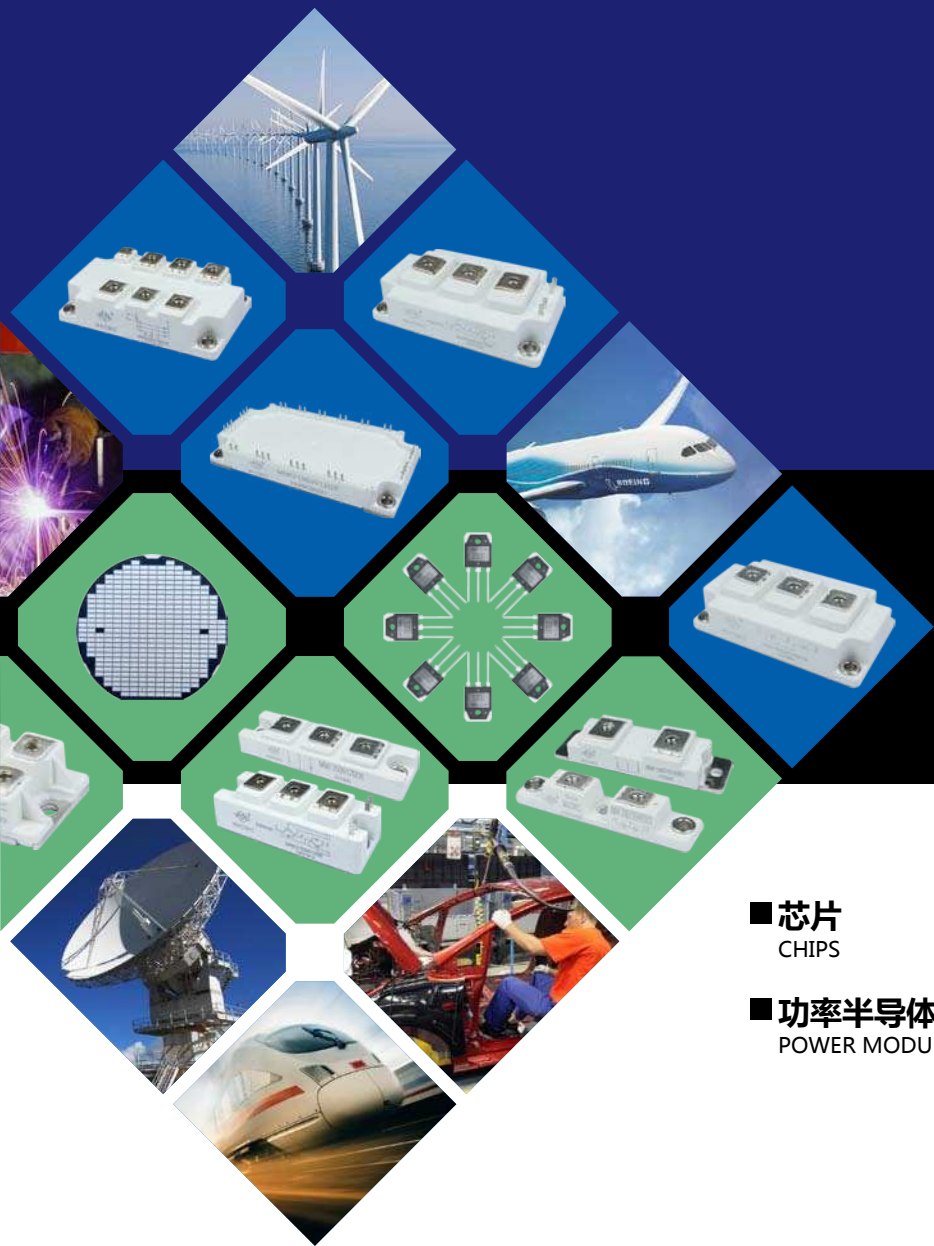




www.macmicst.com

■ 芯片
CHIPS

■ 功率半导体模块
POWER MODULES

■ 分立器件
DISCRETES

■ 用户定制模块
CSPM



产品手册 **2011** PRODUCT CATALOGUE *Power for the Better*

江苏宏微科技有限公司
MACMIC SCIENCE & TECHNOLOGY CO.,LTD



中共中央政治局常委、国务院总理温家宝寄语宏微科技全体员工

"大胆创新，不怕失败，超越前进！"

二〇〇九年八月七日

目录

CONTENTS

01-02	企业简介 COMPANY BRIEF
03-04	企业实力 COMPANY STRENGTH
05-06	企业荣誉 COMPANY HONOR
07-10	产品命名 PRODUCT NAMING
12-14	FRED 芯片 FRED CHIPS
15-16	FRED 分立器件 FRED DISCRETES
17-22	快恢复二极管模块 FRED MODULES
23-30	IGBT 模块 IGBT MODULES
31-34	晶闸管模块 THYRISTOR MODULES
35-39	整流二极管模块 RECTIFIER DIODE MODULES
41-44	三相整流桥模块 THREE-PHASE RECTIFIER BRIDGE MODULES
45-46	业务分布 BUSINESS NETWORK



宏微科技
Power for the Better

企业简介

COMPANY PROFILE

企业简介 COMPANY PROFILE

江苏宏微科技有限公司是由一批长期在国内外从事电力电子产品研发和生产，具有多种专项技术的科技专家组建的高科技企业。企业的宗旨是为国内外用户提供绿色高效节能的电子产品，并提供电力电子系统的解决方案。

MacMic Science & Technology Co., Ltd. is a high-tech company consisting of scientists and engineers with expertise of power electronics who have been engaged in development and production of power electronic products for a long term at home and abroad. The goal of the company is to provide customers with high-efficiency energy-saving electronic products as well as providing solutions to power electronic systems.

业务范围 BUSINESS SCOPE

- 设计、研发、生产和销售新一代电力电子分立器件及模块，如IGBT、FRED、VDMOS、标准模块及用户定制模块（CSPM）；
- 新型电力电子器件的动态、静态参数测试系统与装置；
- 高效节能电力电子装置的设计、制造及系统的解决方案，如动态节能照明电源、开关电源、UPS、逆变及变频装置等。
- Design, development, manufacture, and marketing of new type of power semiconductor devices and their modules i.e. FRED, VDMOS, IGBT, standard modules and custom specific power modules; (CSPM).
- Test systems and equipments for static and dynamic parameters of new type of power semiconductor devices;
- Design and manufacture of energy-saving power electronic equipment; solutions of the systems, i.e. Flexible energy-saving lighting power supply, SMPS, UPS, inverter and converter.



质保体系 ISO 9001:2008 CERTIFICATION

坚持自主创新，科学管理和持续改进，提供更好的产品和服务，满足并超越顾客的要求和期望。
整个生产过程严格实施ISO9001质量管理体系控制。每道工序均经过严格检测，确保产品的质量和稳定性。

Insisting on independent innovation, scientific management and continuous improvement, providing better products and services to meet and exceed customers' requirements and expectations. The total production process is controlled by ISO9001 quality assurance system. Every production step is strictly checked and tested to ensure the quality and stability of the products.

企业宗旨 COMPANY GOAL

自主创新，设计、研发、生产国际一流的IGBT, FRED, VDMOS分立器件及其模块，打造民族品牌；成为提供绿色高效节能电子产品和电力电子系统解决方案的专家。

Independent innovation, design, development and production of word-class FRED, VDMOS, IGBT, discrete devices and modules, to provide efficient energy-saving electronic products and power electronic system solutions.



宏微科技
Power for the Better

企业实力

COMPANY STRENGTH

功率模块生产线 POWER MODULE LINE

先进的厂房 - 1000m²防静电超净厂房。

Cleanroom - Area: 1,000m², Cleanliness Overall 10,000

先进的设备 - 真空烧结炉、全自动键合机、X-Ray 扫描机

Equipment - Vacuum Ovens \ Wire Bonders \ X-Ray Scanners

测试分析中心 CHARACTERIZATION LAB

功率二极管反向恢复测试仪

Diode Reverse Recovery Tester

功率 IGBT 静态测试仪

IGBT DC Parameter Tester

功率 IGBT 动态测试仪

IGBT Switching Parameter Tester

IGBT 栅电荷测试仪

IGBT Charge Tester

IGBT 短路能力测试仪

IGBT Short Circuit Tester

功率半导体器件 UIS 测试仪

Power Semiconductor UIS Tester

功率半导体器件瞬态热阻测试仪

Power Semiconductor Transient Thermal Resistance Tester

可控硅静态及全动态测试仪

SCR Static & Dynamic Parameter Tester

浪涌电流测试仪

Surge Current Tester



失效分析实验室 FAILURE ANALYSIS LAB

X-Ray 扫描	X – Ray Scanner
断面结构分析	Cross – Section Analysis
局部热像分析	Hot Spotting Analysis
1000倍显微镜	1000 times Magnification Microscope

可靠性实验室 RELIABILITY LAB

高温反偏 (HTRB)	High Temperature Reverse Bias
高温栅偏 (HTGB)	High Temperature Gate Bias
功率循环 (PC)	Power Cycle
高低温循环 (TC)	High/Low Temperature Cycle
85-85 (恒温恒湿)	85/85 Temperature / Humidity Test



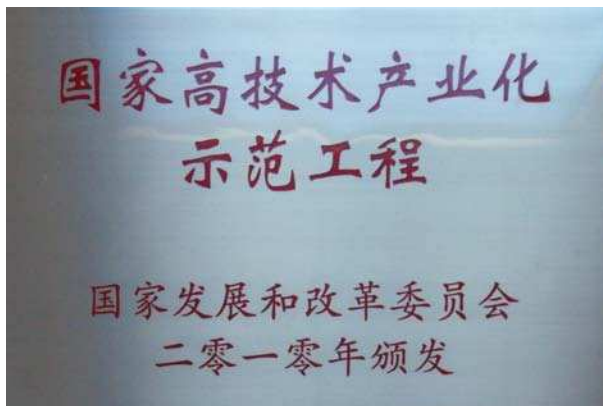


宏微科技
Power for the Better

企业荣誉

COMPANY HONOR

- 国家重点高新技术企业；
 - 国家高技术产业化示范基地；
 - 江苏省高新技术企业；
 - 江苏省软件企业；
 - 江苏省企业院士工作站；
 - 江苏省百家优秀科技成长性企业；
 - 国家 IGBT 和 FRD 标准起草单位；
 - 先进的测试中心及失效分析实验室；
 - 先进的超净、抗静电功率模块生产线；
 - 美国 Santa Fe Springs 的研发中心；
 - 宏微科技南京大学电子节能工程技术研究中心；
 - 8 项发明专利，6 项实用新型专利，3 项国际发明专利；
 - 承担多项国家项目，4 只江苏省高新技术产品，2 项软件著作权。
-
- National Key Hi-Tech Enterprise certified by Ministry of Science and Technology;
 - National Hi-Tech Industrialization Demonstration Base awarded by NDRC;
 - High-tech Enterprises;
 - Software Enterprises;
 - Academy Fellow Programme;
 - One of the Drafters of National Standard for IGBT;
 - Advanced Reliability and Failure Analysis Lab;
 - Advanced Power Module Line;
 - R&D Center at Santa Fe Springs, USA;
 - Electronic Energy-saving Joint Center with Nanjing University;
 - 14 Chinese Patents and 3 International Patents Awarded;

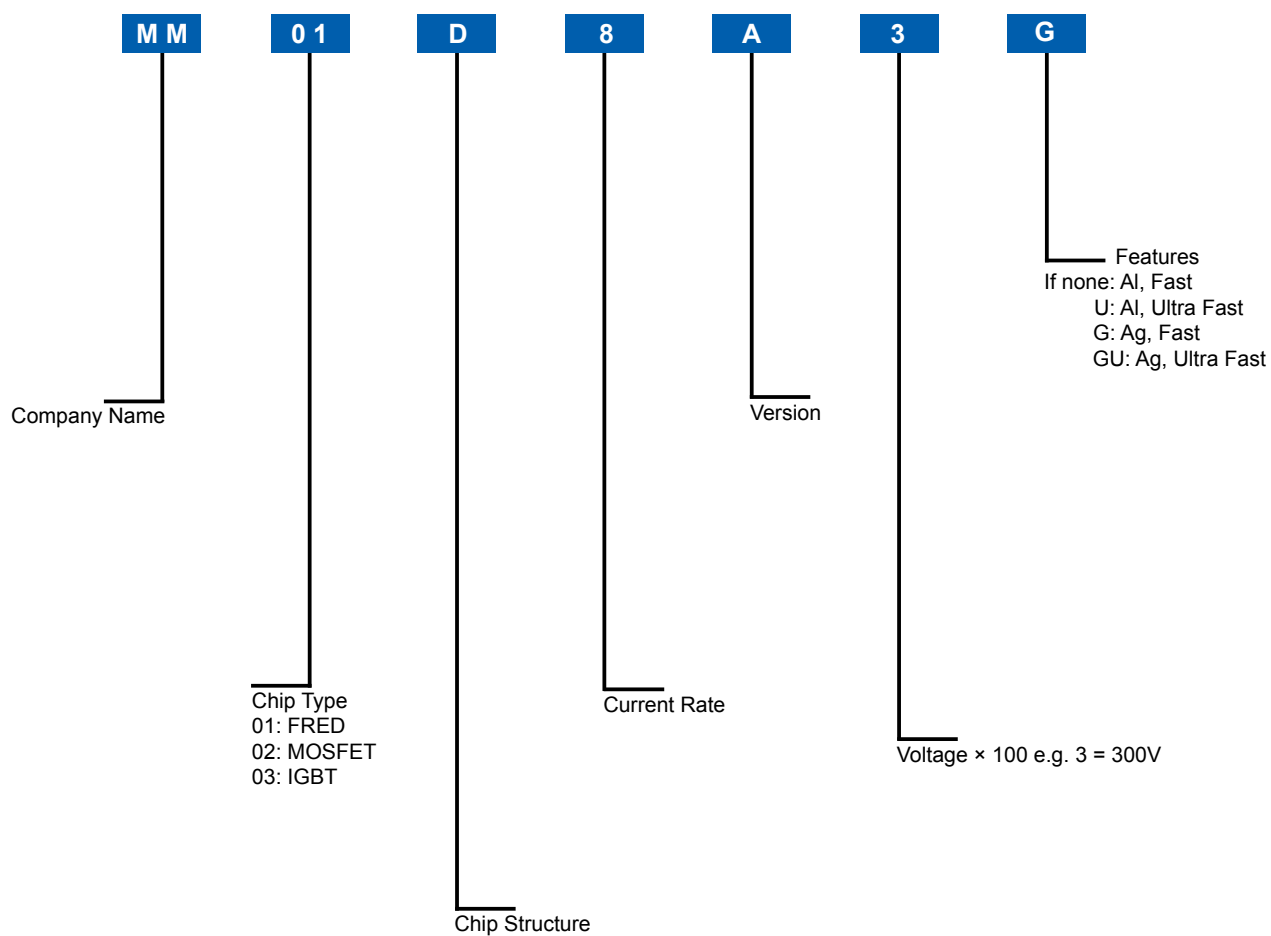




宏微科技
Power for the Better

产品命名 PRODUCT NAMING

芯片 CHIPS

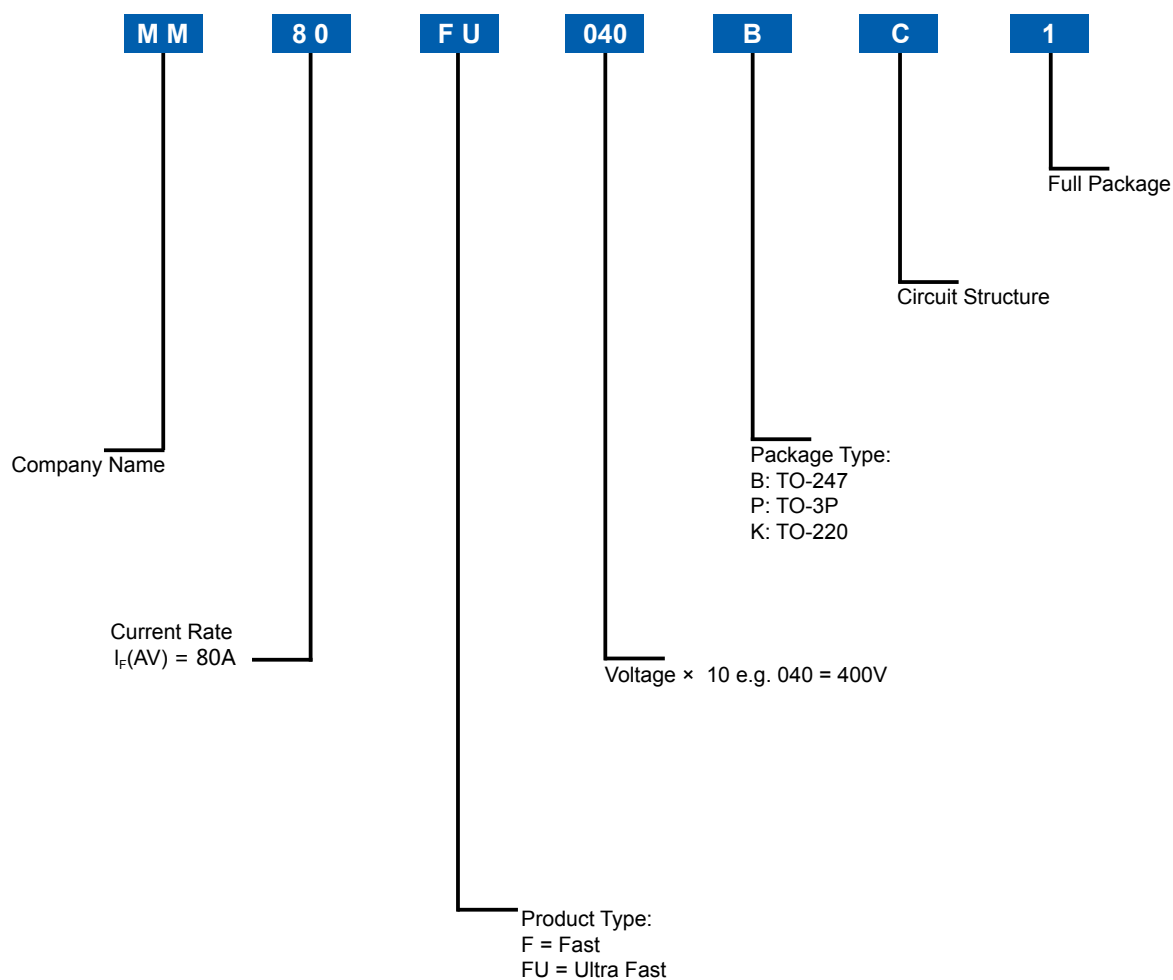




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Power for the Better

产品命名 PRODUCT NAMING

PRED 分立器件 PRED DISCRETES

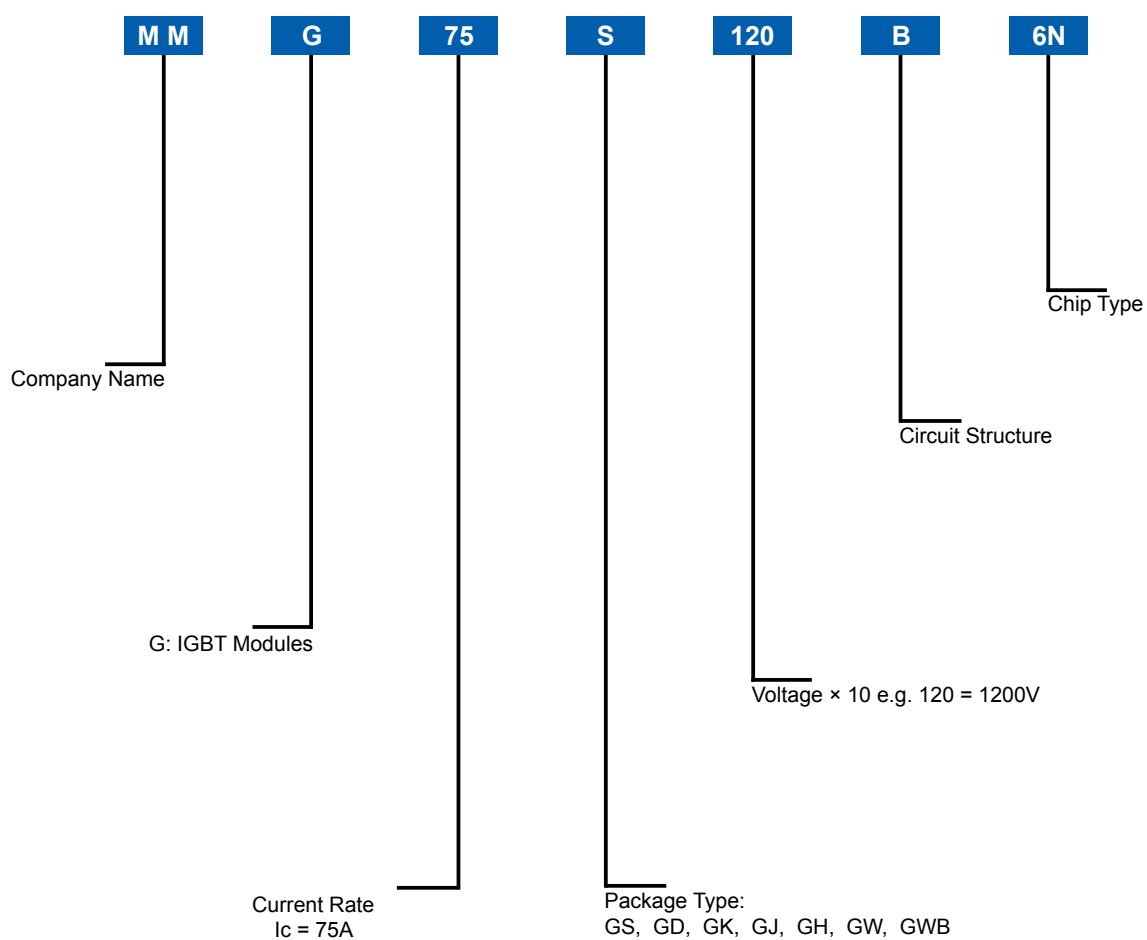




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产品命名 PRODUCT NAMING

IGBT 模块 IGBT MODULES

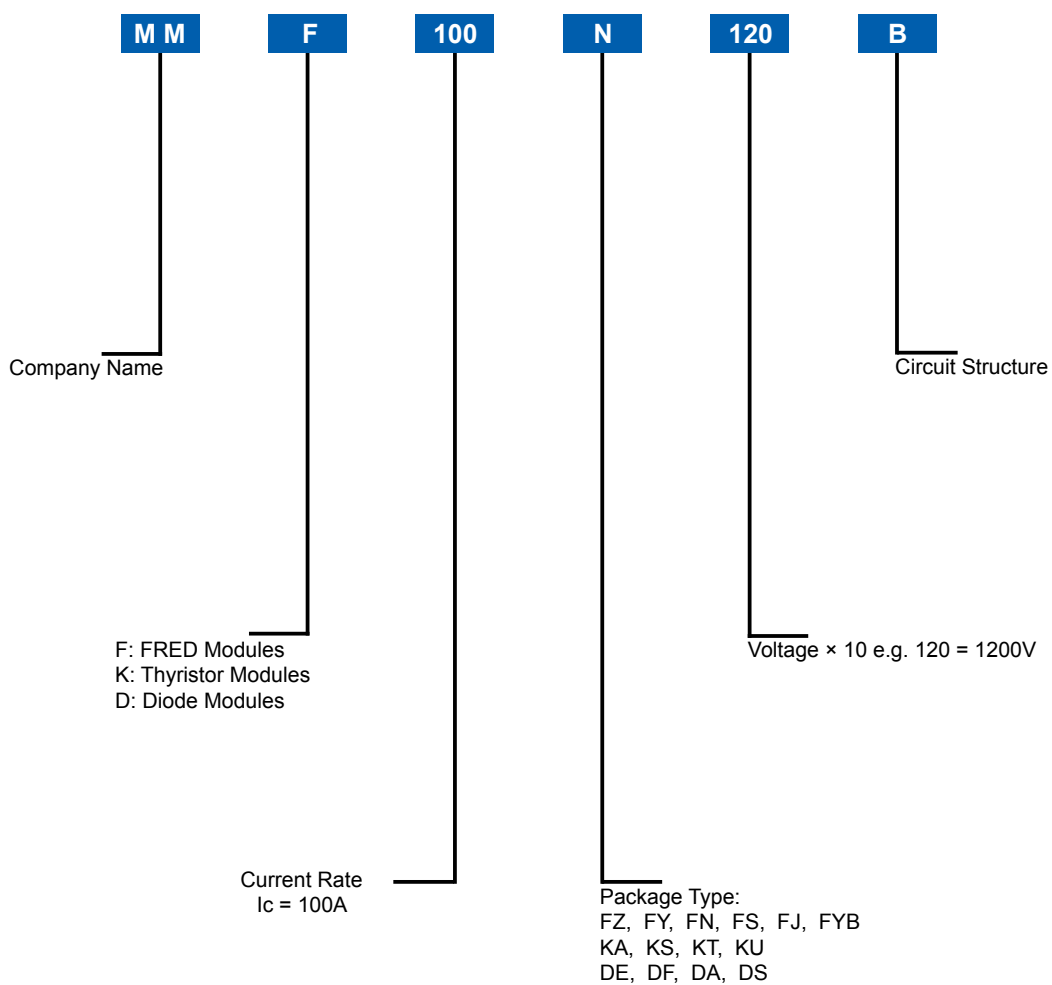


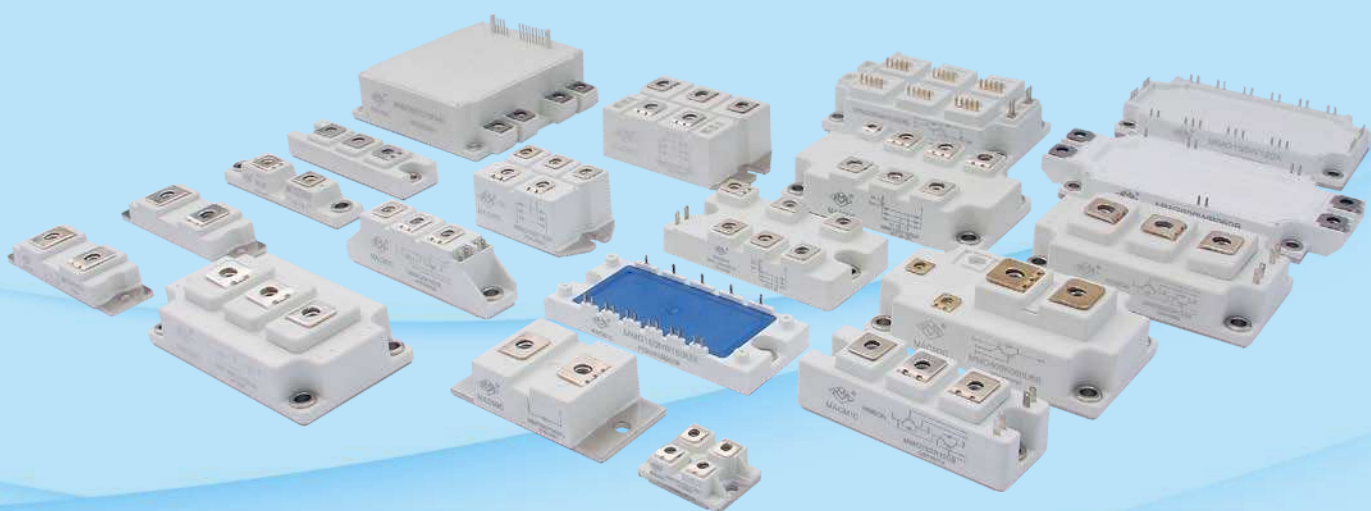
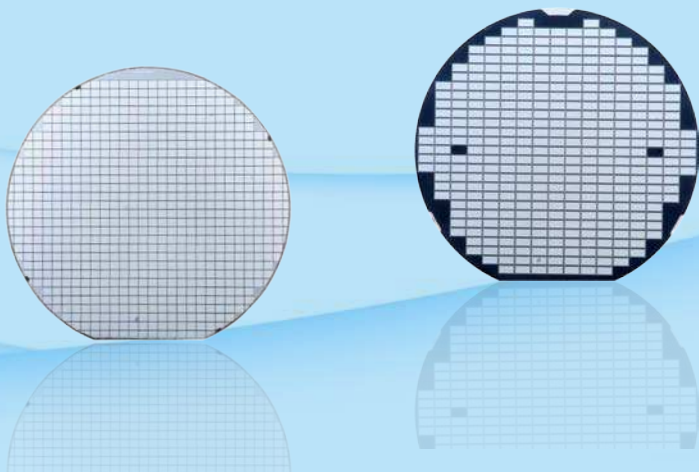


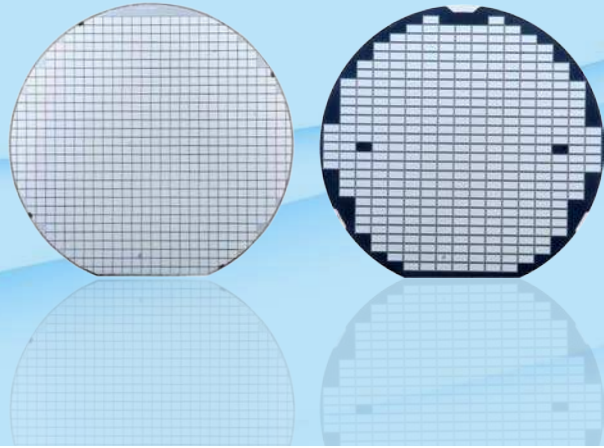
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产品命名 PRODUCT NAMING

快恢复二极管模块/ 晶闸管/ 整流二极管模块 FRED/ THYRISTOR/ DIODE MODULES







FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

FRED 芯片

FRED CHIPS

产品范围 • 100V~1700V / 1A~200A

应用 • 电焊机，变频器
• 各种开关电源，家电，PC电源，UPS
• 功率因数校正电路

特性 • 超快恢复时间
• 软恢复特性
• 反向恢复电荷低
• 漏电流低
• 额定的雪崩能量

RANGES • 100V~1700V / 1A~200A

APPLICATIONS • Welding Machine
• Inverter
• SMPS, UPS, Home Appliances
• PFC

FEATURES • Short Recovery Time
• Soft-recovery Characteristics
• Low Reverse Recovery Charge
• Low Leakage Current
• Avalanche Energy Rated



宏微科技
Power for the Better

FRED 芯片

FRED CHIPS

$T_C=25^{\circ}\text{C}$ unless otherwise noted

Die Type	Die Size (mm)	I_F (A)	V_{RM} (V)	$V_F@I_F$ (V)	trr @ * (ns)
MM01A2A2G	0.93 X 0.93	2	200	0.9	30
MM01A6A2	1.45 X 1.45	6	200	0.9	30
MG01A12AC2	2.0 X 2.0	6 X 2	200	0.9	30
MM01A8B2	1.65 X 1.65	8	200	0.9	30
MG01A16AC2	2.23 X 2.23	8 X 2	200	0.9	30
MM01A8A2	1.8 X 1.8	10	200	0.9	30
MG01A19AC2	2.39 X 2.39	10 X 2	200	0.9	30
MM01A100A1	6.6 X 6.6	100	100	0.88	50
MM01A100A2	6.6 X 6.6	100	200	0.9	50
MM01B10A2U	2.54 X 2.54	10	200	0.88	20
MG01A20AC2	3.66 X 3.66	10 X 2	200	0.88	20
MG01D20AC4	4.25 X 4.25	10 X 2	400	1.3	20
MM01A20BC2	3.88 X 3.88	12 X 2	200	0.9	20
MM01B20A2U	2.4 X 4.8	20	200	1.2	20
MM01B20A4U	2.4 X 4.8	20	400	1.5	20
MM01D1A6	1.04 X 1.04	1	600	1.0	30
MM01D4A4G	1.36 X 1.36	5	400	1.2	35
MM01D4A6G	1.36 X 1.36	4	600	1.3	35
MM01B8B6GU	1.6 X 1.6	8	500	1.2	25
MM01D8A4	2.15 X 2.15	12	400	1.3	30
MM01D8A4U	2.15 X 2.15	10	400	1.5	25
MM01D8A6	2.15 X 2.15	9	600	1.4	30
MM01D8A6U	2.15 X 2.15	8	650	1.9	20
MM01D8A7U	2.15 X 2.15	8	680	2.1	20
MM01D10A4	2.4 X 2.4	15	400	1.1	30
MM01D10A6	2.4 X 2.4	12	600	1.4	30
MM01D10A6U	2.4 X 2.4	10	600	1.6	20
MM01D8B4	1.8 X 1.8	9	400	1.2	30
MM01D8B6	1.8 X 1.8	8	600	1.3	30
MM01D8B6U	1.8 X 1.8	7	600	2.0	20

注：* $I_F=1\text{A}$, $di/dt=-200\text{A/us}$, $V_{CC}=30\text{V}$.

$T_C=25^{\circ}\text{C}$ unless otherwise noted

Die Type	Die Size (mm)	I_F (A)	V_{RM} (V)	$V_F@I_F$ (V)	trr @ * (ns)
MM01D8B7U	1.8 X 1.8	6	680	2.2	20
MM01D15A4	3.0 X 3.0	18	400	1.2	30
MM01D15A4U	3.0 X 3.0	18	400	1.5	20
MM01D15A6	3.0 X 3.0	15	600	1.2	30
MM01D15A6U	3.0 X 3.0	15	600	1.4	20
MM01D30A4	5.5 X 3.0	35	400	1.3	30
MM01D30A4U	5.5 X 3.0	35	400	1.6	22
MM01D30A6	5.5 X 3.0	30	600	1.5	30
MM01D30A6U	5.5 X 3.0	30	600	1.8	22
MM01D60A4	5.54 X 5.54	70	400	1.1	35
MM01D60A6	5.54 X 5.54	60	600	1.3	35
MM01D120A6	10.5 X 7.0	120	600	1.4	40
MM01J1A12G	1.56 X 1.56	1	1200	1.5	100
MM01J10A12U	3.0 X 3.0	10	1200	2.5	25
MM01J15A12U	3.5 X 3.5	15	1200	2.6	25
MM01J20A12U	3.86 X 3.86	20	1200	2.8	25
MM01J30A12U	4.5 X 4.5	30	1200	2.8	25
MM01J60A12U	5.0 X 7.22	60	1200	2.8	30
MM01J75A5	6.6 X 6.6	100	500	2.2	40
MM01J75A6	6.6 X 6.6	100	600	2.3	40
MM01J75A7	6.6 X 6.6	100	700	2.5	40
MM01J75A8	6.6 X 6.6	100	900	3.2	35
MM01D200A6	12 X 12	200	600	1.1	60
MG01J200A6	12 X 12	190	600	1.1	60
MG01J200A7	12 X 12	180	700	1.2	60
MM01J75A12	6.6 X 6.6	75	1200	1.6	45
MM01J100A12	10.5 X 7.0	100	1200	1.6	45
MM01N75A17	8.0 X 8.0	75	1700	2.0	80
MM01N100A17	10.5 X 7.0	100	1700	2.0	80

注：* $I_F=1\text{A}$, $di/dt=-200\text{A/us}$, $V_{CC}=30\text{V}$.



FRED 分立器件

FRED DISCRETES

产品范围 • 200V~1200V / 8A~80A

封装 • TO-220, TO-220F
• TO-247, SOT-227(ISOTOP)
• TO-3P, TO-3PF
• TO-264A, TO-218

应用 • 电焊机
• 各种开关电源, UPS电源
• 家电、PC电源

特性 • 超快恢复时间
• 软恢复特性
• 反向恢复电荷低
• 漏电流低
• 额定的雪崩能量

RANGES • 200V~1200V / 8A~80A

PACKAGES • TO-220, TO-220F
• TO-247, SOT-227(ISOTOP)
• TO-3P, TO-3PF
• TO-264A, TO-218

APPLICATIONS • Welding Machine
• SMPS, UPS

FEATURES • Short Recovery Time
• Soft-recovery Characteristics
• Low Reverse Recovery Charge
• Low Leakage Current
• Avalanche Energy Rated



宏微科技
Power for the Better

FRED 分立器件

FRED DISCRETES

Major Parameters:

$T_C=25^{\circ}\text{C}$ unless otherwise noted

Type		V_{RM}	$I_{F(AV)}$ $d=0.5$	V_F $I_F=I_{F(AV)}$	t_{rr} $I_F=1A$	$R_{\theta jc}$ Per Chip	Package Style
		(V)	(A)	(V)	(ns)	($^{\circ}\text{C}/\text{W}$)	
	D92-02	200	2×10	0.9	20	1.5	TO-3P
	MM4204	400	2×10	1.0	22	1.5	TO-3P
	MM60F020PC	200	2×30	0.86	22	0.8	TO-3P
	MM30F040PC	400	2×15	1.0	30	1.1	TO-3P
	MM60FU030PC	300	2×30	1.1	22	0.8	TO-3P
	MM80FU040PC	400	2×40	1.3	22	0.8	TO-3P
	MM30F060PC	600	2×15	1.4	25	1.1	TO-3P
	MM60F060PC	600	2×30	1.5	30	0.8	TO-3P
	MM8F060K	600	8	1.3	30	3	TO-220
	MM8FU060K	600	8	1.8	17	2.5	TO-220
	MM15F060K1	600	15	1.3	30	2.0	TO-220F
	MM15F060K	600	15	1.3	30	1.5	TO-220
	MM30FU060P	600	30	1.6	25	0.8	TO-3P
	MM30F060P	600	30	1.5	30	0.5	TO-3P
	MM60F060P	600	60	1.3	40	0.5	TO-3P
	MM60F060B	600	60	1.3	40	0.5	TO-247
	MM10FU120K	1200	10	2.5	22	2.5	TO-220
	MM10F120K1	1200	10	2.1	30	2.5	TO-220F
	MM15FU120K	1200	15	2.6	25	2.5	TO-220
	MM20FU120K	1200	20	2.6	25	2.5	TO-220
	MM30F120K	1200	30	2.8	28	0.5	TO-220
	MM30F120B	1200	30	2.8	28	0.5	TO-247
	MM60F120B	1200	60	2.8	35	0.5	TO-247

FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

FRED
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THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

V_{RM}



FD(62mm)



FYB(42mm)



FS(34mm)



FY(27mm)



FJ(26.5mm)



FN(26mm)



FZ(20mm)

1700V	100A		200A	300A	400A	
1200V	100A	150A	200A	300A		
900V	100A					
700V	60A	100A				
600V	100A	150A	200A	300A		600A
500V				300A		
400V	100A		200A	300A	400A	
200V			200A			
100V						500A

$I_{F(AV)}$



FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

快恢复二极管模块

FRED MODULES

产品范围 • 100V~1700V / 60A~600A

封装 • FZ FN FJ FY FS FYB FD

电路结构 • 非绝缘式共阴电路
• 绝缘式共阴电路
• 绝缘式共阳电路
• 绝缘式半桥电路

应用 • 电焊机
• 各种开关电源, UPS
• 变频器、斩波调速
• 功率因数校正装置

特性 • 恢复时间快
• 软恢复特性
• 正向压降低
• 低电感封装
• 无机械应力封装

RANGES • 100V~1700V / 60A~600A

PACKAGES • FZ FN FJ FY FS FYB FD

CIRCUIT CONFIGURATION • Non-insulated Common-cathode Circuit
• Insulated Common-cathode Circuit
• Insulated Common-anodic Circuit
• Insulated Half Bridge Circuit

APPLICATIONS • Welding Machine
• SMPS, UPS
• Inverter, Chopper
• PFC

FEATURES • Short Recovery Time
• Soft-recovery Characteristics
• Low Reverse Recovery Charge
• Low Forward Voltage
• Avalanche Energy Rated
• Stressless Package

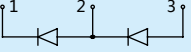
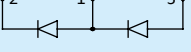
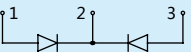
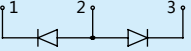


快恢复二极管模块

FRED MODULES

Major Parameters:

$T_c = 25^\circ\text{C}$ unless otherwise noted

Type		V _{RRM}	I _{F(AV)} d=0.5	I _{FSM} 10ms T _j =45°C	V _{FM} @ I _{FM}		t _{rr} typ	R _{θjc} Per Chip	Package Style
					(V)	(A)			
	MMF150N060B6B	600	2×150	1500	1.15	150	200	0.34	FN
	MMF100N120B	1200	2×100	1100	1.77	100	250	0.44	FN
	MMF400S040B	400	2×400	4000	1.55	400	250	0.10	FS
	MMF150S060B	600	2×150	1500	1.6	150	180	0.22	FS
	MMF200S060B	600	2×200	2000	1.6	200	200	0.18	FS
	MMF300S060B	600	2×300	3000	1.65	300	220	0.14	FS
	MMF150S120B	1200	2×150	1500	1.8	150	250	0.18	FS
	MMF200S120B	1200	2×200	2000	1.8	200	250	0.16	FS
	MMF300S120B	1200	2×300	3000	1.8	300	250	0.14	FS
	MMF100S170B	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170B	1700	2×200	2200	2.37	200	310	0.1	FS
	MMF300N060DK6B	600	2×150	1500	1.15	150	200	0.34	FN
	MMF200N120DK	1200	2×100	1100	1.77	100	250	0.44	FN
	MMF200N070DK	700	2×100	1100	1.55	100	180	0.34	FN
	MMF200N090DK	900	2×100	1000	1.6	100	190	0.34	FN
	MMF400S040DK	400	2×400	4000	1.55	400	250	0.10	FS
	MMF150S060DK	600	2×150	1500	1.6	150	180	0.22	FS
	MMF200S060DK	600	2×200	2000	1.6	200	200	0.18	FS
	MMF300S060DK	600	2×300	3000	1.65	300	220	0.14	FS
	MMF150S120DK	1200	2×150	1500	1.8	150	250	0.18	FS
	MMF200S120DK	1200	2×200	2000	1.8	200	250	0.16	FS
	MMF300S120DK	1200	2×300	3000	1.8	300	250	0.14	FS
	MMF100S170DK	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170DK	1700	2×200	2200	2.37	200	310	0.1	FS
	MMF300N060DA6B	600	2×150	1500	1.15	150	200	0.34	FN
	MMF200N120DA	1200	2×100	1100	1.77	100	250	0.44	FN
	MMF200N070DA	700	2×100	1100	1.55	100	180	0.34	FN
	MMF200N090DA	900	2×100	1000	1.6	100	190	0.34	FN
	MMF100S170DA	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170DA	1700	2×200	2200	2.37	200	310	0.1	FS



FN



FS



FZ



FY



FYB



FS



FJ

FRED
CHIPSFRED
DISCRETESFRED
MODULESIGBT
MODULESTHYRISTOR
MODULESRECTIFIER DIODE
MODULESTHREE-PHASE
RECTIFIER BRIDGE
MODULES

Major Parameters:

 $T_C=25^\circ\text{C}$ unless otherwise noted

Type		V_{RRM}	$I_{F(AV)}$ $d=0.5$	I_{FSM} 10ms $T_J=45^\circ\text{C}$	$V_{FM} @ I_{FM}$		t_{rr} typ	$R_{\theta jc}$ Per Chip	Package Style
		(V)	(A)	(A)	(V)	(A)	(ns)	($^\circ\text{C/W}$)	
	MMF200ZB040DK1	400	2×100	1500	1.1	100	150	0.20	FZ
	MMF200ZB040DK1B	400	2×100	1350	1.1	100	85	0.21	FZ
	MMF400Z020DK1	200	2×200	1800	0.95	200	112	0.20	FZ
	MMF1000Y010DK1	100	2×500	5000	1.0	500	300	0.06	FY
	MMF200Y040DK1	400	2×100	1500	1.1	100	150	0.15	FY
	MMF400Y040DK1	400	2×200	4000	1.1	200	210	0.06	FY
	MMF300Y060DK1	600	2×150	3500	1.1	150	220	0.06	FY
	MMF300Y060DK1B	600	2×150	2650	1.3	150	95	0.075	FY
	MMF600SB060U	600	600	6000	1.65	600	250	0.075	FSB
	MMF200S170U	1700	200	1100	2.37	200	320	0.2	FS
	MMF400S170U	1700	400	4400	2.37	400	350	0.1	FS
	MMF300YB050U	500	300	5000	1.2	300	340	0.11	FYB
	MMF400S040DK2B	400	2×400	4000	1.55	400	250	0.10	FS
	MMF150S060DK2B	600	2×150	1500	1.6	150	180	0.22	FS
	MMF200S060DK2B	600	2×200	2000	1.6	200	200	0.18	FS
	MMF300S060DK2B	600	2×300	3000	1.65	300	220	0.14	FS
	MMF150S120DK2B	1200	2×150	1500	1.8	150	250	0.18	FS
	MMF200S120DK2B	1200	2×200	2000	1.8	200	250	0.16	FS
	MMF300S120DK2B	1200	2×300	3000	1.8	300	250	0.14	FS
	MMF100S170DK2B	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170DK2B	1700	2×200	2200	2.37	200	310	0.1	FS
	MMF100S170DA2B	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170DA2B	1700	2×200	2200	2.37	200	310	0.1	FS
	MMF100S170B2B	1700	2×100	1100	2.37	100	300	0.2	FS
	MMF200S170B2B	1700	2×200	2200	2.37	200	310	0.1	FS
	MMF2X100J040D	400	2×100	1500	1.1	100	150	0.3	FJ
	MMF2X100J060D	600	2×100	1500	1.2	100	115	0.3	FJ
	MMF2X60J070D	700	2×60	600	1.57	60	130	0.6	FJ
	MMF2X100J120D	1200	2×100	1500	2.1	100	200	0.6	FJ

FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

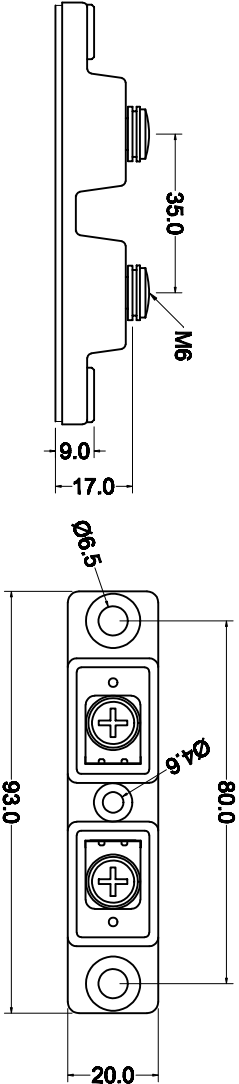
IGBT
MODULES

THYRISTOR
MODULES

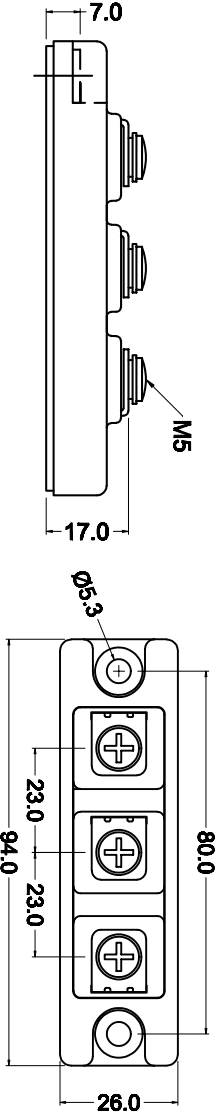
RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

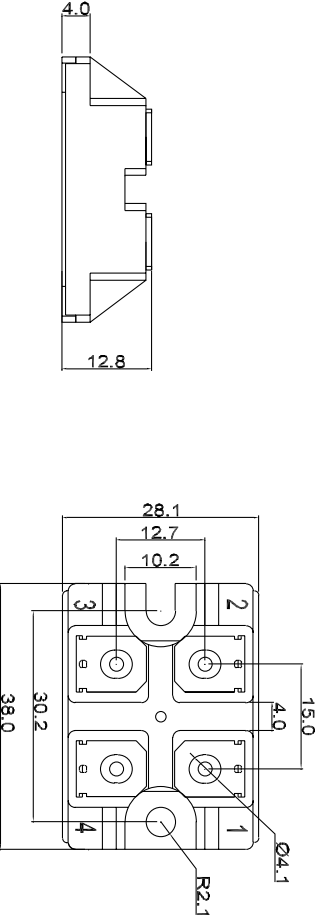
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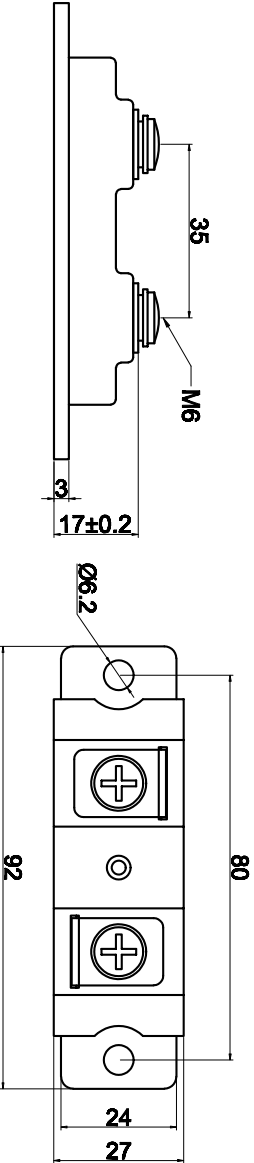
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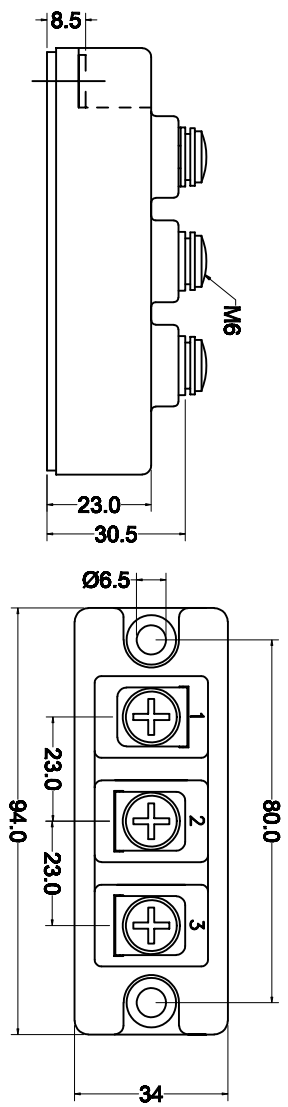
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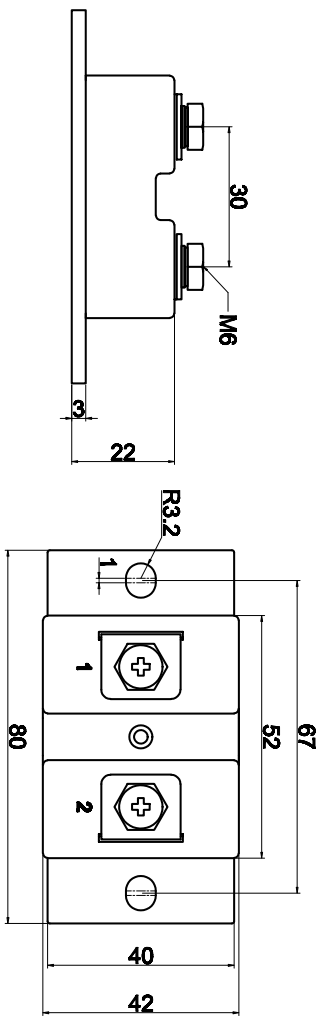
FY



FS



FVB



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MODULES

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RECTIFIER BRIDGE
MODULES

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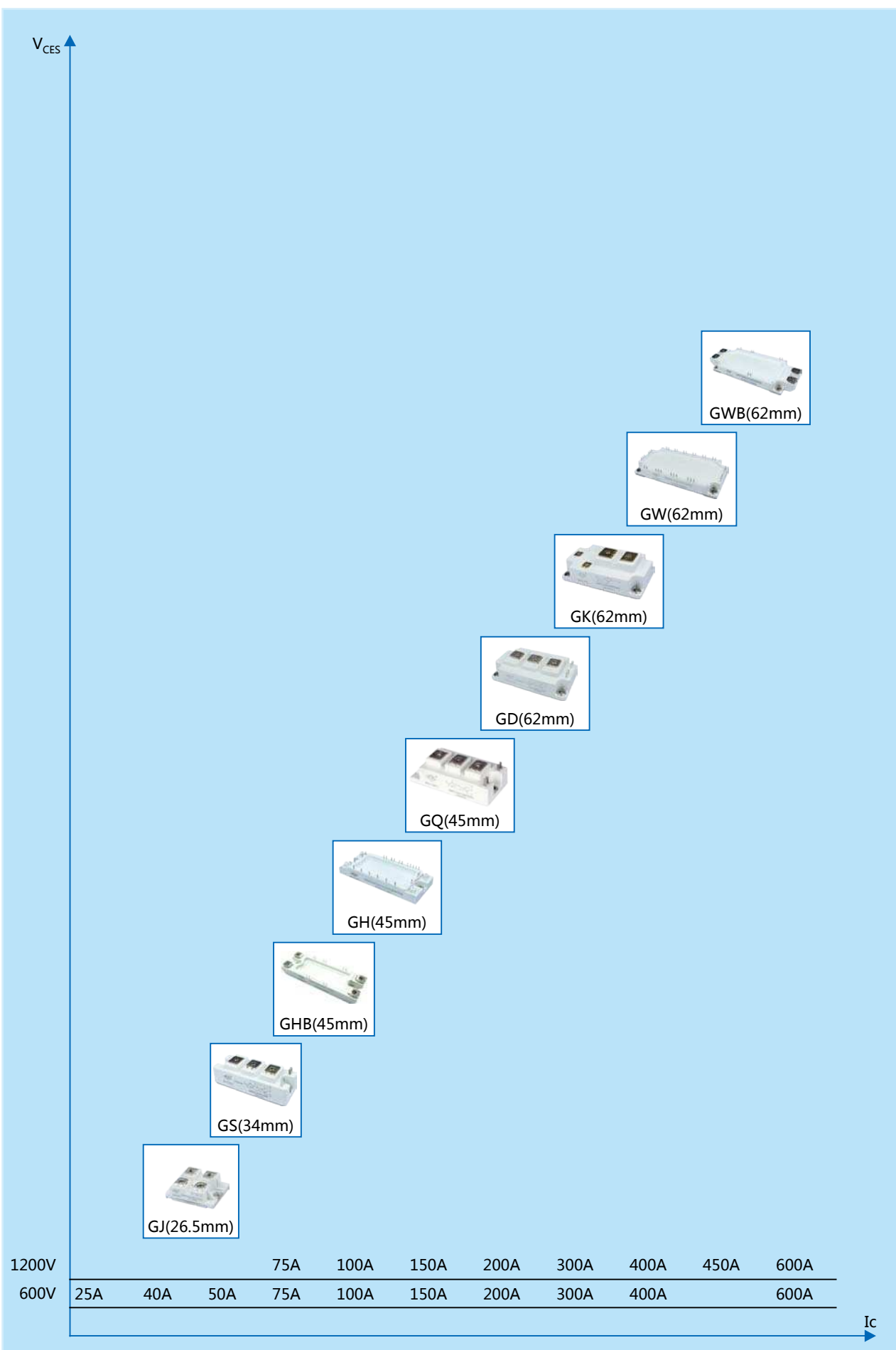
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MODULES

IGBT 模块

IGBT MODULES

产品范围 • 600V~1200V / 25 - 600A

封装 • GJ GS GHB GD GK GW GWB GH GQ

电路结构 • 单元电路
• 半桥电路
• 斩波电路
• 共发射极电路

应用 • 逆变电焊机、切割机
• 电镀电源、感应加热
• 逆变电源、UPS、变频器、斩波调速
• 光伏逆变器、风电变流器
• 电动汽车
• 工业伺服

特性 • 开关速度快
• 饱和压降低
• 软关断特性
• 短路承受能力强

RANGES • 600V~1200V / 25 - 600A

PACKAGES • GJ GS GHB GD GK GW GWB GH GQ

CIRCUIT CONFIGURATION • Unit Circuit
• Half Bridge Circuit
• Chopping Circuit
• Common-Emitter Circuit

APPLICATIONS • Inverter Welder, Cutting Machine
• Plating Power Supply
• Induction Heating
• SMPS, UPS, EPS
• Inverter, Chopper
• Solar, EV, Wind-Power

FEATURES • Fast Switching Speed
• Low Conduction Loss
• Soft Turn-off Characteristic
• Short Circuit Rated



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IGBT 模块

IGBT MODULES

600V IGBT Modules		V_{CES} min.	I_C $T_C=80^\circ C$	$V_{CE(sat)}$ typ.	P_D max.	E_{off} typ.	$R_{\theta jc}$ max.	Package Style
Type		(V)	(A)	(V)	(W)	(mJ)	(K/W)	
	MMG100SR060B	600	100	1.9	625	3.5	0.20	GS
	MMG200DR060B	600	200	1.9	1100	7	0.10	GD
	MMG75S060B6N	600	75	2.1	460	2.8	0.27	GS
	MMG100S060B6N	600	100	2.1	500	3	0.25	GS
	MMG150S060B6N	600	150	1.95	625	4.6	0.20	GS
	MMG200S060B6N	600	200	1.95	735	6.3	0.17	GS
	MMG200D060B6N	600	200	1.95	833	7	0.15	GD
	MMG300D060B6N	600	300	1.95	1250	10	0.10	GD
	MMG400D060B6N	600	400	1.95	1400	14.5	0.09	GD
	MMG450WB060B6N	600	450	1.95	1562	17.5	0.08	GWB
	MMG600WB060B6N	600	600	1.95	2080	21.9	0.06	GWB
	MMG150S060B6EN	600	150	1.7	680	6.6	0.22	GS
	MMG200S060B6EN	600	200	1.7	830	8.3	0.18	GS
	MMG300D060B6EN	600	300	1.7	1150	12	0.13	GD
	MMG400D060B6EN	600	400	1.7	1360	16.5	0.11	GD
	MMG450WB060B6EN	600	450	1.7	1500	22.1	0.10	GWB
	MMG600WB060B6EN	600	600	1.7	1870	26.5	0.08	GWB
	MMG75S060UA6N	600	75	2.1	460	2.8	0.27	GS
	MMG100S060UA6N	600	100	2.1	500	3	0.25	GS
	MMG150S060UA6N	600	150	1.95	625	4.6	0.20	GS
	MMG200S060UA6N	600	200	1.95	735	6.3	0.17	GS
	MMG200D060UA6N	600	200	1.95	833	7	0.15	GD
	MMG300D060UA6N	600	300	1.7	1150	12	0.13	GD
	MMG400D060UA6N	600	400	1.95	1400	14.5	0.09	GD
	MMG75SR060UA	600	75	1.7	625	3.5	0.20	GS
	MMG100SR060UA	600	100	1.9	625	3.5	0.20	GS
	MMG150DR060UA	600	150	1.7	1100	7	0.10	GD
	MMG200DR060UA	600	200	1.9	1100	7	0.10	GD



GS



GD



GWB



GK

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IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

Type		V_{CES} min. (V)	I_C $T_C=80^\circ\text{C}$ (A)	$V_{CE(sat)}$ typ. (V)	P_D max. (W)	E_{off} typ. (mJ)	$R_{\theta jc}$ max. (K/W)	Package Style
	MMG75S060UZA6N	600	75	2.1	460	2.8	0.27	GS
	MMG100S060UZA6N	600	100	2.1	500	3	0.25	GS
	MMG150S060UZA6N	600	150	1.95	625	4.6	0.20	GS
	MMG200S060UZA6N	600	200	1.95	735	6.3	0.17	GS
	MMG200D060UZA6N	600	200	1.95	833	7	0.15	GD
	MMG300D060UZA6N	600	300	1.7	1150	12	0.13	GD
	MMG400D060UZA6N	600	400	1.95	1400	14.5	0.09	GD
	MMG75SR060UZA	600	75	1.7	625	3.5	0.20	GS
	MMG100SR060UZA	600	100	1.9	625	3.5	0.20	GS
	MMG150DR060UZA	600	150	1.7	1100	7	0.10	GD
	MMG200DR060UZA	600	200	1.9	1100	7	0.10	GD
	MMG75S060UK6N	600	75	2.1	460	2.8	0.27	GS
	MMG100S060UK6N	600	100	2.1	500	3	0.25	GS
	MMG150S060UK6N	600	150	1.95	625	4.6	0.20	GS
	MMG200S060UK6N	600	200	1.95	735	6.3	0.17	GS
	MMG200D060UK6N	600	200	1.95	833	7	0.15	GD
	MMG300D060UK6N	600	300	1.7	1150	12	0.13	GD
	MMG400D060UK6N	600	400	1.95	1400	14.5	0.09	GD
	MMG75SR060UK	600	75	1.7	625	3.5	0.20	GS
	MMG100SR060UK	600	100	1.9	625	3.5	0.20	GS
	MMG150DR060UK	600	150	1.7	1100	7	0.10	GD
	MMG200DR060UK	600	200	1.9	1100	7	0.10	GD
	MMG75SR060UZK	600	75	1.7	625	3.5	0.20	GS
	MMG100SR060UZK	600	100	1.9	625	3.5	0.20	GS
	MMG150DR060UZK	600	150	1.7	1100	7	0.10	GD
	MMG200DR060UZK	600	200	1.9	1100	7	0.10	GD
	MMG75SR060DE	600	75	1.7	625	3.5	0.20	GS
	MMG100SR060DE	600	100	1.9	625	3.5	0.20	GS
	MMG150DR060DE	600	150	1.7	1100	7	0.10	GD
	MMG200DR060DE	600	200	1.9	1100	7	0.10	GD
	MMG400KR060U	600	420	1.9	2083	14	0.06	GK



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IGBT MODULES

1200V IGBT Modules		V_{CES} min. (V)	I_C $T_C=80^\circ\text{C}$ (A)	$V_{CE(sat)}$ typ. (V)	P_D max. (W)	E_{off} typ. (mJ)	$R_{\theta jc}$ max. (K/W)	Package Style
	MMG50SR120B	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120B	1200	75	1.8	630	7.8	0.20	GS
	MMG75S120B6C	1200	75	3.2	630	8.2	0.20	GS
	MMG100SR120B	1200	100	1.8	690	10.8	0.18	GS
	MMG100DR120B	1200	100	1.8	830	10.8	0.15	GD
	MMG100S120B6C	1200	100	3.2	690	12.2	0.18	GS
	MMG150DR120B	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120B	1200	200	1.8	1400	21.6	0.09	GD
	MMG200Q120B	1200	200	1.8	1050	13.6	0.12	GQ
	MMG300DR120B	1200	300	1.9	1800	30.6	0.07	GD
	MMG100S120B6TN	1200	100	1.7	660	15	0.19	GS
	MMG150D120B6TN	1200	150	1.7	1040	22	0.12	GD
	MMG200D120B6TN	1200	200	1.7	1320	26.5	0.095	GD
	MMG200HB120B6TN	1200	200	1.7	1320	26.5	0.095	GHB
	MMG300D120B6TN	1200	300	1.7	1470	37	0.085	GD
	MMG400D120B6TN	1200	400	1.7	1670	51	0.075	GD
	MMG225WB120B6TN	1200	225	1.7	1400	28	0.09	GWB
	MMG300WB120B6TN	1200	300	1.7	1470	36	0.085	GWB
	MMG450WB120B6TN	1200	450	1.7	1950	55	0.064	GWB
	MMG75S120B6UN	1200	75	3.2	625	4.0	0.20	GS
	MMG100S120B6UN	1200	100	3.2	690	5.0	0.18	GS
	MMG150D120B6UN	1200	150	3.2	1250	7.4	0.10	GD
	MMG200D120B6UN	1200	200	3.2	1400	8.5	0.09	GD
	MMG300D120B6UN	1200	300	3.2	1600	12.5	0.078	GD
	MMG50SR120UA	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120UA	1200	75	1.8	630	7.8	0.20	GS
	MMG100SR120UA	1200	100	1.8	690	10.8	0.18	GS
	MMG150DR120UA	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120UA	1200	200	1.8	1400	21.6	0.09	GD
	MMG50SR120UZA	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120UZA	1200	75	1.8	630	7.8	0.20	GS
	MMG100SR120UZA	1200	100	1.8	690	10.8	0.18	GS
	MMG150DR120UZA	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120UZA	1200	200	1.8	1400	21.6	0.09	GD
	MMG75HB120H6UN	1200	75	3.2	500	2.6	0.25	GHB



GS



GD



GWB



GK



GW



GH



GJ



GHB

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THYRISTOR
MODULES

RECTIFIER DIODE
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THREE-PHASE
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MODULES

1200V IGBT Modules		V_{CES} min.	I_C $T_C=80^\circ\text{C}$	$V_{CE(sat)}$ typ.	P_D max.	E_{off} typ.	$R_{\theta jc}$ max.	Package Style
Type		(V)	(A)	(V)	(W)	(mJ)	(K/W)	
	MMG50SR120UZK	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120UZK	1200	75	1.8	630	7.8	0.20	GS
	MMG100SR120UZK	1200	100	1.8	690	10.8	0.18	GS
	MMG150DR120UZK	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120UZK	1200	200	1.8	1400	21.6	0.09	GD
	MMG50SR120UK	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120UK	1200	75	1.8	630	7.8	0.20	GS
	MMG100SR120UK	1200	100	1.8	690	10.8	0.18	GS
	MMG150DR120UK	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120UK	1200	200	1.8	1400	21.6	0.09	GD
	MMG50SR120DE	1200	50	1.8	500	5.8	0.30	GS
	MMG75SR120DE	1200	75	1.8	630	7.8	0.20	GS
	MMG100SR120DE	1200	100	1.8	690	10.8	0.18	GS
	MMG150DR120DE	1200	150	1.8	1100	15.6	0.11	GD
	MMG200DR120DE	1200	200	1.8	1400	21.6	0.09	GD
	MMG25H120X6TN	1200	25	1.7	100	2.9	1.20	GH
	MMG50H120X6TN	1200	50	1.7	270	5.8	0.45	GH
	MMG75H120X6TN	1200	75	1.7	350	8.1	0.35	GH
	MMG100W120X6TN	1200	100	1.7	480	10.0	0.26	GW
	MMG150W120X6TN	1200	150	1.7	700	14.5	0.18	GW
	MMD75HB160UX6TN	1200	75	1.8	625	5	0.20	DHB
	MMD100HB160UX6TN	1200	100	1.8	700	6.8	0.18	DHB
	MMD150HB160UX6TN	1200	150	1.8	830	9.8	0.15	DHB
	MMG25H120XB6TN	1200	25	1.7	100	2.9	1.20	GH
	MMG40H120XB6TN	1200	40	1.7	210	4.1	0.60	GH
	MMG50W120XB6TN	1200	50	1.7	270	5.8	0.45	GW
	MMG75W120XB6TN	1200	75	1.7	350	9.4	0.35	GW
	MMG400K120U	1200	400	1.9	2780	43.2	0.045	GK
	MMG600K120U	1200	600	1.9	3125	61.2	0.04	GK
	MMG50J120U	1200	50	1.8	500	5.8	0.30	GJ
	MMG75J120U	1200	75	1.8	630	7.8	0.20	GJ
	MMG400K120U6UN	1200	400	3.2	1920	17.0	0.065	GK
	MMG600K120U6UN	1200	600	3.2	2600	21.5	0.048	GK
	MMG75J120UZ	1200	75	1.8	625	7.8	0.2	GJ
	MMG100J120UZ	1200	105	1.8	690	10.8	0.18	GJ

FRED
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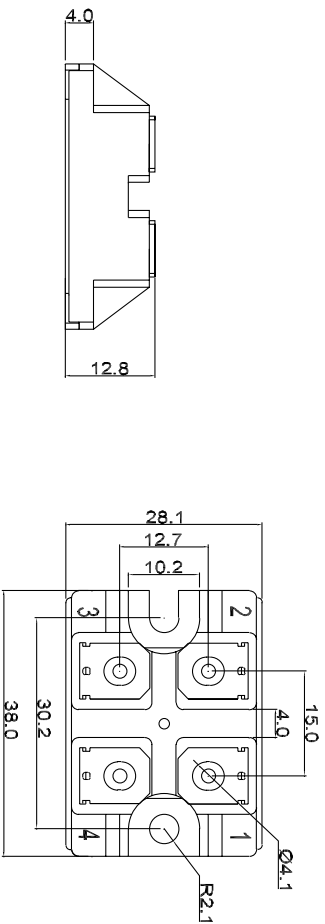
IGBT
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THYRISTOR
MODULES

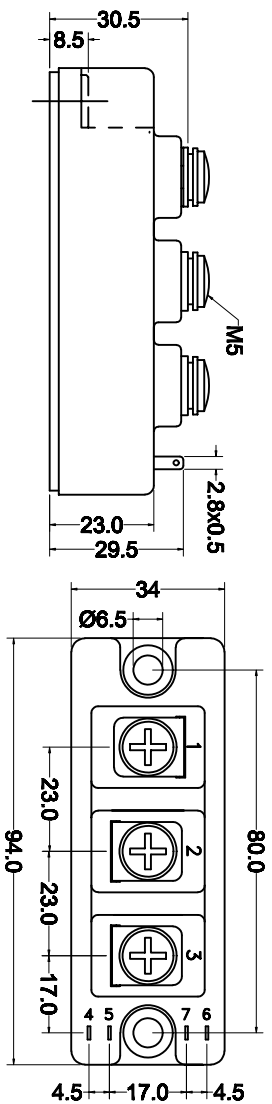
RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

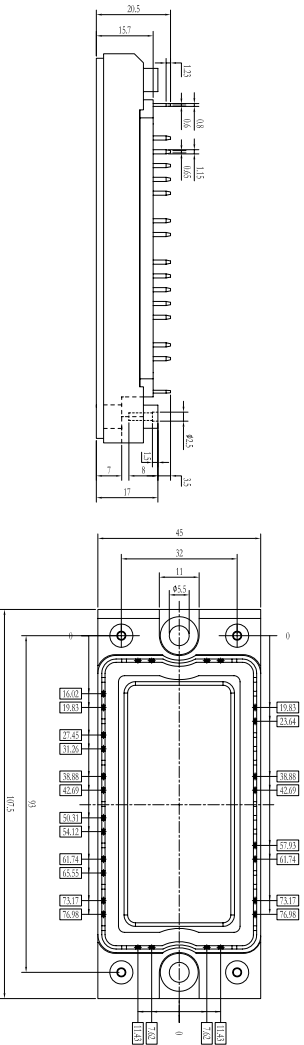
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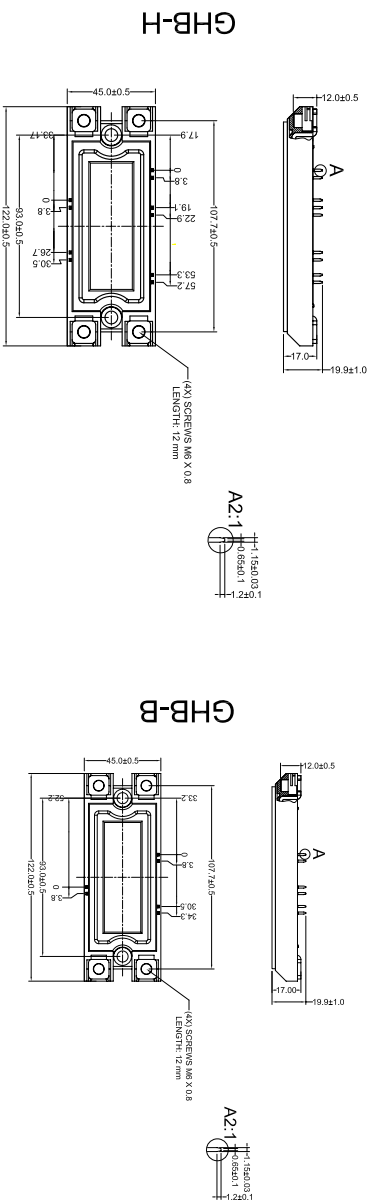
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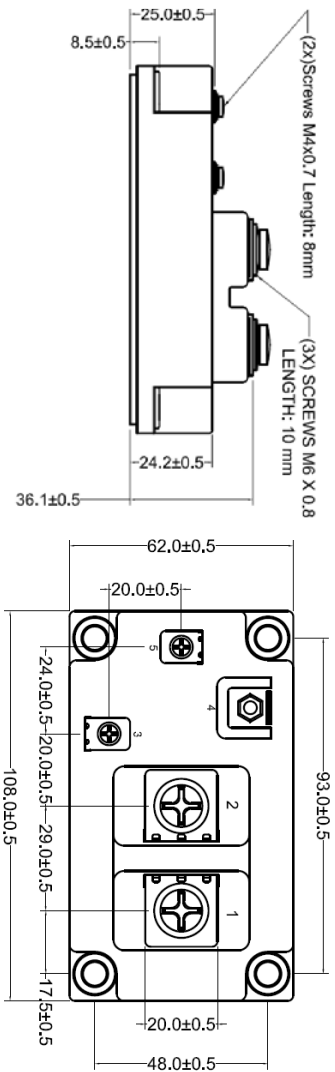
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GHB



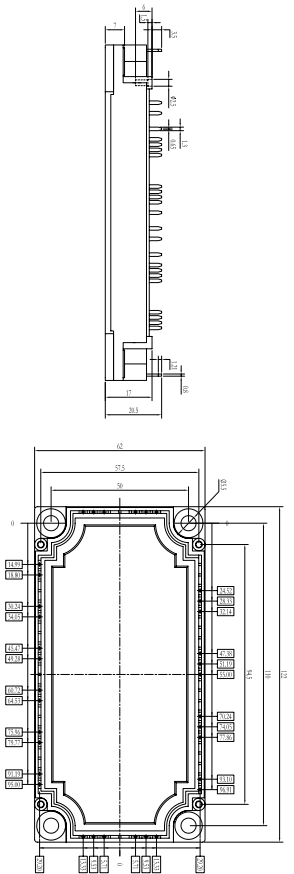
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FRED
CHIPS

FRED
DISCRETES

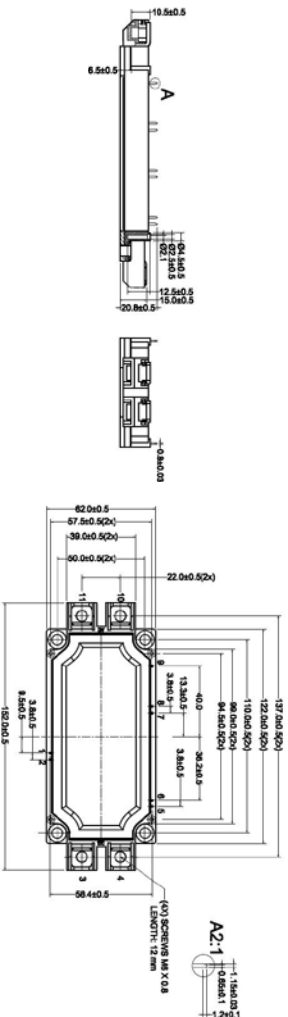
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FRED
MODULES

IGBT
MODULES

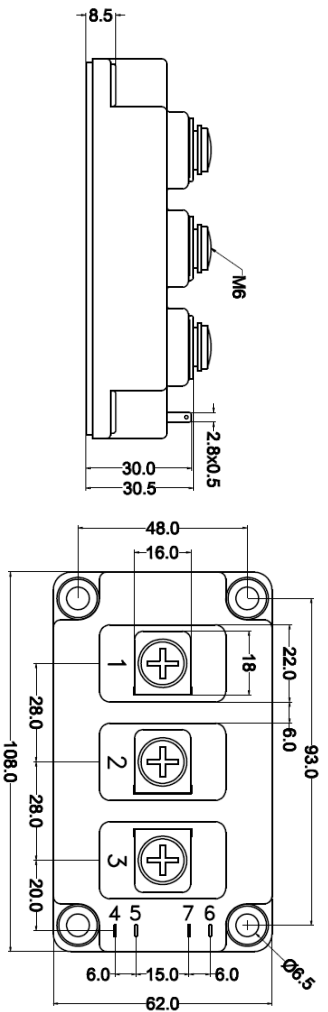
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THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

GD



THREE-PHASE
RECTIFIER BRIDGE
MODULES

FRED
CHIPS

FRED
DISCRETES

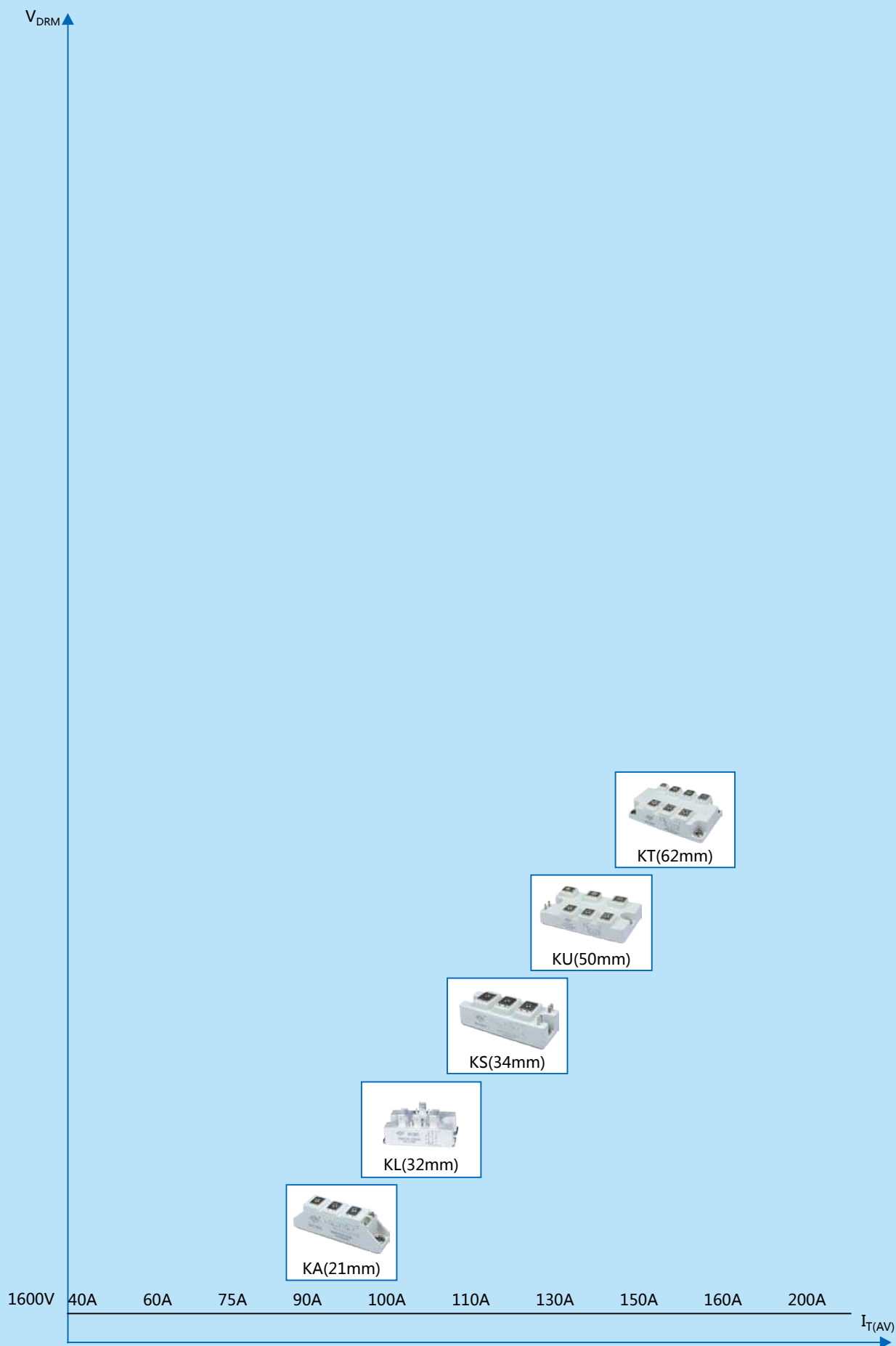
FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES





FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

晶闸管模块

THYRISTOR MODULES

产品范围 • 1600V / 40A~200A

封装 • KA KS KU KT KL

电路结构 • 半桥电路
• 半控桥电路
• 整流开关电路

应用 • 变频器、软启动器
• 开关电源、UPS电源
• 电焊机

特性 • 结构紧凑、可靠性高
• 通流能力强、性价比高
• 耐压高

RANGES • 1600V / 40A~200A

PACKAGES • KA KS KU KT KL

CIRCUIT CONFIGURATION • Half Bridge Circuit
• Half – controlled Bridge Circuit
• Rectifier and Switching Circuit

APPLICATIONS • SMPS, UPS
• Inverter, Soft-starter
• Welding Machine

FEATURES • Compact Design
• High Current Capability
• High Blocking Voltage
• High Reliability
• High Performance Price Ratio



MACMIC

宏微科技

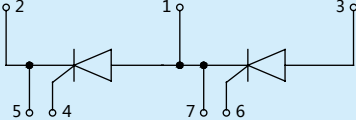
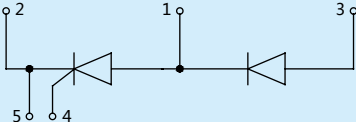
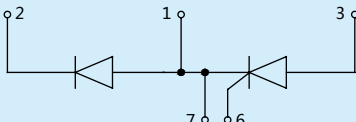
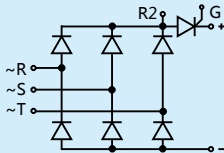
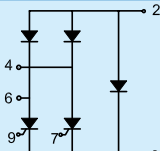
Power for the Better

晶闸管模块

THYRISTOR MODULES

Major Parameters:

 $T_C = 25^\circ\text{C}$ unless otherwise noted

Type		V_{DRM} V_{RRM} (V)	$I_{\text{T(AV)}}$ $I_{\text{F(AV)}}$ (A)	$V_{\text{TM}}@I_{\text{TM}}$ (V) (A)		R_{thJC} (K/W)	Package Style
	MMK40A160B	1600	40	1.81	141	0.5	KA
	MMK60A160B	1600	60	1.54	188	0.45	KA
	MMK90A160B	1600	90	1.60	282	0.35	KA
	MMK110A160B	1600	110	1.64	345	0.30	KA
	MMK130S160B	1600	130	1.57	408	0.20	KS
	MMK160S160B	1600	160	1.54	502	0.18	KS
	MMK40A160UA	1600	40	1.81	141	0.5	KA
	MMK60A160UA	1600	60	1.54	188	0.45	KA
	MMK90A160UA	1600	90	1.60	282	0.35	KA
	MMK110A160UA	1600	110	1.64	345	0.30	KA
	MMK130S160UA	1600	130	1.57	408	0.20	KS
	MMK160S160UA	1600	160	1.54	502	0.18	KS
	MMK40A160UK	1600	40	1.81	141	0.5	KA
	MMK60A160UK	1600	60	1.54	188	0.45	KA
	MMK90A160UK	1600	90	1.60	282	0.35	KA
	MMK110A160UK	1600	110	1.64	345	0.30	KA
	MMK130S160UK	1600	130	1.57	408	0.20	KS
	MMK160S160UK	1600	160	1.54	502	0.18	KS
	MMK75U160UX	1600	75	1.50	280	0.35	KU
	MMK100U160UX	1600	100	1.54	312	0.30	KU
	MMK75T160UX	1600	75	1.50	280	0.14	KT
	MMK100T160UX	1600	100	1.54	314	0.14	KT
	MMK150T160UX	1600	150	1.54	502	0.18	KT
	MMK200T160UX	1600	200	1.54	628	0.15	KT
	MMK25L160HB	1600	25	1.80	80	0.5	KL
	MMK35L160HB	1600	35	1.90	110	0.45	KL



KA



KS



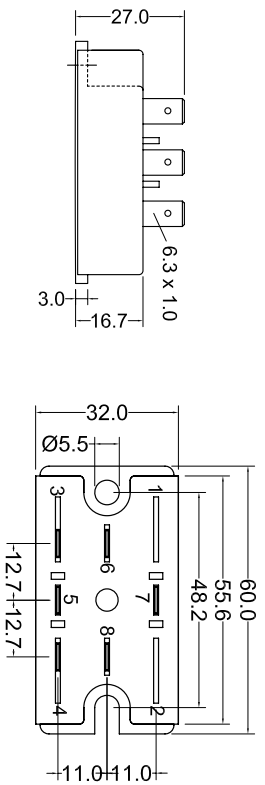
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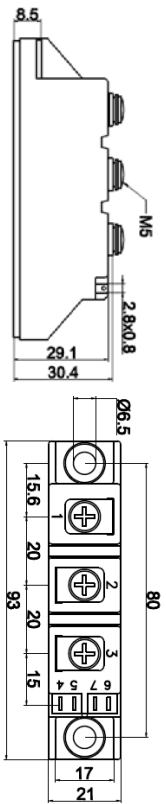
KT



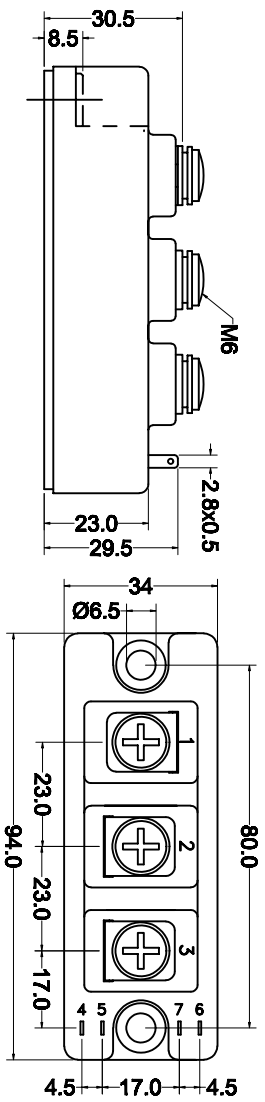
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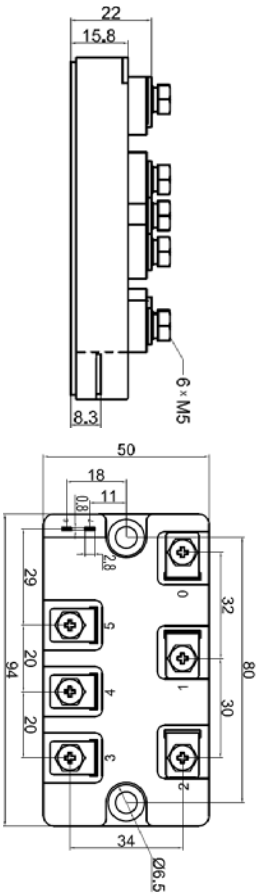
KL



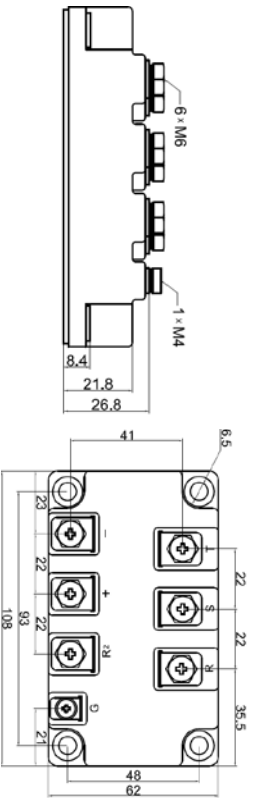
KA



KS



KU



KT

FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

FRED
CHIPS

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DISCRETES

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THYRISTOR
MODULES

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MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

V_{RRM}



DS(34mm)



DA(21mm)

1800V	90A	110A	130A	160A	180A	200A
1600V	90A	110A	130A	160A	180A	200A
1400V	90A	110A	130A	160A	180A	200A
1200V	90A	110A	130A	160A	180A	200A

$I_{F(AV)}$



整流二极管模块

RECTIFIER DIODE MODULES

产品范围 • 1200V~1800V / 90A~200A

封装 • DA DS

电路结构 • 半桥电路
• 共阴电路

应用 • 变频器
• 各种开关电源
• UPS
• 电焊机
• 各种逆变电源

特性 • 结构紧凑、可靠性高
• 通流能力强、性价比高
• 耐压高

RANGES • 1200V~1800V / 90A~200A

PACKAGES • DA DS

CIRCUIT CONFIGURATION • Half Bridge Circuit
• Common-cathode Circuit

APPLICATIONS • SMPS, UPS
• Inverter
• Welding Machine
• DC Power Supply

FEATURES • Compact Design
• High Current Capability
• High Blocking Voltage
• High Reliability
• High Performance Price Ratio

FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES



整流二极管模块

RECTIFIER DIODE MODULES

Major Parameters:

$T_C=25^{\circ}\text{C}$ unless otherwise noted

Type		V_{RRM} (V)	$I_{F(AV)}$ $T_C=85^{\circ}\text{C}$ (A)	I_{FSM} 10ms 45°C (A)	$V_{FM}@I_{FM}$ $T_J=125^{\circ}\text{C}$ (V) (A)		R_{thJC} (K/W)	Package Style
	MMD90A120B	1200	90	2000	1.33	200	0.36	DA
	MMD90A160B	1600	90	2000	1.33	200	0.36	DA
	MMD90A180B	1800	90	2000	1.33	200	0.36	DA
	MMD110A120B	1200	110	2500	1.30	200	0.30	DA
	MMD110A160B	1600	110	2500	1.30	200	0.30	DA
	MMD110A180B	1800	110	2500	1.30	200	0.30	DA
	MMD130S120B	1200	130	3500	1.25	300	0.20	DS
	MMD130S160B	1600	130	3500	1.25	300	0.20	DS
	MMD130S180B	1800	130	3500	1.25	300	0.20	DS
	MMD160S120B	1200	160	5000	1.25	350	0.18	DS
	MMD160S160B	1600	160	5000	1.25	350	0.18	DS
	MMD160S180B	1800	160	5000	1.25	350	0.18	DS
	MMD180S120B	1200	180	6000	1.23	400	0.17	DS
	MMD180S160B	1600	180	6000	1.23	400	0.17	DS
	MMD180S180B	1800	180	6000	1.23	400	0.17	DS
	MMD200S120B	1200	200	7000	1.3	500	0.16	DS
	MMD200S160B	1600	200	7000	1.3	500	0.16	DS
	MMD200S180B	1800	200	7000	1.3	500	0.16	DS
	MMD90A120DK	1200	90	2000	1.33	200	0.36	DA
	MMD90A160DK	1600	90	2000	1.33	200	0.36	DA
	MMD90A180DK	1800	90	2000	1.33	200	0.36	DA
	MMD110A120DK	1200	110	2500	1.3	200	0.3	DA
	MMD110A160DK	1600	110	2500	1.3	200	0.3	DA
	MMD110A180DK	1800	110	2500	1.3	200	0.3	DA
	MMD130S120DK	1200	130	3500	1.25	300	0.2	DS
	MMD130S160DK	1600	130	3500	1.25	300	0.2	DS
	MMD130S180DK	1800	130	3500	1.25	300	0.2	DS
	MMD160S120DK	1200	160	5000	1.25	350	0.18	DS
	MMD160S160DK	1600	160	5000	1.25	350	0.18	DS
	MMD160S180DK	1800	160	5000	1.25	350	0.18	DS
	MMD180S120DK	1200	180	6000	1.23	400	0.17	DS



DA

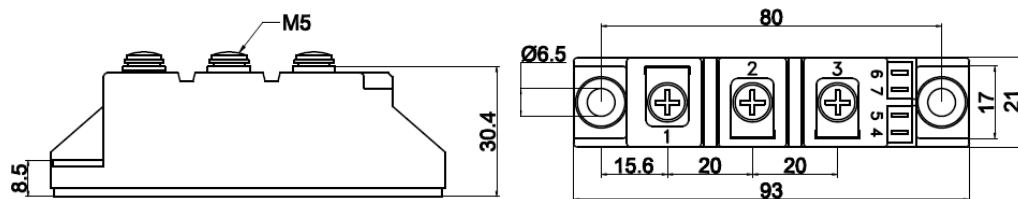
DS

Major Parameters:

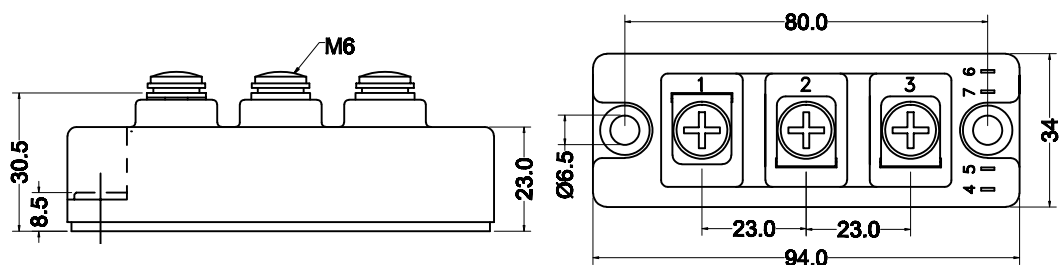
 $T_C=25^\circ\text{C}$ unless otherwise noted

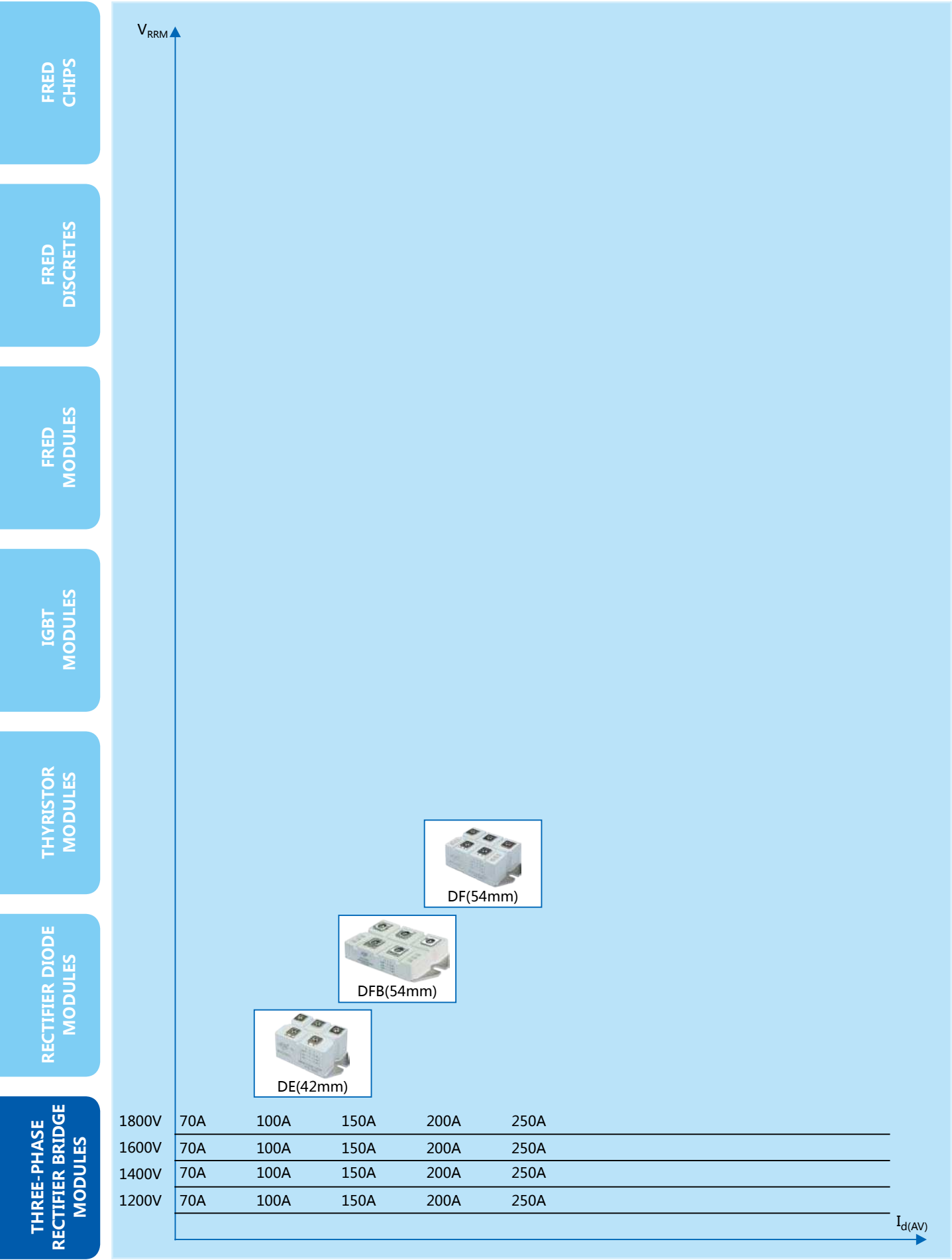
Type		V_{RRM}	$I_{F(AV)}$ $T_C=85^\circ\text{C}$	I_{FSM} 10ms 45°C	$V_{FM}@I_{FM}$ $T_J=125^\circ\text{C}$		R_{thJC}	Package Style
		(V)	(A)	(A)	(V)	(A)	(K/W)	
	MMD180S160DK	1600	180	6000	1.23	400	0.17	DS
	MMD180S180DK	1800	180	6000	1.23	400	0.17	DS
	MMD200S120DK	1200	200	7000	1.3	500	0.16	DS
	MMD200S160DK	1600	200	7000	1.3	500	0.16	DS
	MMD200S180DK	1800	200	7000	1.3	500	0.16	DS

DA



DS







FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

THREE-PHASE
RECTIFIER BRIDGE
MODULES

三相整流桥模块

THREE-PHASE RECTIFIER BRIDGE MODULES

产品范围 • 1200V~1800V / 70A~250A

封装 • DE DF DFB

电路结构 • 三相整流桥电路

应用 • 变频器
• 开关电源
• UPS
• 电焊机
• 直流电源

特性 • 结构紧凑、可靠性高
• 通流能力强、性价比高
• 耐压高

RANGES • 1200V~1800V / 70A~250A

PACKAGES • DE DF DFB

CIRCUIT CONFIGURATION • Three Phase Rectifier Bridge Circuit

APPLICATIONS • SMPS, UPS
• Inverter
• Welding Machine
• DC Power Supply

FEATURES • Compact Design
• High Current Capability
• High Blocking Voltage
• High Reliability
• High Performance Price Ratio



三相整流桥模块

THREE-PHASE RECTIFIER BRIDGE MODULES

Major Parameters:

$T_C=25^{\circ}\text{C}$ unless otherwise noted

Type		V_{RRM}	$I_{d(AV)}$ $T_C=100^{\circ}\text{C}$	I_{FSM} 10ms 45°C	$V_{TM}@I_{FM}$ $T_J=125^{\circ}\text{C}$		R_{thJC}	Package Style
		(V)	(A)	(A)	(V)	(A)	(K/W)	
	MMD70E120X	1200	70	700	1.33	150	0.18	DE
	MMD70E140X	1400						
	MMD70E160X	1600						
	MMD70E180X	1800						
	MMD100E120X	1200	100	1000	1.40	200	0.15	DE
	MMD100E140X	1400						
	MMD100E160X	1600						
	MMD100E180X	1800						
	MMD150F120X	1200	150	1500	1.56	300	0.10	DF
	MMD150F140X	1400						
	MMD150F160X	1600						
	MMD150F180X	1800						
	MMD200F120X	1200	200	2000	1.51	300	0.09	DF
	MMD200F140X	1400						
	MMD200F160X	1600						
	MMD200F180X	1800						
	MMD250F120X	1200	250	2500	1.43	300	0.08	DF
	MMD250F140X	1400						
	MMD250F160X	1600						
	MMD250F180X	1800						
	MMD150FB120X	1200	150	1500	1.56	300	0.10	DFB
	MMD150FB140X	1400						
	MMD150FB160X	1600						
	MMD150FB180X	1800						
	MMD200FB120X	1200	200	2000	1.51	300	0.09	DFB
	MMD200FB140X	1400						
	MMD200FB160X	1600						
	MMD200FB180X	1800						



DE

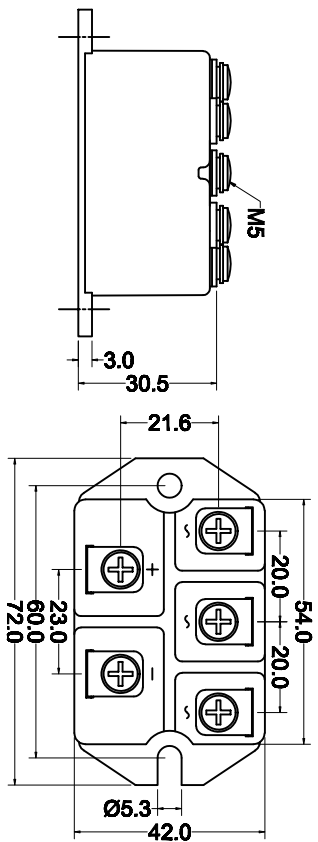


DF

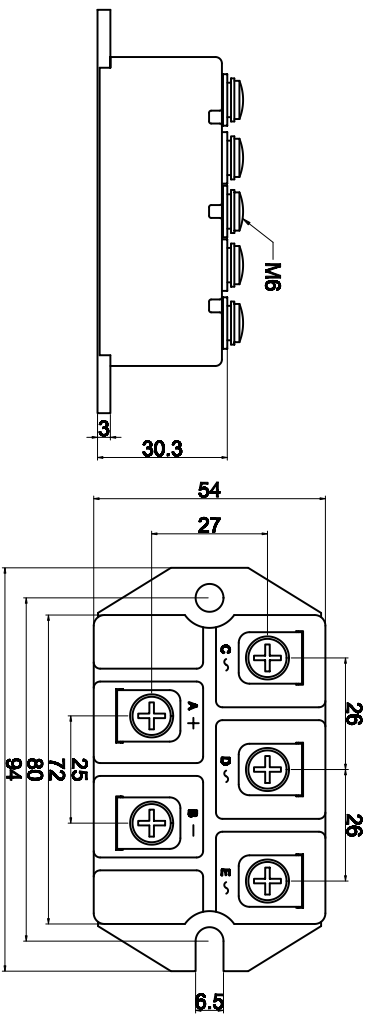


DFB

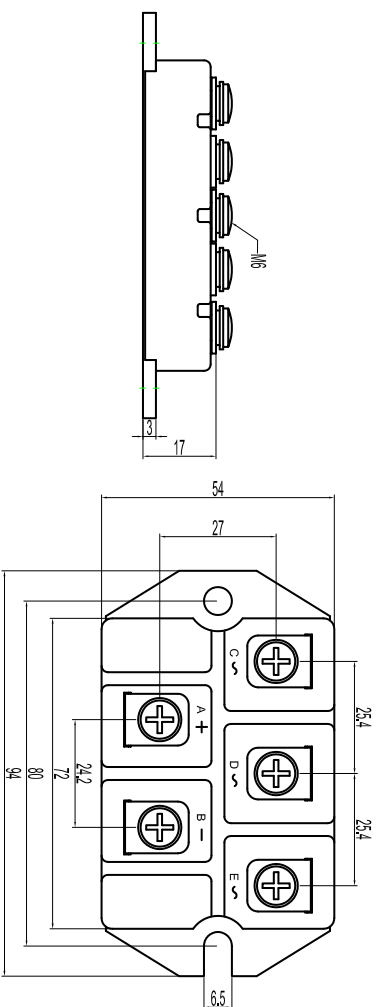
DE



DF



DFB



FRED
CHIPS

FRED
DISCRETES

FRED
MODULES

IGBT
MODULES

THYRISTOR
MODULES

RECTIFIER DIODE
MODULES

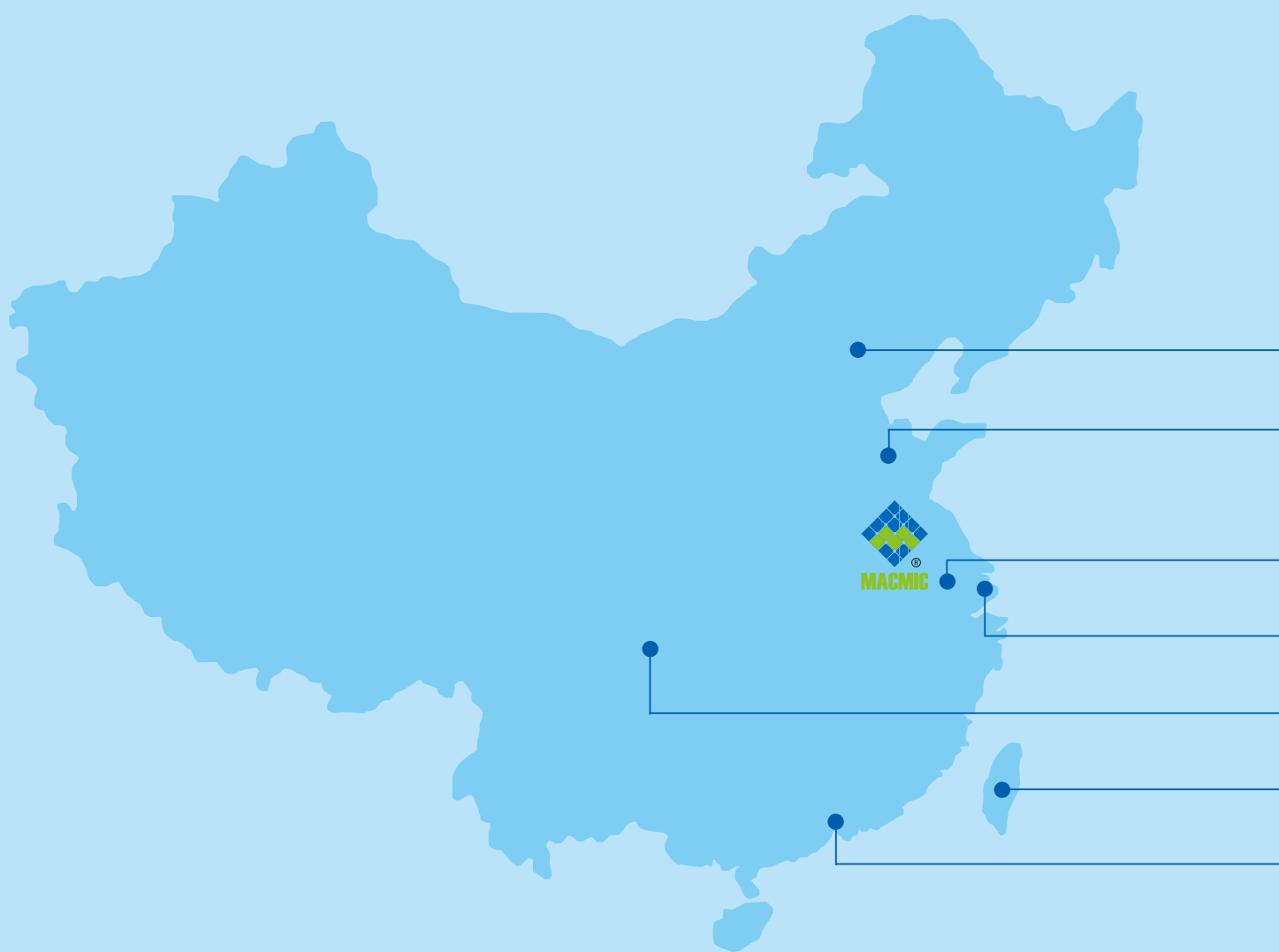
THREE-PHASE
RECTIFIER BRIDGE
MODULES



宏微科技
Power for the Better

业务分布

BUSINESS NETWORK



北京办事处
Beijing Office

济南办事处
Jinan Office

常州总部、模块封装厂
MacMic Headquarters, Module Plant

企业院士工作站、宏微南大研发中心
Fellow Workstation, MacMic Nanjing University R&D Centre

上海办事处
Shanghai Office

成都办事处
Chengdu Office

台湾办事处
Taiwan Office

深圳分公司
Shenzhen Office



宏微美国研发中心
Santa Fe Springs, USA



江苏宏微科技有限公司

MACMIC SCIENCE & TECHNOLOGY CO.,LTD



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