100VX-120-50	600V		
1 Phase		220A					4MBI220VG-170R2-50	1200V
		300A			4MBI300VG-120R-50	600V		
					4MBI300VG-120R1-50	900V		
		340A			4MBI340VF-120R-50	600V		
		400A	4MBI400VG-060R-50	600V	4MBI400VF-120R-50*1	600V		
1 Phase		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 1：-60 规格为特性数据盖章型号

注 2：RB-IGBT 为反向阻断 (Reverse-Blocking) IGBT 的缩写，是具备反向 (发射极与集电极间) 耐压的元件

*1 专用于 PCS 变频器

I-type NPC 3-level Module 外形尺寸 [mm]

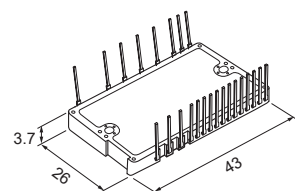
		Ic	600V	1200V	1700V
			V series	V series	V series
1 Phase		600A		4MBI600VC-120-50	
				4MBI600VC-120-60	

注 1：-60 规格为特性数据盖章型号

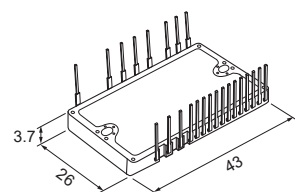
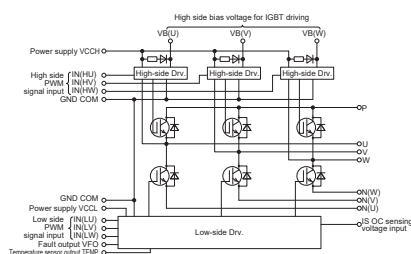
Small IPM with High Voltage Driver-IC without Brake-Chopper

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

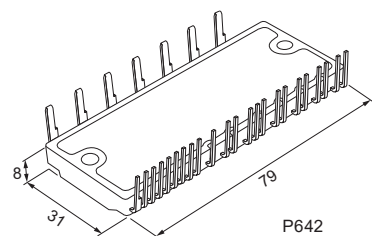
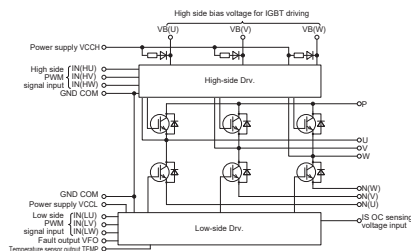
外形尺寸 [mm]



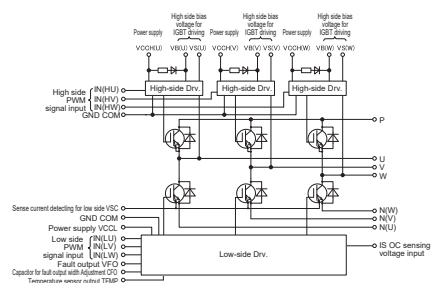
P633A



P633C



P642

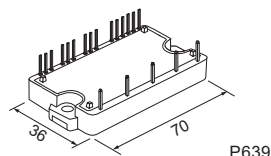


Without Brake-Chopper

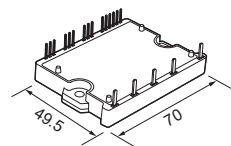
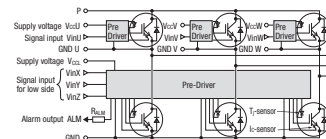
**With
Brake-Chopper**

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

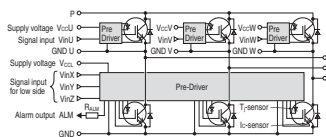
外形尺寸 [mm]



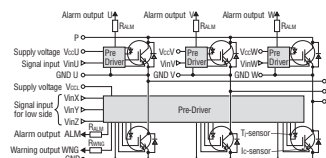
P639



P629

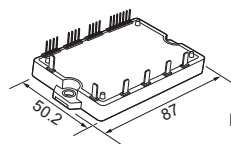
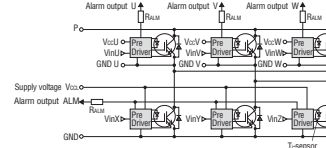


• 6MBP□XBA□-50



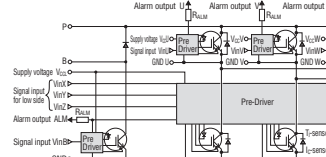
P626

- 6MBP □ VBA □ -50



P644

• 7MBP□XJN□-50



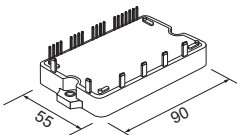
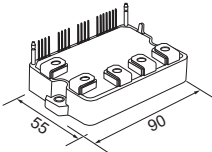
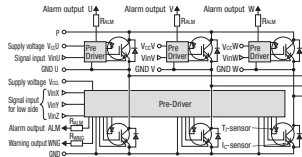
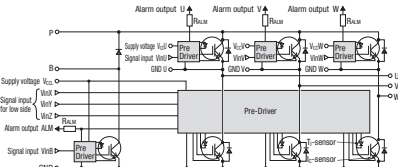
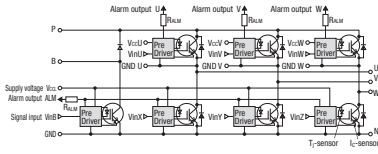
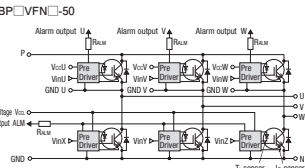
					650V		600V		1200V	
Ic					X series	V series	X series	V series		
✓	✓	✓	✓	—	10A			6MBP10XRHA120-50		
					20A	6MBP20XRHA065-50				
					30A	6MBP30XRHA065-50				
✓	✓	✓	✓	—	10A				6MBP10VAA120-50	
					15A				6MBP15VAA120-50	
					20A		6MBP20VAA060-50			
					25A			6MBP25XAA120-50	6MBP25VAA120-50	
					30A		6MBP30VAA060-50			
					35A			6MBP35XAA120-50		
					50A	6MBP50XAA065-50	6MBP50VAA060-50			
					75A	6MBP75XAA065-50				
✓	✓	✓	✓	✓	25A			6MBP25XBA120-50	6MBP25VBA120-50	
					35A			6MBP35XBA120-50	6MBP35VBA120-50	
					50A	6MBP50XBA065-50	6MBP50VBA060-50	6MBP50XBA120-50	6MBP50VBA120-50	
					75A	6MBP75XBA065-50	6MBP75VBA060-50			
					100A	6MBP100XBA065-50				
✓	✓	✓	✓	✓	25A			7MBP25XJN120-50		
					35A			7MBP35XJN120-50		
					50A	7MBP50XJN065-50				
					75A	7MBP75XJN065-50				

**Built-in
protection
functions**

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

IPM (Intelligent Power Modules)

外形尺寸 [mm]

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

IPM (Intelligent Power Modules)

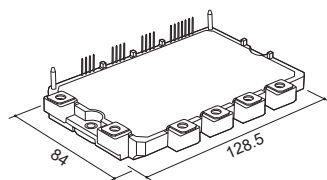
Built-in protection functions

- 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)

外形尺寸 [mm]

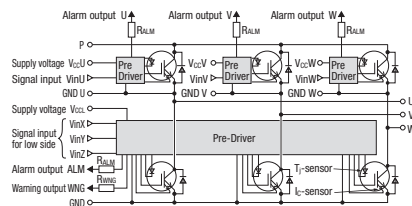
Without Brake-Chopper

With Brake-Chopper

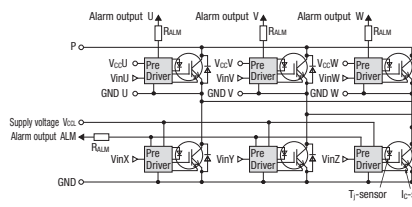


P630

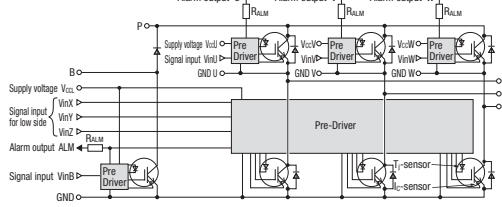
- 6MBP□XDA□-50
- 6MBP□XDN□-50



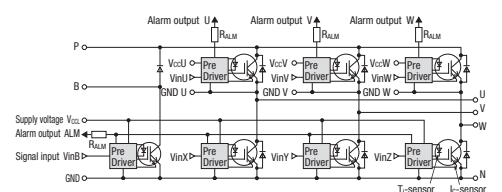
- 6MBP□VDA□-50
- 6MBP□VDN□-50



- 7MBP□XDA□-50
- 7MBP□XDN□-50



- 7MBP□VDA□-50
- 7MBP□VDN□-50



Ic	650V		600V		1200V	
	X series		V series		X series	V series
25A						6MBP25VDA120-50
35A						6MBP35VDA120-50
50A			6MBP50VDA060-50		6MBP50XDA120-50	6MBP50VDA120-50
						6MBP50VDN120-50
75A			6MBP75VDA060-50		6MBP75XDA120-50	6MBP75VDA120-50
					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					
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：本页中带有 VDN,XDN 的型号使用低热阻封装。

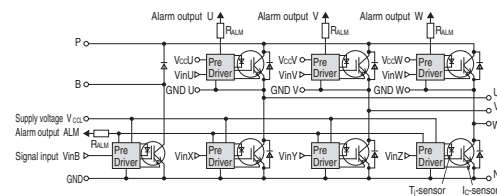
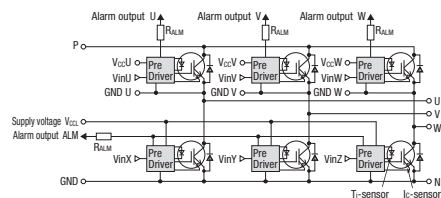
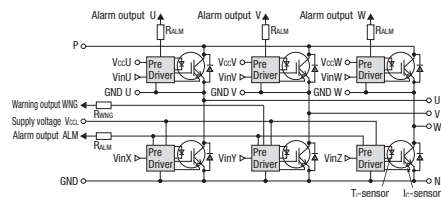
Without Brake-Chopper

With Brake-Chopper



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

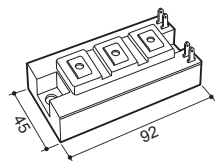
外形尺寸 [mm]

[illegible]

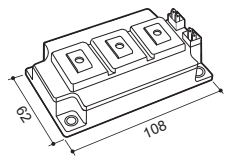
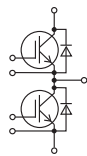
Hybrid SiC Modules

外形尺寸 [mm]

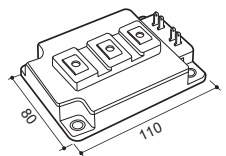
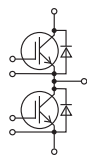
2-Pack



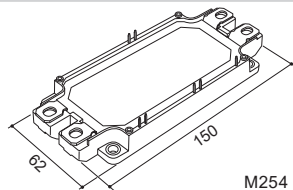
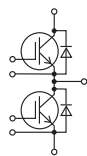
M274



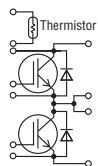
M276



M277



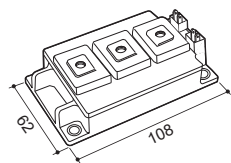
M254



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

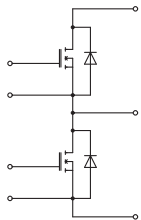
All-SiC Modules

2-Pack



M295

外形尺寸 [mm]



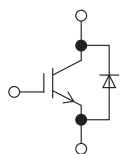
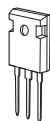
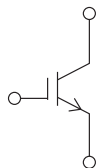
Ic

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*	

* 开发中

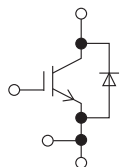
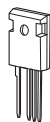
Discrete IGBT

TO-247
(Type:B)



RB-IGBT

TO-247-4

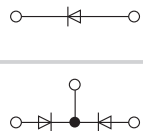


Ic	600V		650V	1200V	
	V series	RB series	XS series	XS series	V series
30A			FGW30XS65		
40A			FGW40XS65	FGW40XS120	
50A			FGW50XS65		
75A			FGW75XS65	FGW75XS120	
15A					FGW15N120VD
25A					FGW25N120VD
30A	FGW30N60VD		FGW30XS65C		
40A			FGW40XS65C	FGW40XS120C	FGW40N120VD
50A	FGW50N60VD		FGW50XS65D		
			FGW50XS65C		
75A			FGW75XS65D	FGW75XS120C	
			FGW75XS65C		
85A		FGW85N60RB			
75A			FGZ75XS65C	FGZ75XS120C	

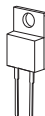
SiC-SBD



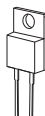
T-Pack(s)



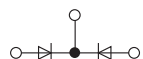
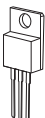
TO-220-2 (Type:A)



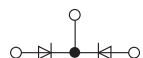
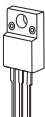
TO-220-2 (Type:B)



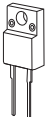
TO-220



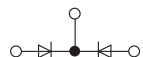
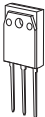
TO-220F



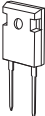
TO-220F-2



TO-247 (Type:A)



TO-247-2 (Type:A)



I_F

650V

SiC-SBD 2G

SiC-SBD 1G

1200V

SiC-SBD 2G

SiC-SBD 1G

10A
20A
25A
20A

FDCC10S65
FDCC25S65
FDCC20C65

6A
8A
10A

FDC2PT06S65
FDC2PT08S65
FDC2PT10S65

10A
25A

FDCP10S65
FDCP25S65

20A

FDCP20C65

20A

FDCA20C65

6A
8A
10A
18A
25A

FDC2AT06S65
FDC2AT08S65
FDC2AT10S65
FDCA10S65
FDCA25S65

FDCA10S65
FDCA25S65

FDCA18S120

10A
18A
25A
20A
36A
50A

FDCY10S65
FDCY25S65
FDCY20C65
FDCY50C65

FDCY18S120

FDCY36C120

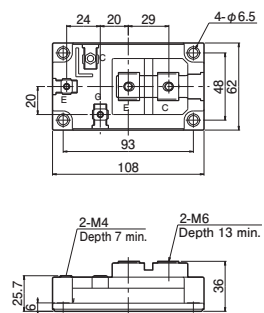
18A
20A
40A

FDC2WT20S120
FDC2WT40S120

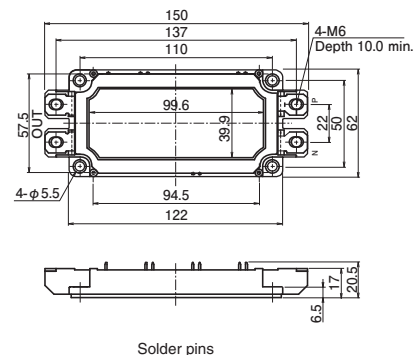
FDCW18T120

外形图 mm

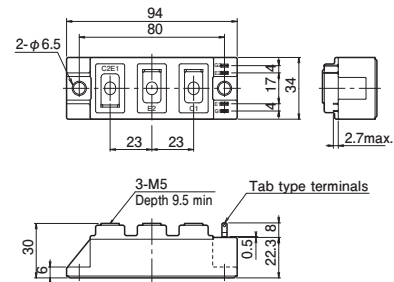
M153



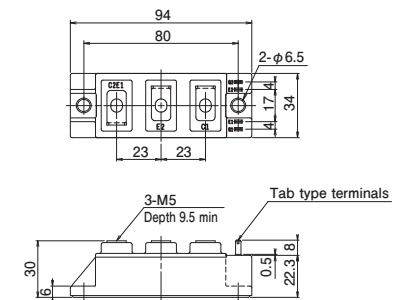
M254



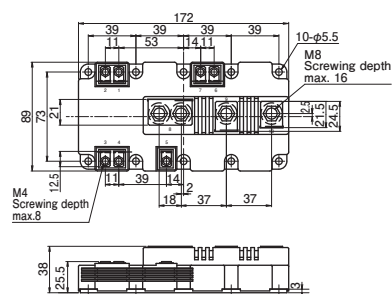
M262



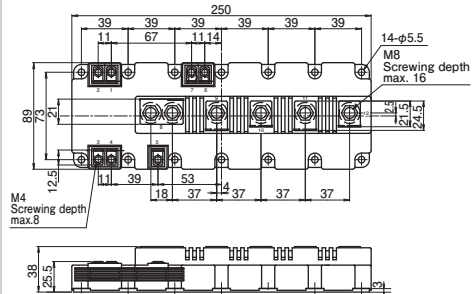
M263



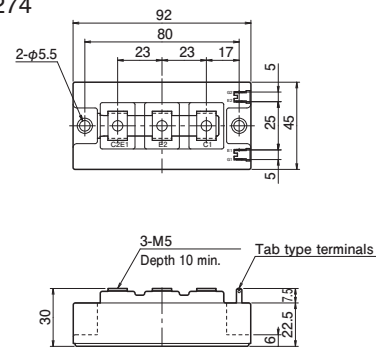
M271



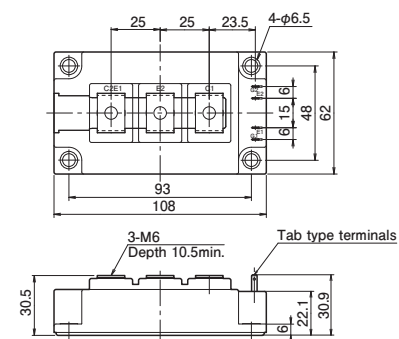
M272



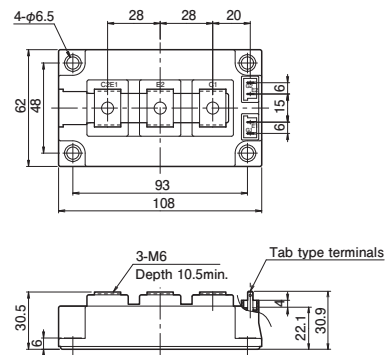
M274



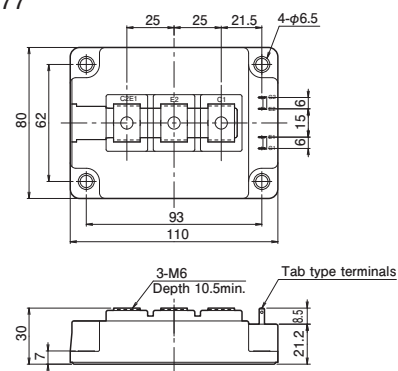
M275



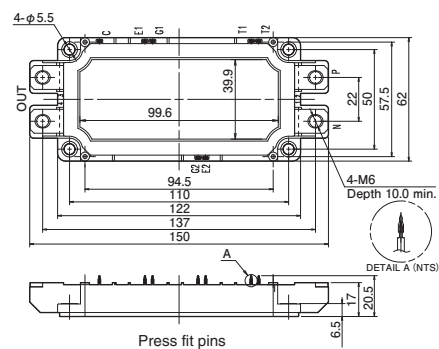
M276



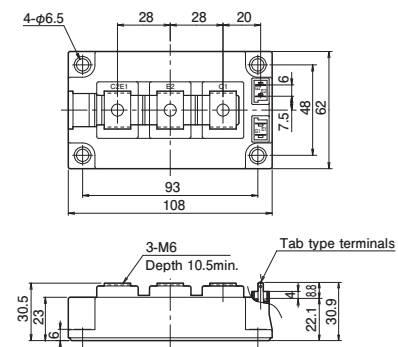
M277



M282

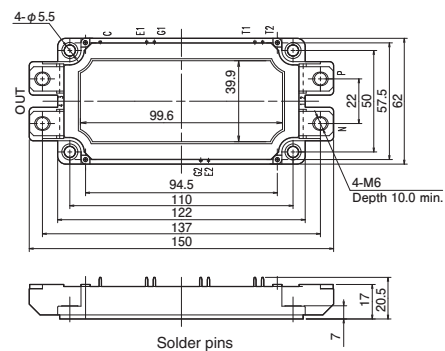


M283

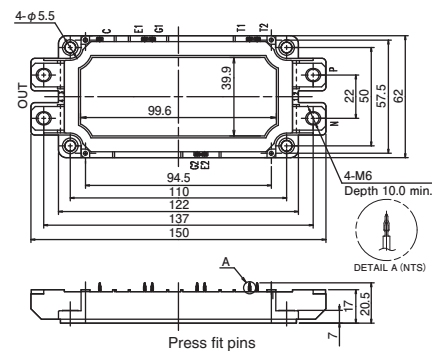


外形图 mm

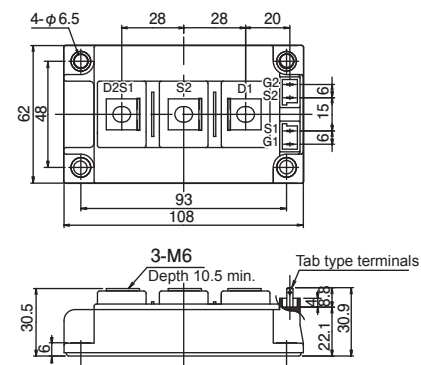
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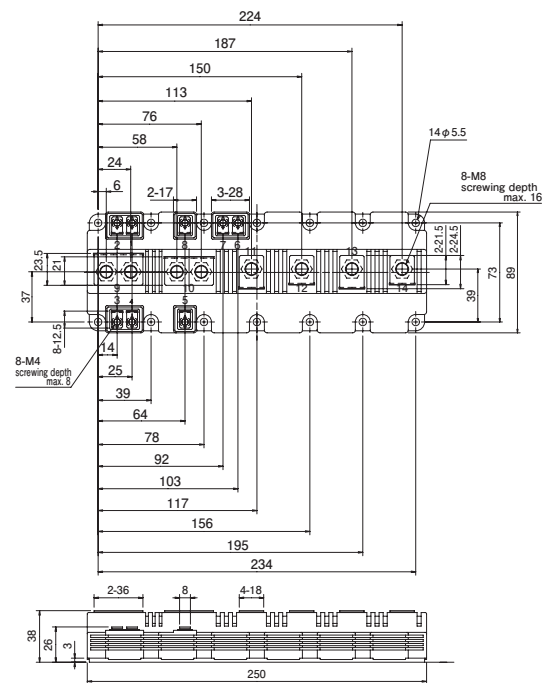
M286



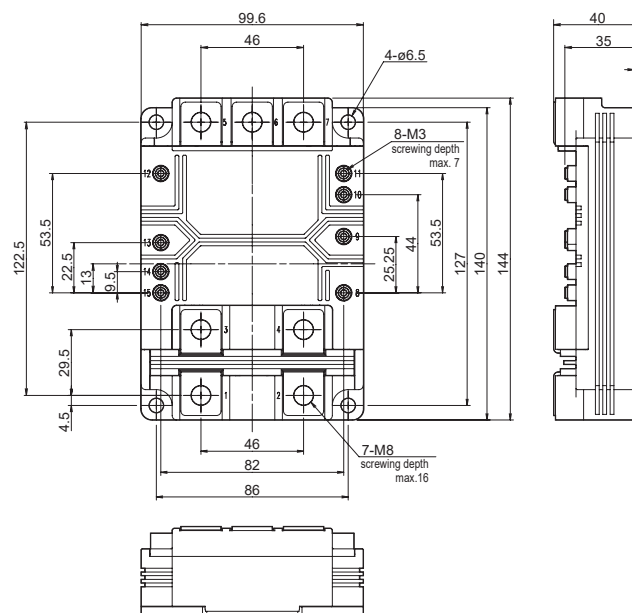
M295



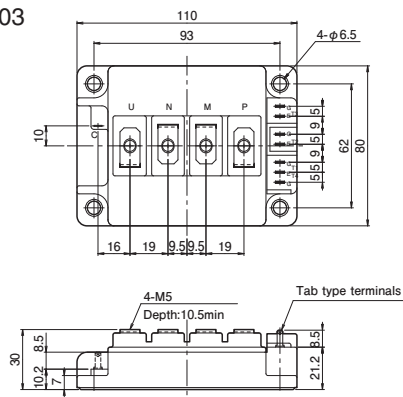
M291



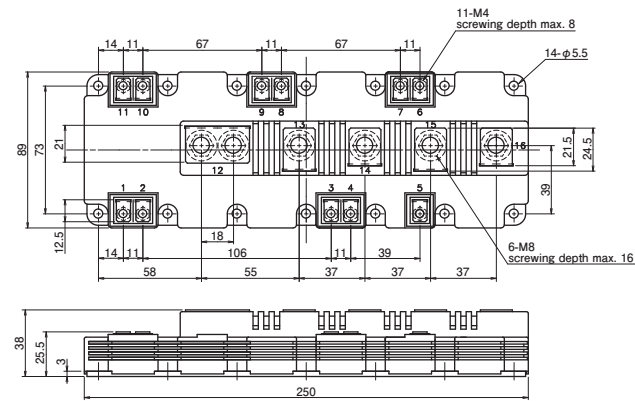
M297, M298



M403



M404



[illegible]

Technical drawing of the M633 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 122
- Inner width: 110
- Inner width (excluding pins): 94.5
- Overall height: 62
- Inner height: 50
- Pin diameter: $4 \times \phi 5.5$
- Pin pitch (center-to-center): 99.6
- Pin diameter (inner): $\phi 38.9$
- Overall height (including pins): 57.5

Side View Dimensions:

- Overall height: 20.5
- Pin height: 17
- Pin pitch (center-to-center): 3.5
- Pin diameter: 2.5
- Pin diameter (inner): 11.5
- Pin diameter (inner): 6.5

Solder pins

M648

Technical drawing of the M648 component, showing top and side views with dimensions in millimeters.

Top View Dimensions:

- Overall width: 122
- Inner width: 110
- Distance between mounting holes: 94.5
- Mounting hole diameter: $4 \times \phi 5.5$
- Overall height: 62
- Inner height: 50
- Distance between mounting holes (vertical): 57.5
- Inner width (bottom): 99.6
- Inner height (bottom): 39.9

Side View Dimensions:

- Overall height: 21.3
- Top flange height: 17
- Top flange thickness: 4.3
- Top flange width: 1.5
- Bottom flange height: 2.5
- Bottom flange thickness: 6.5

Press fit pins

Technical drawing of the M636 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107.5
- Overall height: 45
- Internal width: 93
- Internal height: 32
- Distance from top edge to mounting holes: 11
- Distance from side edge to mounting holes: 27.6
- Distance from center to mounting holes: 69.5
- Mounting holes: 4- $\phi 6.1$
- Internal features: 2- $\phi 5.5$

Side View Dimensions:

- Overall height: 20.5
- Distance from top edge to mounting holes: 17
- Distance from side edge to mounting holes: 2.5
- Distance from center to mounting holes: 6.5
- Mounting holes: 4- $\phi 5.5$
- Internal features: 1

Solder pins

M668

Technical drawing of the M668 component, showing a top view and a side view.

Top View Dimensions:

- Overall Width: 122
- Inner Width: 110
- Outer Width: 94.5
- Overall Height: 62
- Inner Height: 50
- Outer Height: 57.5
- Corner Fasteners: 4-φ5.5
- Inner Width (Bottom): 99.6
- Inner Height (Bottom): 39.9

Side View Dimensions:

- Total Height: 29.5
- Mounting Flange Height: 17
- Flange Thickness: 2.5
- Base Thickness: 6.5
- Central Cavity Depth: 1.5

Other Features:

- The side view shows a series of vertical pins or teeth along the bottom edge.
- The component is labeled "Soldier pins" at the bottom.

Technical drawing of the M647 connector, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107.5
- Overall height: 93
- Inner width: 93
- Inner height: 69.6
- Pin diameter: 4- $\phi 6.1$
- Pin diameter: 2- $\phi 5.5$
- Pin length: 32
- Pin length: 11
- Pin length: 27.6
- Pin length: 69.6

Side View Dimensions:

- Overall height: 21.3
- Overall width: 17 (4.3)
- Pin diameter: 2.5
- Pin diameter: 1.5
- Pin length: 6.5
- Pin length: 1.5

Press fit pins

Technical drawing of the M669 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107.5
- Overall height: 93
- Inner width: 69.6
- Inner height: 27.6
- Distance from top edge to top of mounting holes: 32
- Distance from bottom edge to bottom of mounting holes: 11
- Mounting hole diameter: $4 - \phi 6.1$
- Internal feature diameter: $2 - \phi 5.5$

Side View Dimensions:

- Overall height: 20.5
- Distance from top edge to top of mounting holes: 17
- Distance from top edge to top of internal feature: 2.5
- Distance from top edge to top of mounting holes (alternative): (3.5)
- Distance from top edge to top of internal feature (alternative): 1.5
- Distance from bottom edge to bottom of mounting holes: 6.5

Label: Solder pins

Technical drawing of the M711 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107.5
- Overall height: 45
- Internal width: 93
- Internal height: 32
- Distance from top edge to mounting holes: 11
- Distance between mounting holes: 69.6
- Distance from side edge to mounting holes: 27.6
- Mounting hole diameter: $4-\phi 6.1$
- Internal hole diameter: $2-\phi 5.5$

Side View Dimensions:

- Overall height: 20.5
- Mounting hole diameter: (3.5)
- Distance from top edge to mounting hole: 1.7
- Distance from top edge to internal feature: 1.1
- Distance from top edge to internal feature: 2.9
- Distance from bottom edge to internal feature: 6.5
- Internal feature diameter: 1

Labels:

- M711
- Solder pins

M712

Technical drawing of the M712 component, showing top and side views with dimensions in millimeters.

Top View Dimensions:

- Overall width: 122
- Inner width: 110
- Inner width (excluding mounting holes): 94.5
- Overall height: 57.5
- Inner height: 50
- Inner height (excluding mounting holes): 39.9
- Mounting hole diameter: $4 \times \phi 5.5$

Side View Dimensions:

- Overall height: 20.5
- Height of mounting holes: 17
- Height of mounting holes (including solder pins): 17 (3.5)
- Height of mounting holes (including solder pins): 2.9
- Height of mounting holes (including solder pins): 1.1
- Height of mounting holes (including solder pins): 6.5
- Height of mounting holes (including solder pins): 1

Solder pins

Technical drawing of the M719 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107,5
- Inner width: 93
- Overall height: 45
- Inner height: 32
- Central rectangular area width: 69,6
- Central rectangular area height: 27,6
- Distance from top edge to central area: 11
- Four mounting holes: 4- ϕ 6,1
- Two mounting holes: 2- ϕ 5,5

Side View Dimensions:

- Overall height: 20,5
- Distance from top edge to mounting holes: 17
- Distance from top edge to central area: 1,5
- Distance from top edge to bottom edge: 2,5
- Distance from top edge to bottom edge (total): 6,5
- Distance from top edge to central area (total): 3,5
- Distance from top edge to central area (total): 1

Label: Solder pins

Technical drawing of the M720 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 122
- Inner width: 110
- Width of the central rectangular area: 94.5
- Width of the central rectangular area (inner): 99.6
- Width of the central rectangular area (outer): 99.6
- Width of the central rectangular area (inner): 39.9
- Overall height: 57.5
- Height of the central rectangular area: 50
- Radius of the corner holes: $4 \cdot \phi 5.5$

Side View Dimensions:

- Overall height: 20.5
- Height of the top flange: 17
- Height of the top flange (inner): 1.5
- Height of the top flange (outer): 2.5
- Height of the bottom flange: 6.5
- Height of the bottom flange (inner): 1

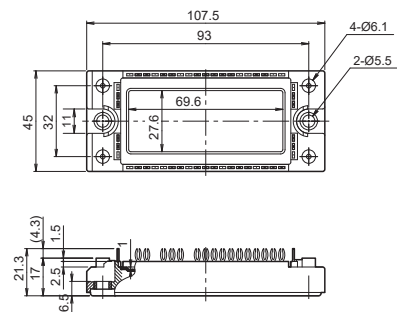
Other Features:

- The component has a central rectangular area with a dashed line indicating a centerline.
- The side view shows a series of small, evenly spaced holes along the length of the component.
- The bottom flange is labeled "Solder pins".

32

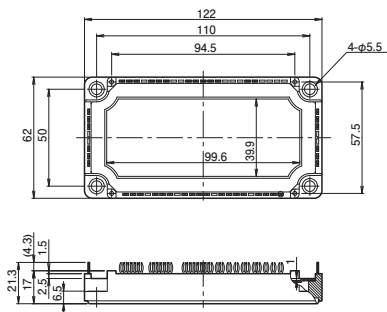
外形图 mm

M721



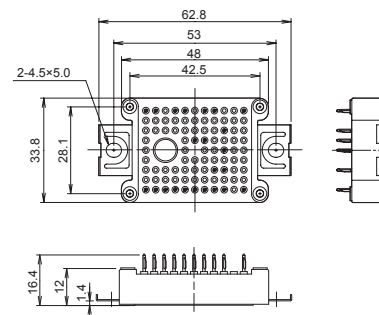
Press fit pins

M722



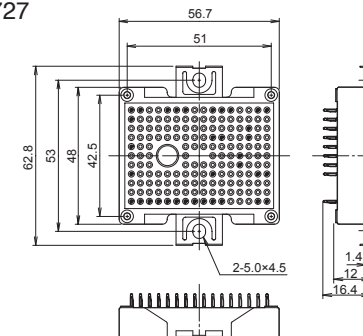
Press fit pins

M726



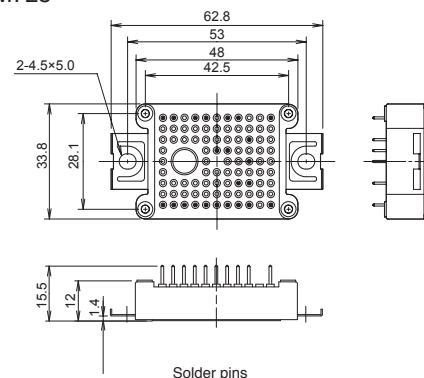
Press fit pins

M727



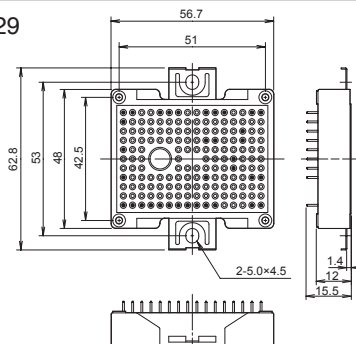
Press fit pins

M728



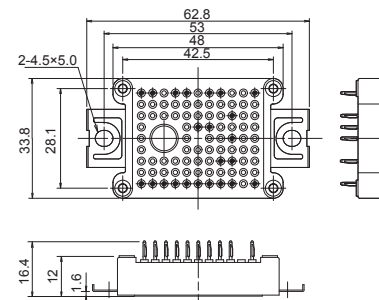
Solder pins

M729



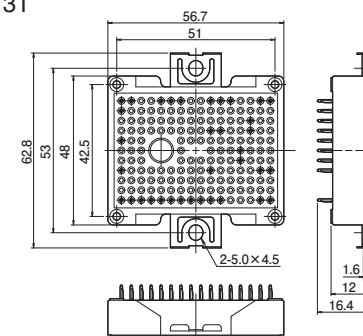
Solder pins

M730



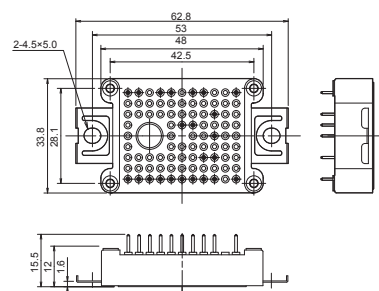
Press fit pins

M731



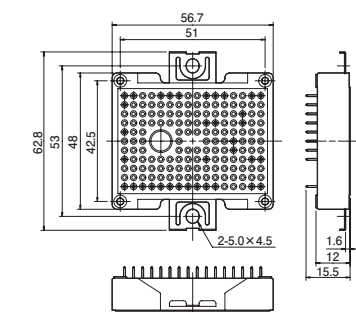
Press fit pins

M732



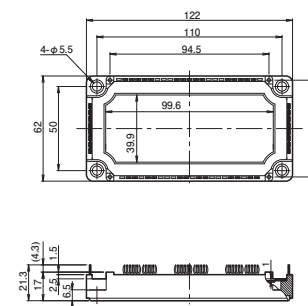
Solder pins

M733



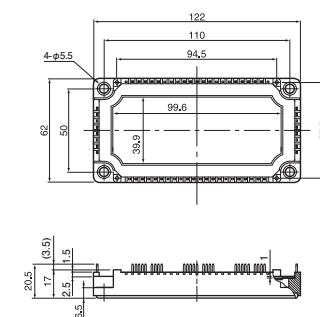
Solder pins

M1202



Press fit pins

M1203



Solder pins

Technical drawing of the P626 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 87
- Overall height: 50.2
- Inner width: 77
- Inner height: 66
- Left side features: 21.25, 26.65, 15.24, 15.24
- Right side features: 4- ϕ 2, 0.12, 22, 17, 22.5
- Bottom features: 0.8, 15.24, 6.77, 15.24, 15.24, 3
- Internal features: P, U, V, W
- Top right features: 2- ϕ 4.5

Side View Dimensions:

- Overall height: 16
- Base height: 9.5
- Base width: 4.4
- Top features: 0.7, 3, 2.5

[illegible]

Technical drawing of the P630 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 126.5
- Inner width: 119.5
- Inner width (excluding top tabs): 107.4
- Overall height: 84
- Inner height: 38.65
- Inner height (excluding bottom tabs): 36.4
- Bottom tabs: 22 (each of four tabs), 25 (center gap)
- Overall bottom width: 116
- Top tabs: 2 (each of two tabs)
- Overall top width: 12
- Mounting holes: 2- $\phi 2.5$ (top), 2- $\phi 4.5$ (right), 2 (left), 2 (bottom)
- Internal features: N, P, B, U, V, W

Side View Dimensions:

- Overall height: 14.3
- Mounting hole offset: 21
- Internal height: 18.35
- Internal height (excluding bottom tabs): 21
- Bottom tabs: 9 (each of two tabs), 14 (center gap)
- Overall bottom width: 125
- Mounting holes: 6-M4 Depth 8 min. (left), $\square 0.64$ (right)
- Internal features: B, U, V, W

[illegible]

P633A

Top view dimensions:

- Overall width: 43
- Pin pitch (top): $18 \times 1.778 (=32.004)$
- Overall height: 26
- Pin pitch (bottom): $14 \times 2.54 (=35.56)$
- Mounting hole diameter: $\varnothing 3.2$
- Mounting hole offset from edge: 1.6
- Pin offset from edge: 4.2

Side view dimensions:

- Pin height: 14

Technical drawing of the P633C component, showing dimensions in millimeters (mm).

Top View Dimensions:

- Overall width: 43
- Pin pitch (top): $18 \times 1.778 (=32.004)$
- Pin pitch (bottom): $14 \times 2.54 (=35.56)$
- Distance between pin groups: 35
- Distance from left edge to first pin: 1.778
- Distance from left edge to mounting hole: 3.2
- Distance from left edge to mounting hole (bottom): 2.54
- Mounting hole diameter: $\varnothing 1.3$
- Overall height: 26
- Distance from top edge to pin row: (13)
- Distance from bottom edge to pin row: (13)

Side View Dimensions:

- Pin height: 14

P636

The technical drawing illustrates the P636 component from three perspectives:

- Top View:** Shows a rectangular footprint with overall dimensions of 90 mm by 55 mm. Internal features include a central square area (80 mm x 69 mm), mounting holes with diameters of 7.62 mm, and a central hole with a diameter of 4-φ 2.
- Front View:** Displays the profile of the component with a total height of 25.5 mm. It shows a base layer (0.64 mm thick) and a main body (17 mm high). The width at the base is 25.5 mm, and the width at the top is 21.05 mm.
- Side View:** Provides a cross-sectional view of the component, highlighting its thickness of 0.64 mm and internal structural details.

P638

Technical drawing of the P638 component, showing top, side, and front views with dimensions.

Top View Dimensions:

- Overall width: 90
- Overall height: 55
- Internal width (top): 80
- Internal width (bottom): 73.66
- Left side height: 14.4
- Left side width: 24
- Right side width: 17.4
- Bottom width segments: 28.15, 19, 19
- Bottom left offset: 8.15
- Top right corner radius: $R2.02.5$
- Bottom right corner radius: $R2.04.5$

Side View Dimensions:

- Top width segments: 9, 7, 22
- Overall height: 28.4
- Bottom width: 5-M4
- Bottom depth: Depth 7.5 min.

Front View Dimensions:

- Top surface width: 0.64
- Overall height: 16
- Bottom width segments: 6, 4

Technical drawing of the P639 component, showing top, side, and front views with dimensions.

Top View Dimensions:

- Overall width: 70
- Inner width: 64
- Distance from side edge to center hole: 56
- Distance between center holes: 4
- Distance from center hole to right edge: 10
- Distance from center hole to right edge (alternative): 15
- Overall height: 16.75
- Distance from top edge to center hole: 8.05
- Distance from center hole to bottom edge: 13.55
- Distance from center hole to bottom edge (alternative): 36
- Distance between bottom pins: 12.8 (four segments)
- Overall bottom width: 60

Side View Dimensions:

- Top flange width: 2.5
- Top flange height: 9.5
- Top flange thickness: 0.5
- Main body height: 21.45
- Bottom flange height: 0.8

Front View Dimensions:

- Pin height: 1
- Pin pitch: 0.7
- Pin width: 5
- Base height: 18

Labels:

- 4-O2 (pointing to top hole)
- 2-O4.5 (pointing to bottom hole)

Technical drawing of the P644 component, showing three views: top, side, and bottom views.

Top View Dimensions:

- Overall width: 87
- Overall height: 77
- Inner width: 66
- Inner height: 50.2
- Distance from top edge to mounting holes: 15.24
- Distance from bottom edge to mounting holes: 15.24
- Distance from left edge to mounting holes: 15.24
- Distance from right edge to mounting holes: 15.24
- Distance between mounting holes: 6.77
- Mounting hole diameter: $2 \times \varnothing 4.5$
- Mounting hole offset: 4.02
- Mounting hole offset: 2.22
- Mounting hole offset: 17
- Mounting hole offset: 22.5

Side View Dimensions:

- Overall height: 26.65
- Mounting hole offset: 2.5
- Mounting hole offset: 9.5
- Mounting hole offset: 0.5
- Mounting hole offset: 21.25
- Mounting hole offset: 0.3

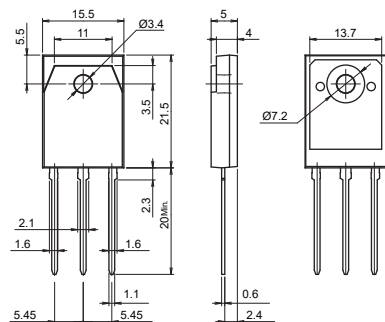
Bottom View Dimensions:

- Overall width: 18
- Mounting hole offset: 4.4
- Mounting hole offset: 0.7
- Mounting hole offset: 3

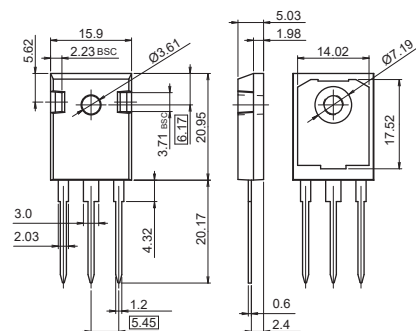
34

外形图 mm

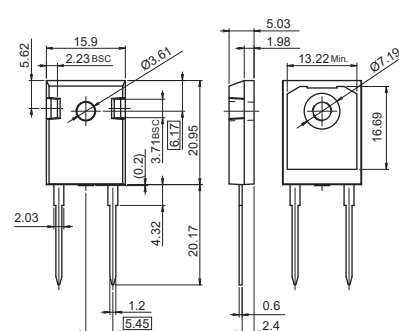
TO-247 (Type:A)



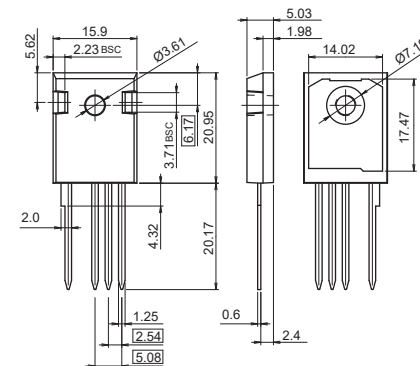
TO-247 (Type:B)



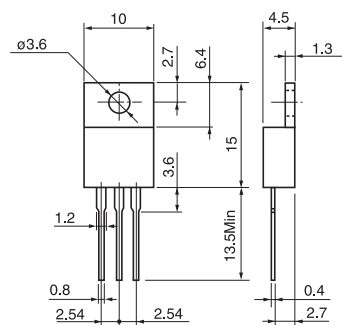
TO-247-2 (Type:A)



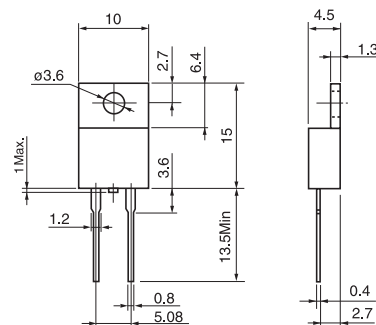
TO-247-4



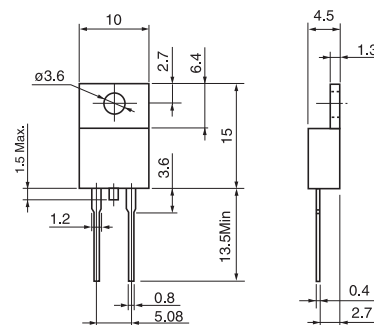
TO-220



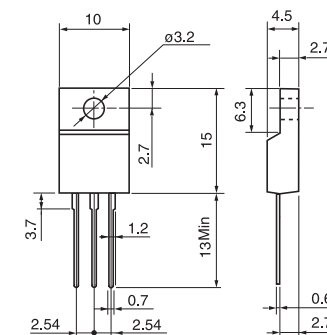
TO-220-2 (Type: A)



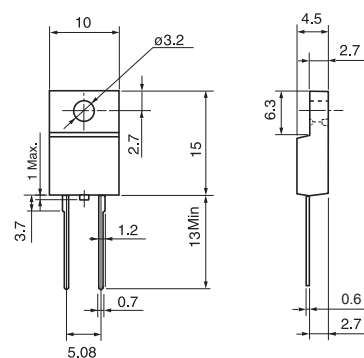
TO-220-2 (Type: B)



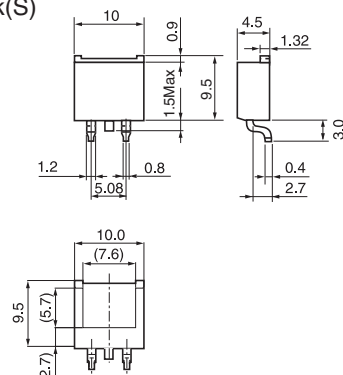
TO-220F



TO-220F-2



T-Pack(S)



外形图 mm

外形图 mm

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2. 本产品目录中记载的应用示例是对使用富士电机株式会社半导体产品的代表性应用示例的说明，并非对工业所有权、其他权利的实施予以保证，或是承诺实施权。
3. 富士电机株式会社将不断提高产品的品质和可靠性。但是，半导体产品仍有可能发生故障。
请采取冗余设计、防止火灾蔓延设计、防止误动作设计等确保安全的手段，防止因富士电机半导体产品故障而导致人身事故、引发火灾等造成财产损失或者造成社会性损失。
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 - 视听设备 • 家用电气产品 • 个人设备 • 工业机器人 等
5. 如您想要将本产品目录中记载的产品用于以下需要具有特别高可靠性的设备中，请事先与富士电机株式会社联系，并取得同意。如要将本产品目录中的产品用于这些设备，需要采取适当的措施确保安全，如备份系统等，这样即使安装在其中的富士电机半导体产品发生故障，设备也不会发生误动作。
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 - 煤气泄漏检测及断路器 • 防灾 / 防盗装置 • 用于确保安全的各种装置
6. 对于要求极高可靠性的以下设备以及属于战略物资的设备，请勿使用本产品目录中记载的产品。
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