

PRODUCT CATALOGUE

功率半导体产品

专注于功率半导体器件
设计开发、系统应用和智能制造

由于产品的更新迭代,本产品型录的部分参数数据会产生变化,建议您在查阅本产品型录的同时,请联系我们,以便您及时获得最新的资讯。

All technical data, drawings and product information contained here may be subject to change, in order to provide you with a continuously improved products, please contact with us for up to date information.



从芯出发 改变世界

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COMPANY

INTRODUCTION

公司简介

LIONSGATE SEMI

上海狮门半导体有限公司

- 成立于**2020**年
 - 致力于高端功率半导体器件国产化
 - 专注于功率半导体器件的设计开发、系统应用和智能制造
 - 集研发、生产、销售和服务为一体的创新型科技企业
 - 产品: 各种规格工业级和车规级IGBT模块和SiC模块
-
- Founded in **2020** (referred to as Lionsgate Semi)
 - Committed to the localization of high-end power semiconductor devices.
 - Focus on R&D, system application and intelligent manufacturing for power semiconductors.
 - An innovative technology enterprise collects together R&D, manufacturing, and sales.
 - Various types of IGBT & SiC power modules for industrial grade & automotive-grade.



上海基地 Shang Hai HQ

- 研发技术、人才引进
- 新品导入: 产品评估
- 运营中心: 应用评估
- 制造工厂: 5000m²
封装产线: 2条
IGBT产量约100万颗
- R&D Center
- NPI Dep.: product evaluation
- Operation Center: application evaluation
- Manufacture Factory: 5000m²
2 production lines
1 million pcs IGBT/ Annual Production

浙江基地 Zheng Jiang Manufacturing Base

- 实验中心、工程技术、批量生产
- 智能工厂: 20000m²
规划产线: 10条(分期完成)
一期产量约325万颗
- Advanced Laboratory, Engineering Technology, Volume Production
- Manufacture Factory: 20000m²
Plan 10 production lines (total 4 periods)
325 million pcs IGBT/ Annual Production

台湾研发中心 Tai Wan R&D Center

DEVELOPMENT

HISTORY 发展历程

未来可期



COMPANY

QUALIFICATION

资质认证



打造功率半导体智能制造工厂

Build a Intelligent Automation Factory for Semiconductor Module.



拥有自主知识产权和品牌

Own Independent Intellectual Property Rights and Brand.



6+

质量体系认证 Quality System Certification

- ISO9001 质量体系认证
Quality System Certification-bsi.
- IATF16949 质量体系认证
Quality System Certification -bsi.
- REACH 认证
REACH Certification-SGS
- UL 认证
UL Certification- UL
- RoHS 认证
RoHS Certification-SGS

其他体系认证 Other System Certification

- 数据管理能力成熟度受管理级 (2级)
DCMM (level 2)

科技型中小企业 Small & Medium-sized Technology-based Enterprise 2024

创新型中小企业 Innovative Small & Medium-sized Enterprise 2025

智能制造示范工厂 (上海松江区) Intelligent Manufacturing Demonstration Factory 2025

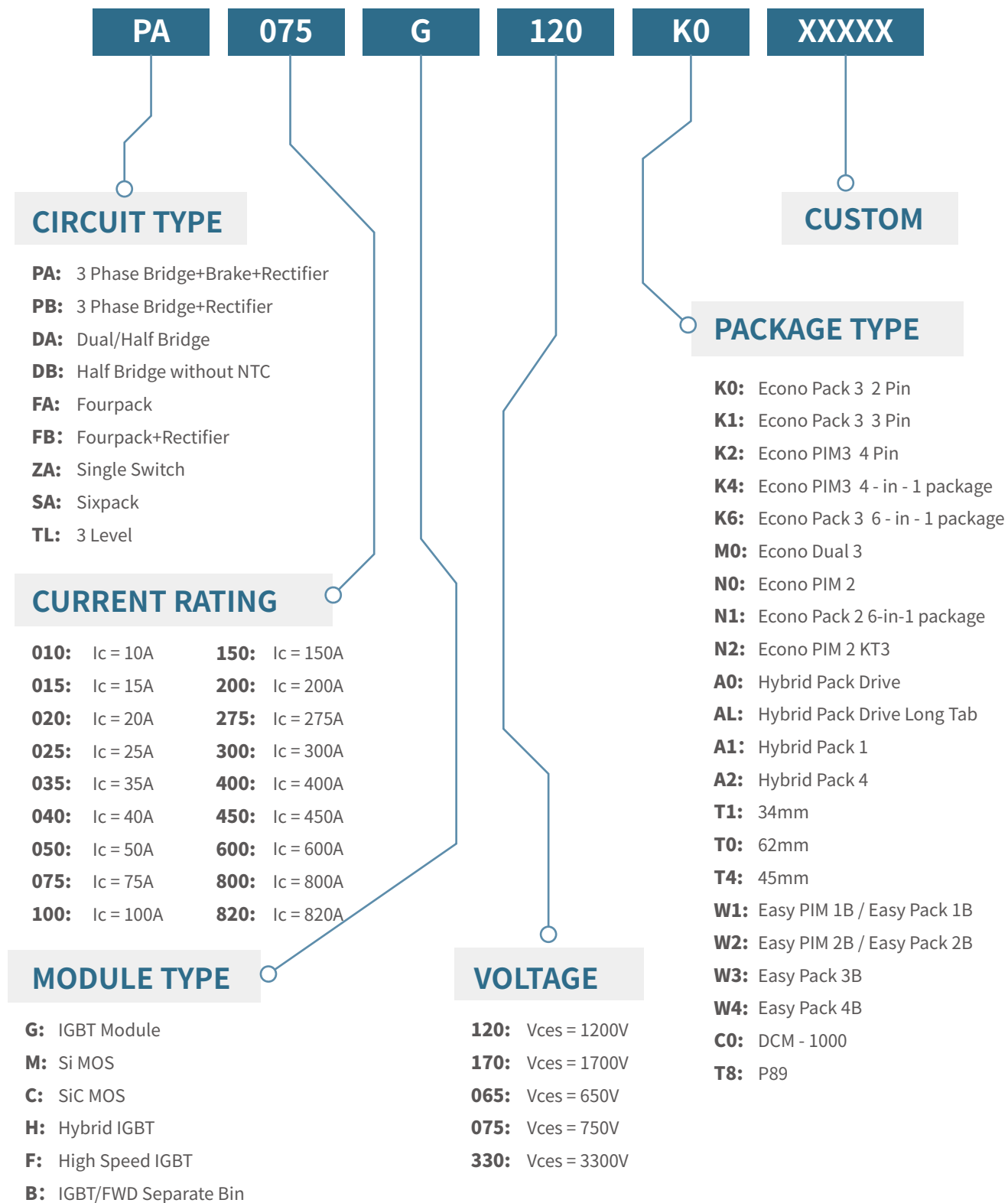
15+

发明专利+实用新型专利
Invention Patents & Utility Model Patents
(另有18项申请中 18 Patents Pending)



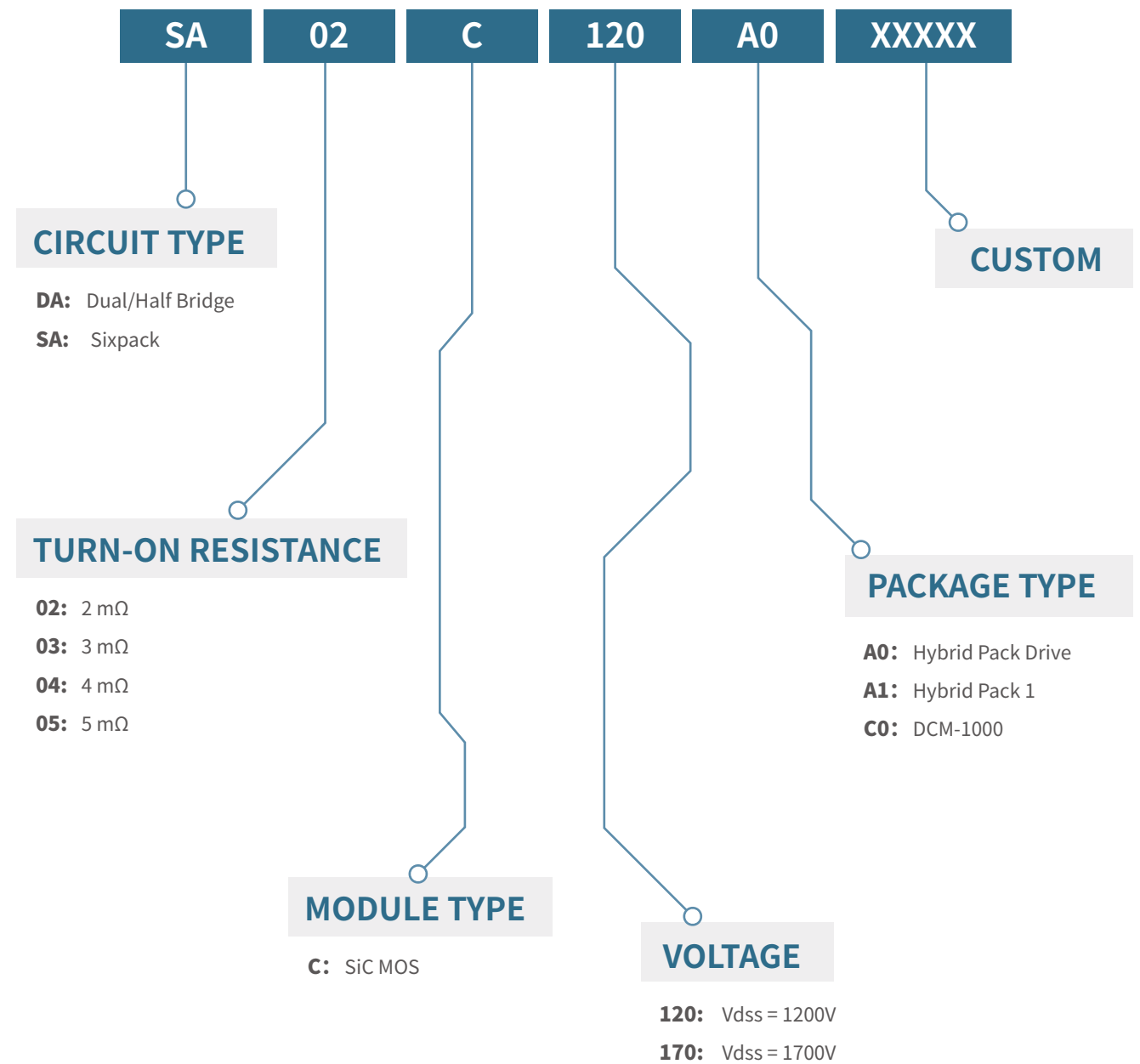
TYPE

DEFINITION FOR IGBT 产品命名规则 (IGBT)



TYPE

DEFINITION FOR SiC 产品命名规则 (SiC)



PRODUCT
DATASHEET
产品选型

Y34mm

DB系列 (DB series: Half Bridge without NTC)

额定电压 Rated Voltage: 650V / 1200V / 1700V
电流范围 Current Range: 75A / 100A / 150A / 200A / 225A / 300A

行业应用

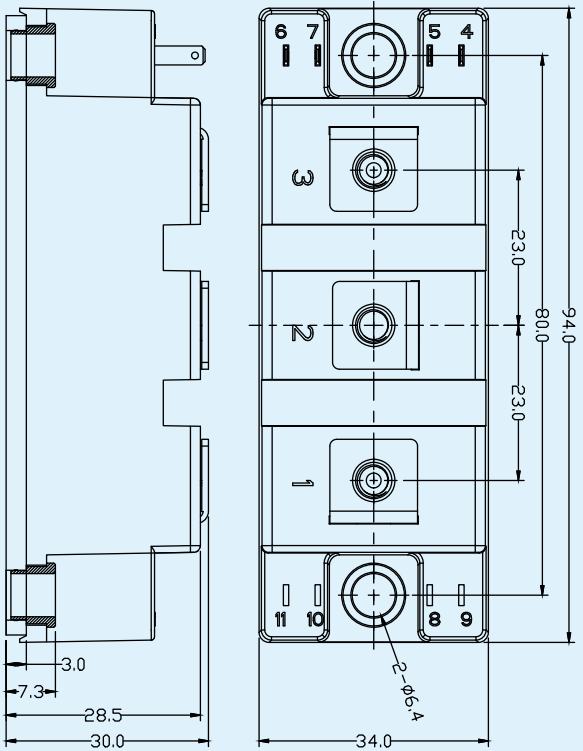
工业变频器
电焊机
感应加热
不间断电源UPS
电机制动
太阳能光伏

Applications

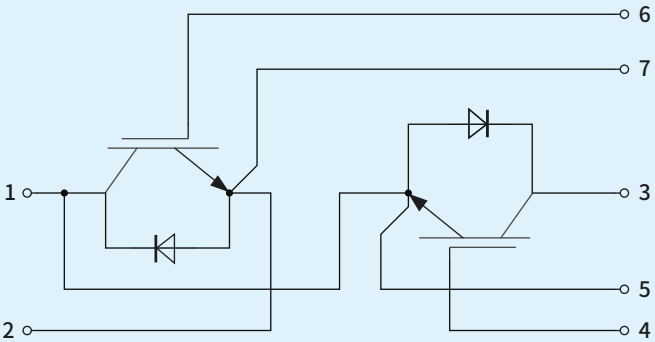
Frequency converters
Inverter welder
Induction heater
Uninterrupted power supply (UPS)
Motor control
PV solar

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DB075G120T1	1200	75	1.63	13.35@Rg=9.1Ω	0.38
DB075G170T1	1700	75	1.78	29.3@Rg=20Ω	0.25
DB100G120T1	1200	100	1.86	16.18@Rg=15Ω	0.25
DB100G170T1	1700	100	1.66	31.8@Rg=6.8Ω	0.18
DB150G120T1	1200	150	1.45	30@Rg=10Ω	0.23
DB150G170T1	1700	150	1.81	44.3@Rg=5Ω	0.195
DB150G065T1	650	150	1.37	4.87@Rg=1Ω	0.34
DB200G065T1	650	200	1.37	6.24@Rg=1.5Ω	0.23
DB225G065T1	650	225	1.26	7.27@Rg=4.1Ω	0.23
DB300G065T1	650	300	1.31	6.12@Rg=2.0Ω	0.26

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



Y45mm

DB系列 (DB series: Half Bridge without NTC)

额定电压 Rated Voltage: 650V / 1200V
电流范围 Current Range: 200A / 300A / 400A

行业应用

储能
风力发电
工业变频器
不间断电源UPS
功率电源
可再生能源

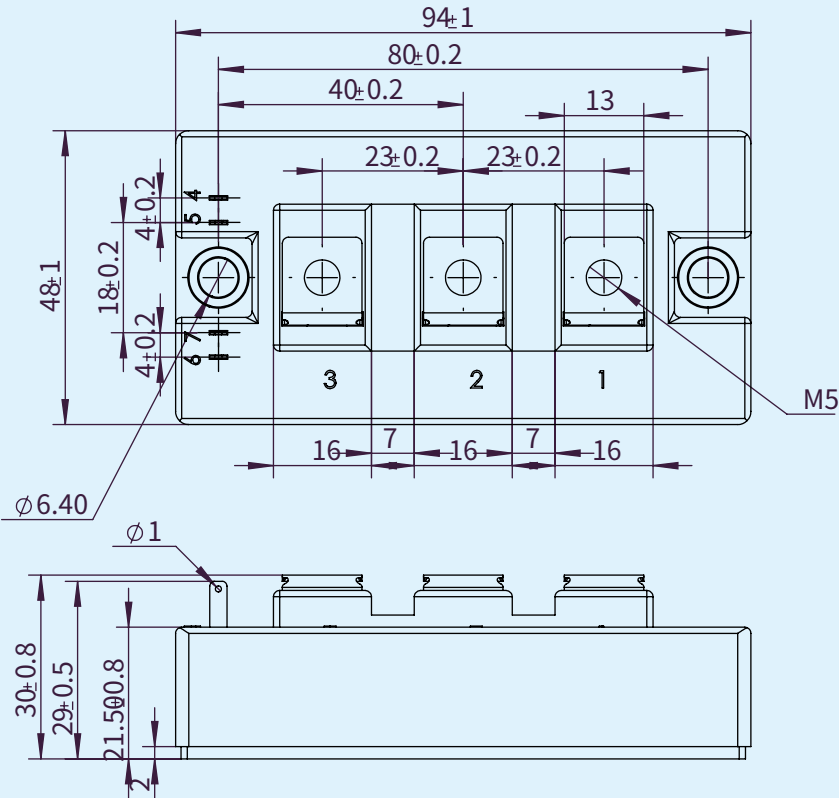
Applications

Energy storage
Wind power converter
Frequency converters
Uninterrupted power supply (UPS)
Active filters
Renewable energy

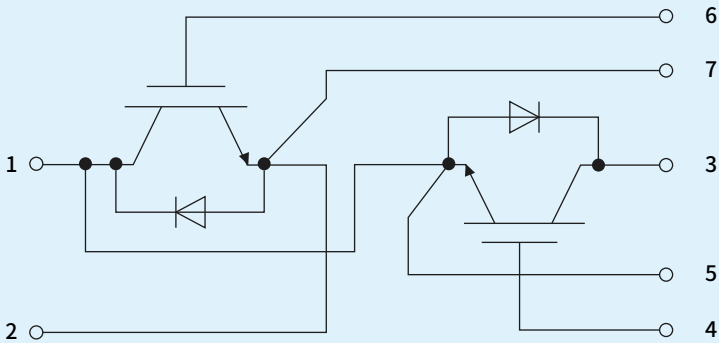


产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DB400G065T4	650	400	1.38	15.18@Rg=1.6Ω	0.16
DB200G120T4	1200	200	1.42	25.3@Rg=1.8Ω	0.08
DB300G120T4	1200	300	1.57	42.0@Rg=2Ω	0.10

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



Y62mm



DB系列 (DB series: Half Bridge without NTC)

额定电压 Rated Voltage: 650V / 1200V / 1700V
电流范围 Current Range: 150A / 200A / 300A / 400A / 450A / 600A

DB系列 碳化硅 (DB series: Sixpack SiC)

额定电压 Rated Voltage: 1200V
导通阻抗 Turn-on Resistance: 3.5mΩ

行业应用

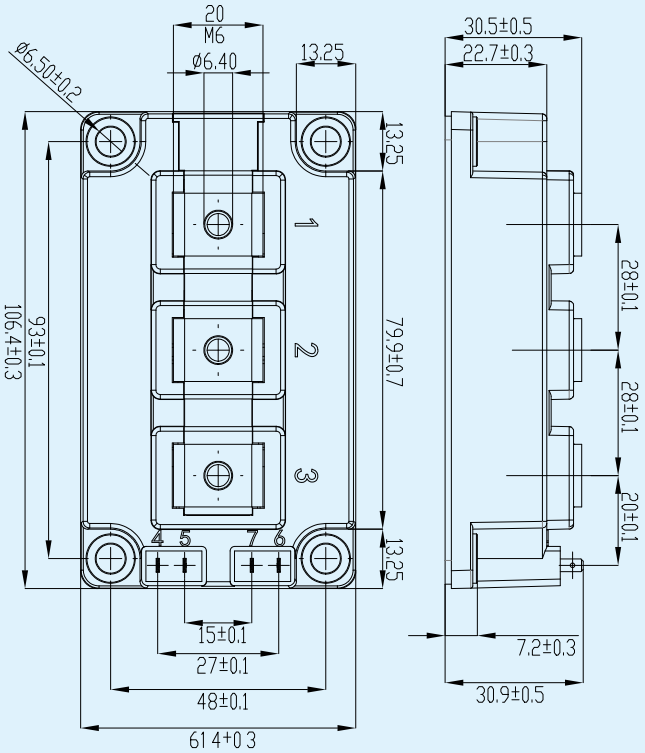
储能
风力发电
工业变频器
不间断电源UPS
功率电源
可再生能源
电源质量APF、SVG等

Applications

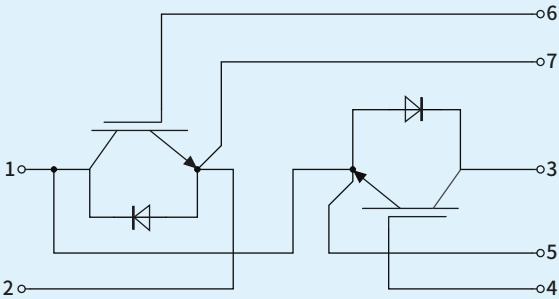
Energy storage
Wind power converter
Frequency converters
Uninterrupted power supply (UPS)
Active filters
Renewable energy
Active Power Filter (APF) , Static VAR Generator (SVG), etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DB150G170T0	1700	150	1.58	50.44@Rg=2.2Ω	0.15
DB200G120T0	1200	200	1.63	27.62@Rg=4.1Ω	0.12
DB200G170T0	1700	200	1.65	55.43@Rg=2.2Ω	0.12
DB300G120T0	1200	300	1.55	55.1@Rg=5.5Ω	0.12
DB400G065T0	650	400	1.4	16.45@Rg=3.3Ω	0.13
DB450G120T0	1200	450	1.45	65.2@Rg=1.6Ω	0.083
DB600G120T0	1200	600	1.45	121.2=@Rg=1.6Ω	0.08
产品型号 Part Number	Vdss (V)	Rds(on) Tj=25°C (mΩ)		Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DB04C120T0	1200	3.50		10.12	0.097

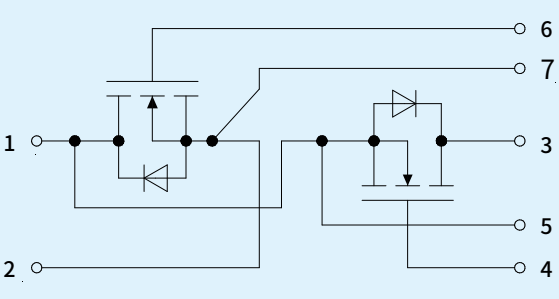
外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



IGBT Series

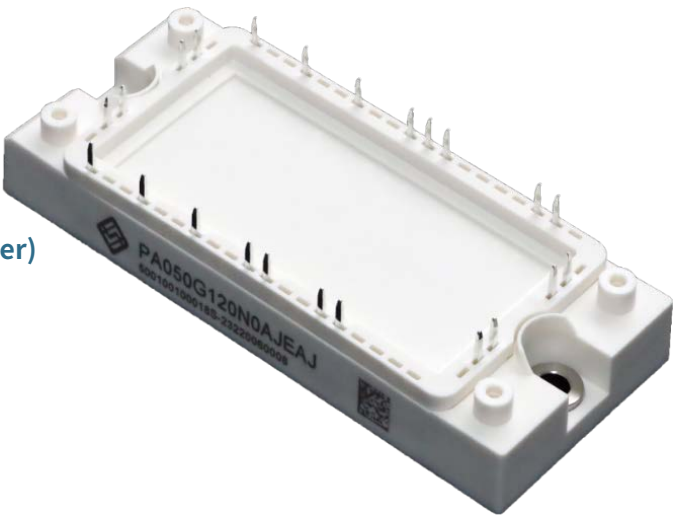


SiC Series

EconoPIM2

PA系列 (PA series: 3 Phase Bridge+Brake+Rectifier)
PB系列 (PB series: 3 Phase Bridge+Rectifier)
SA系列 (SA series: Sixpack)

额定电压 Rated Voltage: 650V / 1200V
电流范围 Current Range: 25A / 35A /40A / 50A /75A / 100A



行业应用

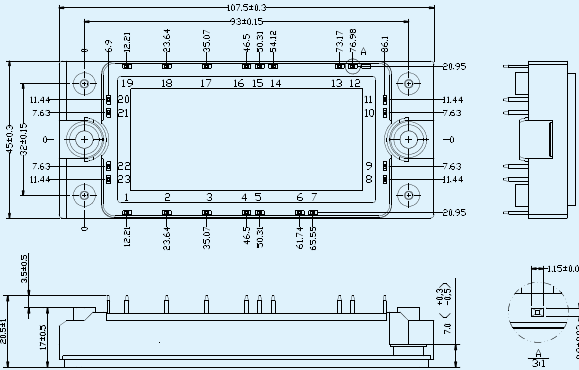
工业变频器
工业伺服
不间断电源UPS
电焊机
感应加热
风力发电
太阳能光伏
轨道交通等

Applications

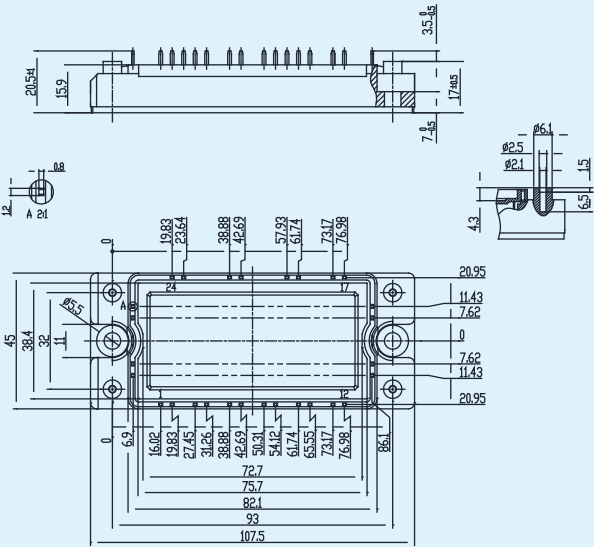
Frequency converters
Industrial servo controller
Uninterrupted power supply (UPS)
Inverter welder
Induction heater
Wind power
PV solar
Rail Transit, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
PA025G120N0	1200	25	1.75	3.50@Rg=15Ω	0.67
PA025G120N2	1200	25	1.75	3.50@Rg=15Ω	0.67
PA040G120N2	1200	40	1.58	8.16@Rg=15Ω	0.50
PA035G120N0	1200	35	1.52	7.14@Rg=15Ω	0.50
PA050G120N0	1200	50	1.7	10.2@Rg=15Ω	0.50
PA075G120N3	1200	75	1.7	17.2@Rg=8.2Ω	0.42
PB050G120N0	1200	50	1.7	10.2@Rg=15Ω	0.50
PB075G120N3	1200	75	1.85	14.25@Rg=10Ω	0.48
SA050G120N1	1200	50	1.7	10.2@Rg=15Ω	0.50
SA075G120N1	1200	75	1.54	8.65@Rg=3.3Ω	0.38
FA075F120N4	1200	75	2.15	8.73@Rg=3.3Ω	0.40

外型尺寸图
Outline Dimension

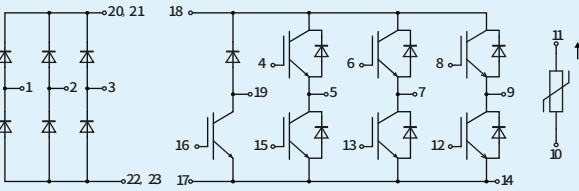


PA, PB series

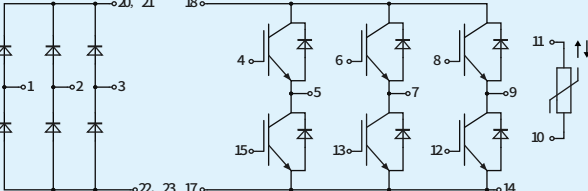


SA series

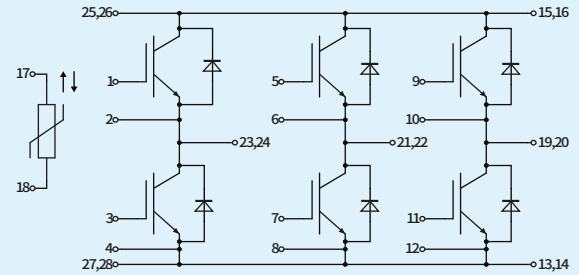
拓扑
Circuit Diagram



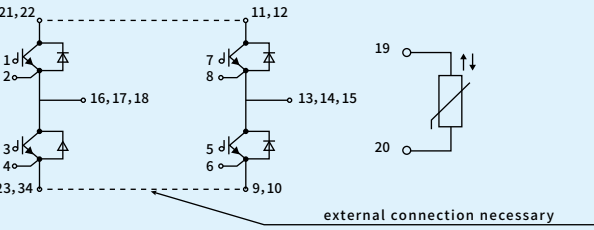
PA series



PB series



SA series



FA series

EconoPIM3



- PA系列 (PA series: 3 Phase Bridge+Brake+Rectifier)
- PB系列 (PB series: 3 Phase Bridge+Rectifier)
- SA系列 (SA series: Sixpack)
- FB系列 (FB series: Fourpack+Rectifier)
- FA系列 (FA series: Fourpack)

额定电压 Rated Voltage: 650V / 750V /1200V / 1700V
电流范围 Current Range: 50A / 75A / 100A / 150A / 200A / 275A / 300A

行业应用

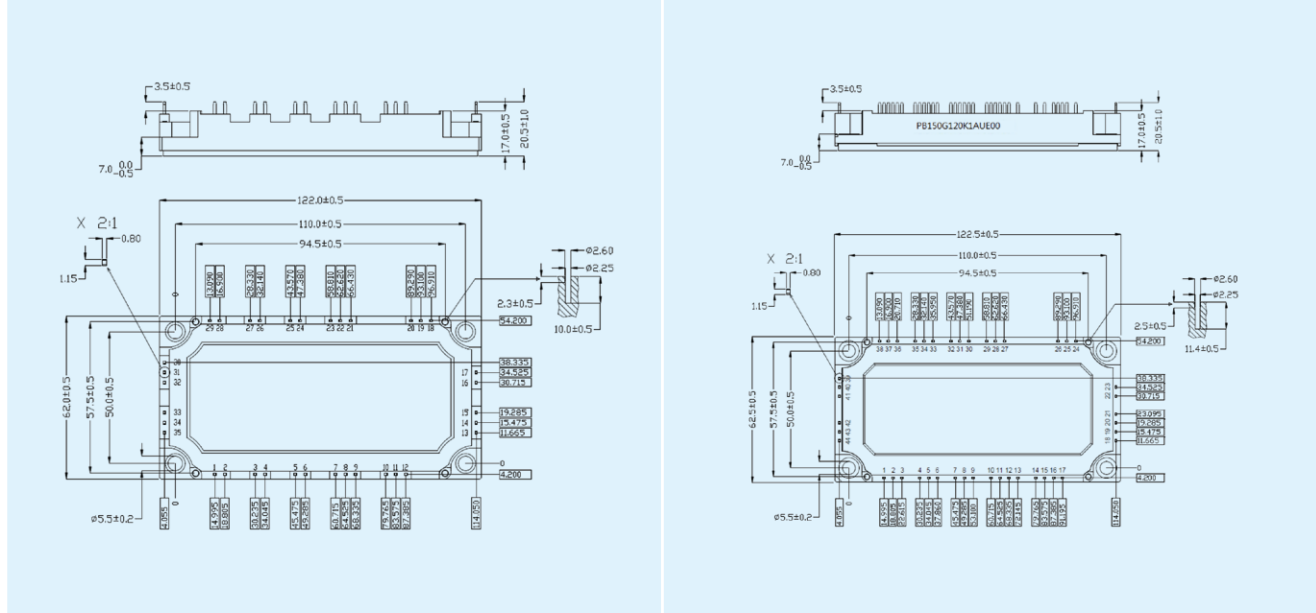
工业变频器、工业伺服
不间断电源UPS
电焊机、感应加热
风力发电、太阳能光伏
轨道交通、新能源汽车

Applications

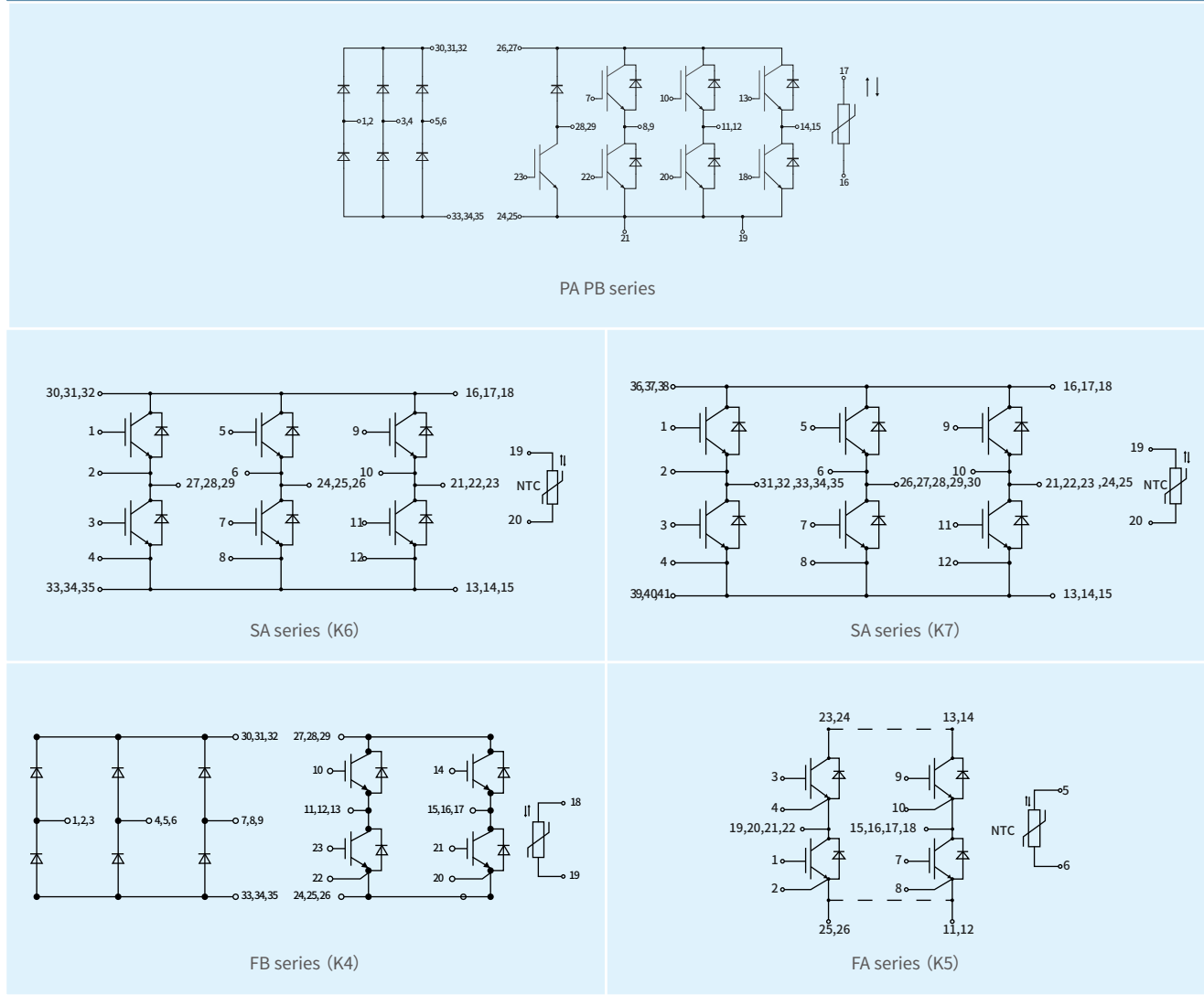
Frequency converters, Industrial servo controller
Uninterrupted power supply (UPS)
Inverter welder, Induction heater
Wind power, PV solar
Rail Transit, New energy vehicles, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mJ)	Rth, jc (K/W)
PA050G120K0	1200	50	1.67	10.2@Rg=6.8Ω	0.50
PA050G120K3	1200	50	1.67	10.2@Rg=6.8Ω	0.50
PA075G065K0	650	75	1.67	2.69@Rg=8.2Ω	0.65
PA075G120K0	1200	75	1.54	9.75@Rg=5Ω	0.38
PA075G120K3	1200	75	1.54	8.36@Rg=1Ω	0.38
PA100G065K3	650	100	1.19	1.61@Rg=4.7Ω	0.34
PA100G120K0	1200	100	1.84	18.17@Rg=6.8Ω	0.25
PA150G120K1	1200	150	1.45	13.76@Rg=2.2Ω	0.23
PA200G065K1	650	200	1.37	6.24@Rg=1.5Ω	0.23
PA200G120K2	1200	200	1.59	22.58@Rg=3.3Ω	0.205
PB075G120K0	1200	75	1.54	9.75@Rg=5Ω	0.38
PB100G120K0	1200	100	1.84	16.17@Rg=6.8Ω	0.25
PB150G120K1	1200	150	1.45	17.36@Rg=2.2Ω	0.23
PB200G065K1	650	200	1.37	6.24@Rg=1.5Ω	0.23
SA100G120K6	1200	100	1.84	16.17@Rg=6.8Ω	0.25
SA100G170K6	1700	100	1.80	35.1@Rg=5Ω	0.42
SA150G120K6	1200	150	1.45	17.36@Rg=2.2Ω	0.23
SA200G065K6	650	200	1.37	6.92@Rg=3.3Ω	0.23
SA200G120K6	1200	200	1.59	25.6@Rg=5Ω	0.20
SA200G120K7	1200	200	1.59	24.6@Rg=2.2Ω	0.20
SA300G120K7	1200	300	1.80	58.2@Rg=0.5Ω	0.16
SA300G075K7	750	300	1.54	12.47@Rg=1.5Ω	0.24
SA300G120K7	1200	300	1.80	12.47@Rg=0.5Ω	0.16
FB150G170K4	1700	150	1.80	44.1@Rg=3.3Ω	0.19
FA150G120K5	1200	150	1.54	18.86@Rg=2.2Ω	0.195

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



EconoDual3

DA系列 (DA series: Dual/Half Bridge)

额定电压 Rated Voltage: 650V / 1200V / 1700V
电流范围 Current Range: 150A / 300A / 450A / 600A / 800A / 900A

DA系列 碳化硅 (DA series SiC: Dual/Half Bridge)

额定电压 Rated Voltage: 1200V
导通阻抗 Turn-on Resistance: 1.55mΩ / 2.3mΩ / 4.7mΩ



行业应用

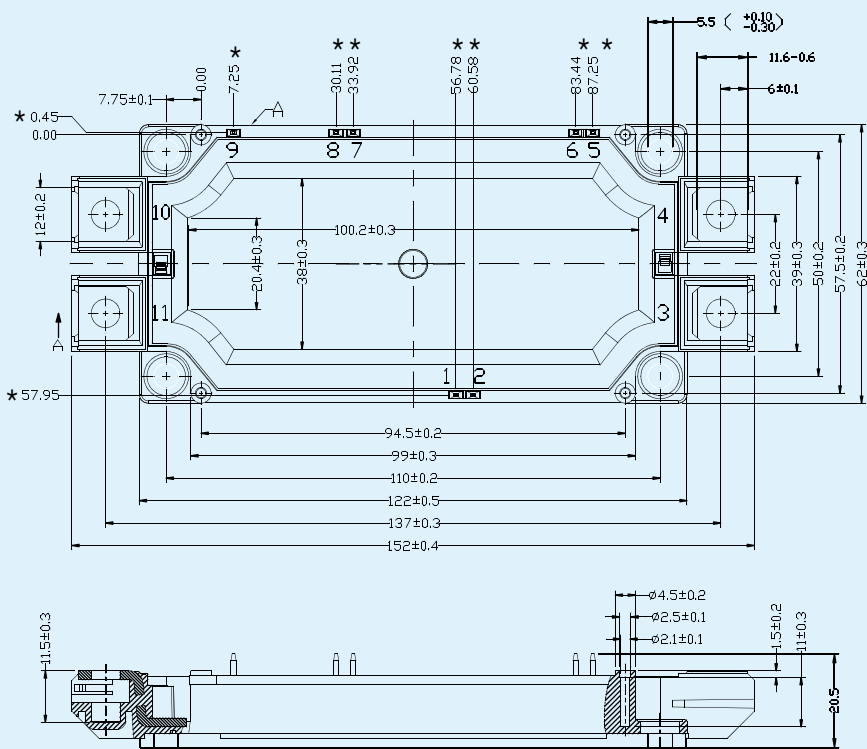
工业变频器
工业伺服
不间断电源UPS
感应加热
储能
风力发电
太阳能光伏
轨道交通
新能源汽车

Applications

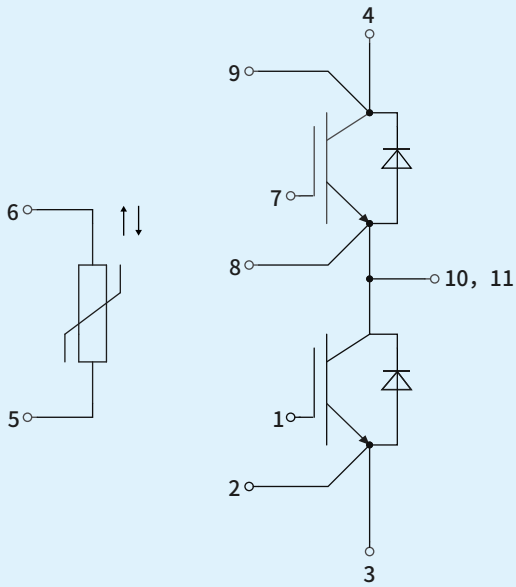
Frequency converters
Industrial servo controller
Uninterrupted power supply (UPS)
Induction heater
Energy storage
Wind power
PV solar
Rail Transi
New energy vehicles, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DA300G120M0	1200	300	1.55	55@Rg=5Ω	0.13
DA300G170M0	1700	300	1.65	101.4@Rg=3.3Ω	0.09
DA450G120M0	1200	450	1.5	61.7@Rg=2.2Ω	0.095
DA450G170M0	1700	450	1.65	163.1@Rg=3.3Ω	0.078
DA600F065M0	650	600	2.00	26@Rg=1.3Ω	0.103
DA600G120M0	1200	600	1.7	118.3@Rg=1.6Ω	0.06
DA600G170M0	1700	600	1.72	186@Rg=3.3Ω	0.055
DA900G120M0	1200	900	1.80	186@Rg=0.5Ω	0.069
产品型号 Part Number	Vdss (V)	Rds (on) Tj=25°C (mΩ)		Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DA02C120M0	1200	1.55		28.8	/
DA03C120M0	1200	2.3		24.62	0.053
DA05C120M0	1200	4.7		6.31	0.086

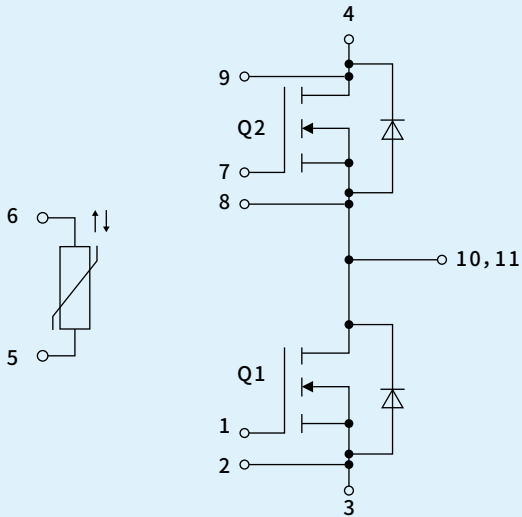
外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



IGBT Series



SiC Series

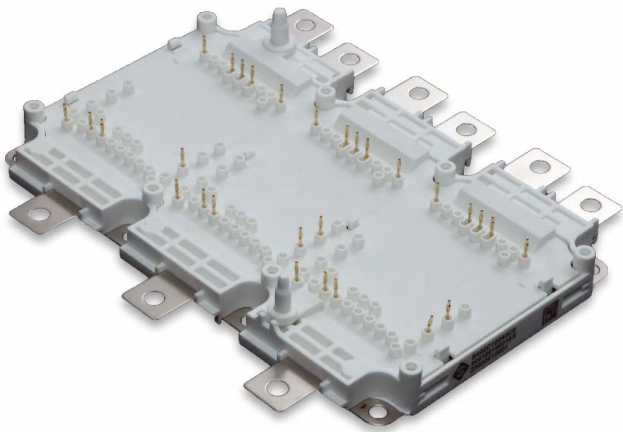
Hybrid Pack Drive

SA系列 (SA series: Sixpack)

额定电压 Rated Voltage: 750V / 1200V
电流范围 Current Range: 400A / 450A / 500A / 600A / 820A

SA系列 碳化硅 (SA series SiC: Sixpack)

额定电压 Rated Voltage: 1200V
导通阻抗 Turn-on Resistance: 1.75mΩ



行业应用

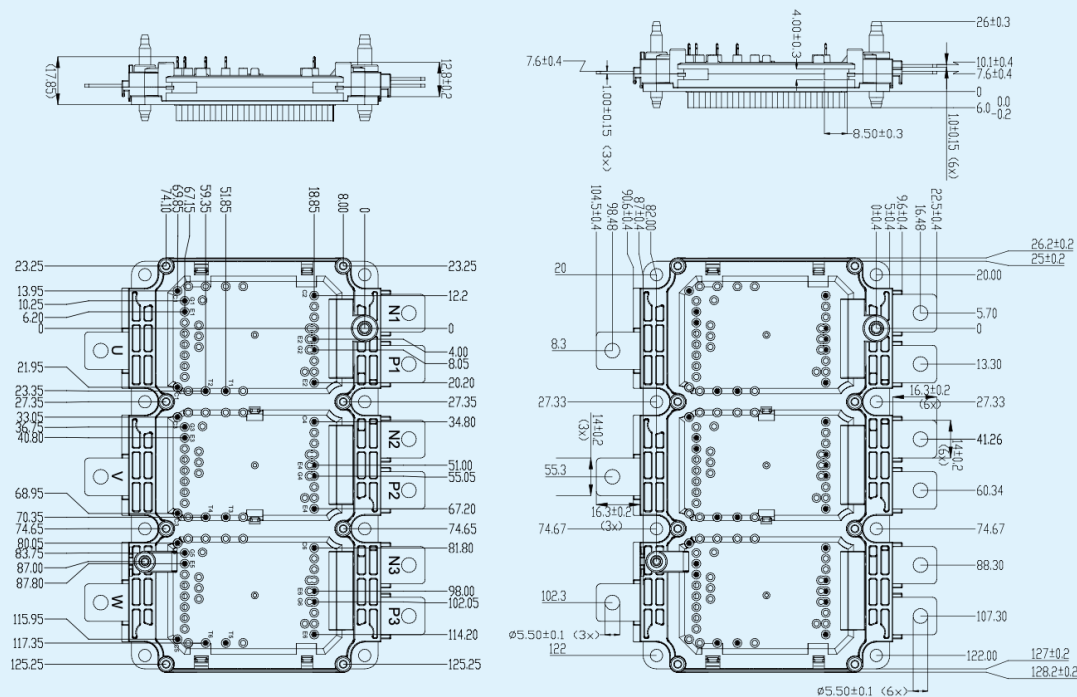
不间断电源UPS
电能质量
储能
风力发电
太阳能光伏
轨道交通
新能源汽车

Applications

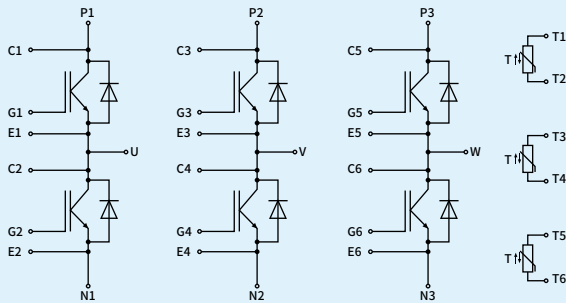
Uninterrupted power supply (UPS)
Power quality solutions
Energy storage
Wind power
PV solar
Rail Transit
New energy vehicles, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
SA400G075A0	750	400	1.13	50.7@Rg=4.1Ω	0.18
SA820G075A0	750	820	1.03	52.7@Rg=3.9Ω/8.2Ω	0.10
SA1k0G075A0	750	1000	1.03	52.7@Rg=3.9Ω/8.2Ω	0.08
产品型号 Part Number	Vdss (V)	Rds(on) Tj=25°C (mΩ)		Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
SA02C120A0	1200	1.75		25.52	0.07

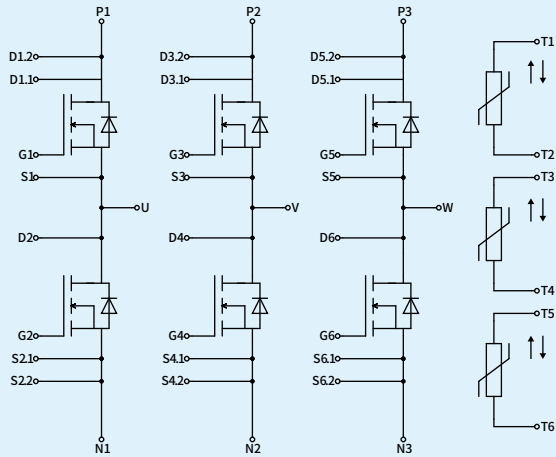
外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



IGBT Series



SiC Series

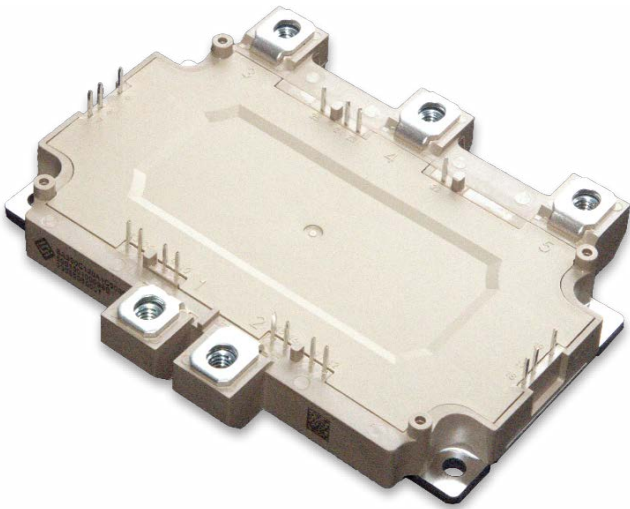
Hybrid Pack1

SA系列 (SA series: Sixpack)

额定电压 Rated Voltage: 650V / 750V / 1200V
电流范围 Current Range: 200A / 300A / 400A / 550A

SA系列 碳化硅 (SA series SiC: Sixpack)

额定电压 Rated Voltage: 1200V
导通阻抗 Turn-on Resistance: 2.39mΩ



行业应用

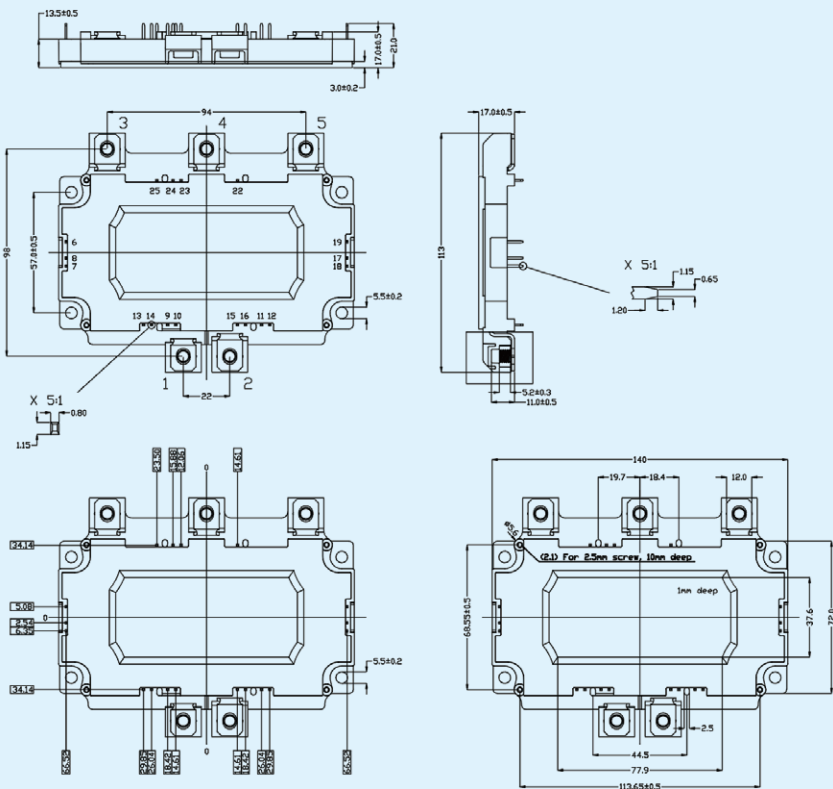
工业变频器
不间断电源UPS
感应加热
功率电源
电能质量
储能
风力发电
太阳能光伏
轨道交通

Applications

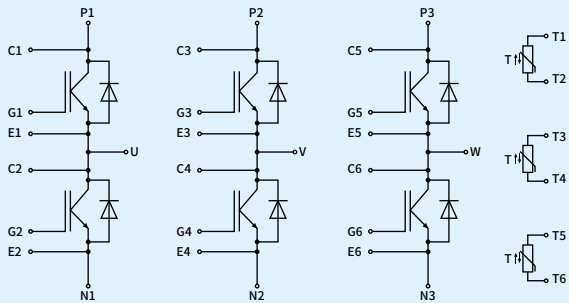
Frequency converters
Uninterrupted power supply (UPS)
Induction heater
Inverter welder
Power quality solutions
Energy storage
Wind power
PV solar
Rail Transit, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
SA550G075A1	750	550	1.48	23.83@Rg=1.5Ω	0.14
SA400G065A1	650	400	1.38	14.41@Rg=3.3Ω	0.157
SA400G120A1	1200	400	1.60	85.2@Rg=4.1Ω	0.098
产品型号 Part Number	Vdss (V)	Rds(on) Tj=25 °C (mΩ)		Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
SA03C120A1	1200	2.39		42.9	0.09

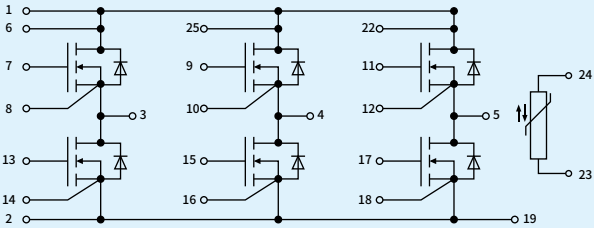
外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



IGBT Series



SiC Series

Hybrid Pack4

SA系列 (SA series: Sixpack)

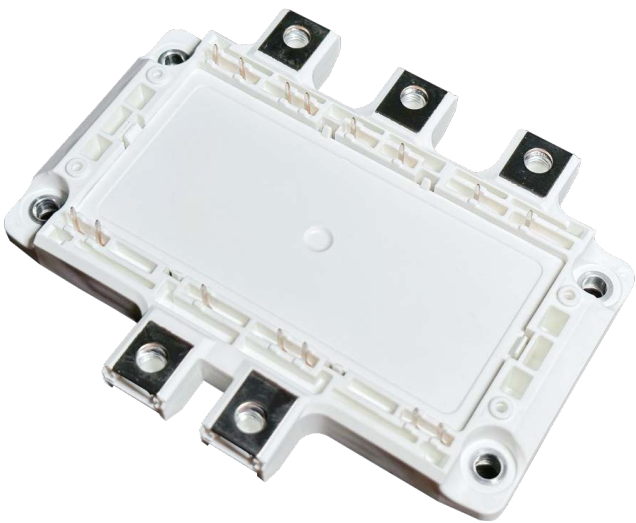
额定电压 Rated Voltage: 1200V
电流范围 Current Range: 200A

行业应用

工业变频器
不间断电源UPS
感应加热
功率电源
电能质量
储能
风力发电
太阳能光伏
轨道交通

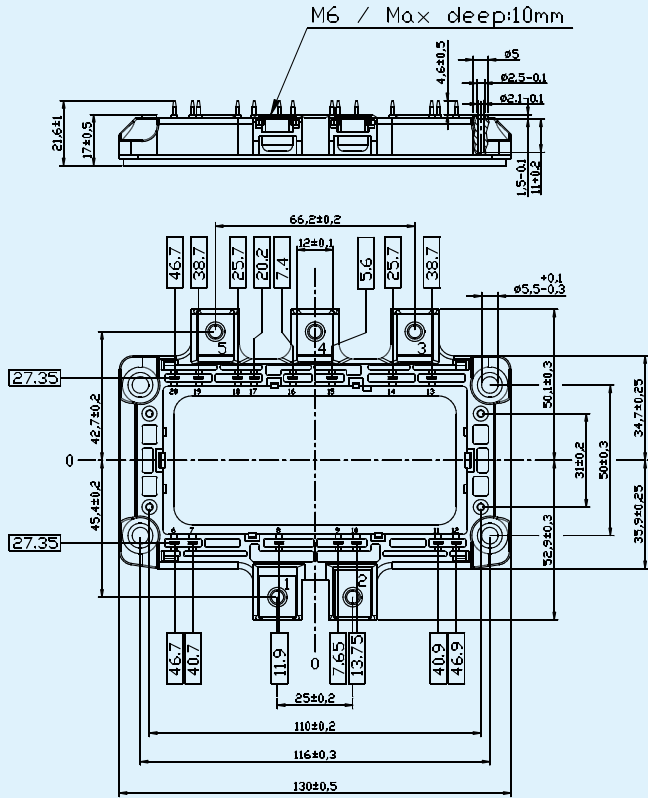
Applications

Frequency converters
Uninterrupted power supply (UPS)
Induction heater
Inverter welder
Power quality solutions
Energy storage
Wind power
PV solar
Rail Transit, etc.

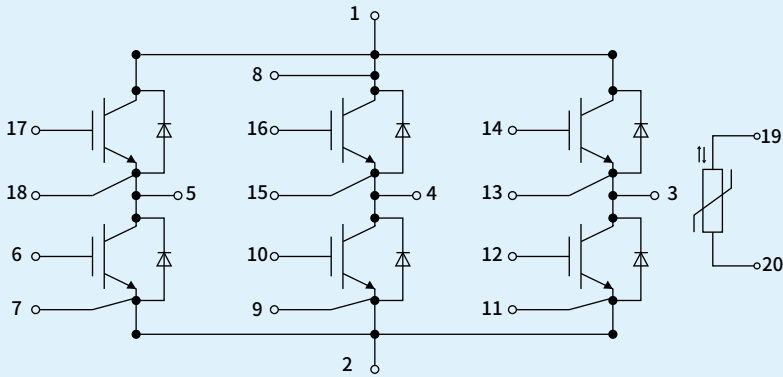


产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mJ)	Rth, jc (K/W)
SA200G120A2	1200	200	1.59	24.6@Rg=2.2Ω	0.17

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



PA系列 (PA series: 3 Phase Bridge+Brake+Rectifier)
SA系列 (SA series: Sixpack)

额定电压 Rated Voltage: 650V / 1200V
电流范围 Current Range: 10A / 15A / 20A / 30A / 35A / 50A



行业应用

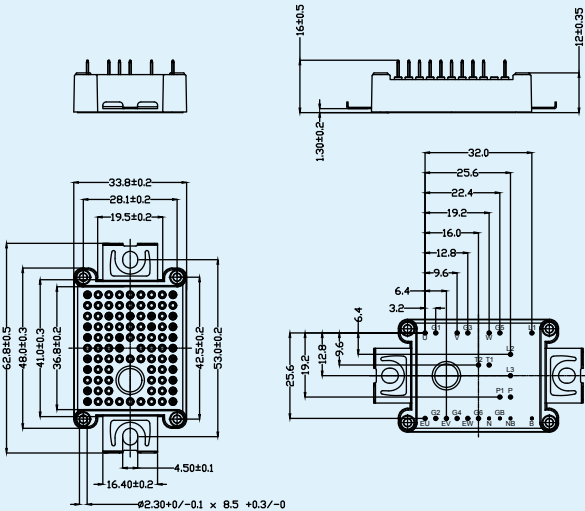
工业变频器
工业伺服
不间断电源UPS
感应加热
功率电源
储能
风力发电
太阳能光伏
新能源汽车

Applications

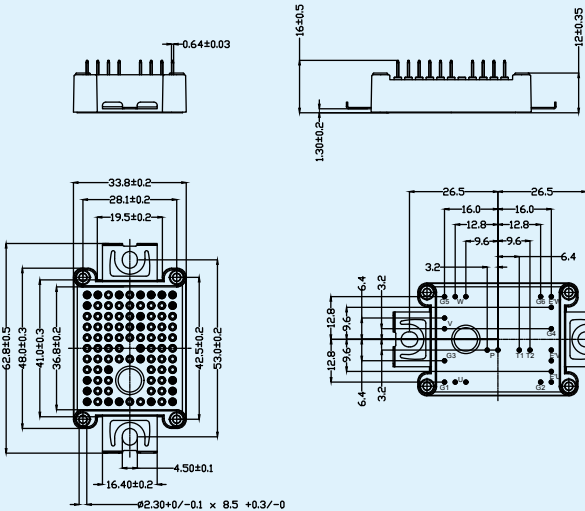
Frequency converters
Industrial servo controller
Uninterrupted power supply (UPS)
Inverter welder
Induction heater
Energy storage
Wind power
PV solar
New energy vehicles, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mJ)	Rth, jc (K/W)
PA010G120W1	1200	10	1.74	1.08@Rg=47Ω	1.0
PA015G120W1	1200	15	1.77	1.73@Rg=27.9Ω	1.2
PA025G120W1	1200	25	1.78	1.73@Rg=10Ω	1.07
PA030G065W1	650	30	1.58	1.73@Rg=20Ω	/
SA025G120W1	1200	25	1.78	3.58@Rg=10Ω	1.07

外型尺寸图
Outline Dimension

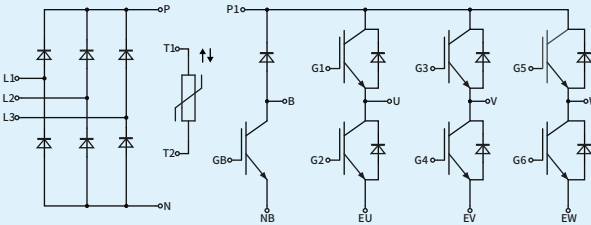


PA Series

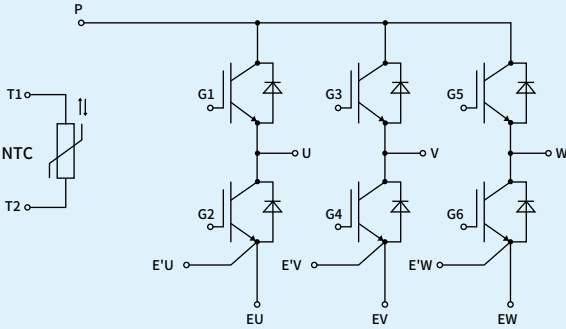


SA Series

拓扑
Circuit Diagram



PA Series



SA Series

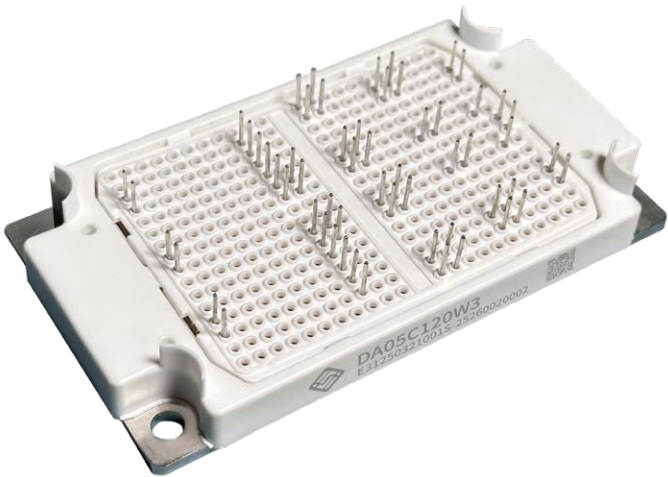
EASY 3B

TL系列 (TL series: 3 Level)

额定电压 Rated Voltage: 1000V
电流范围 Current Range: 400A

DA系列 碳化硅 (DA series SiC: Dual/Half Bridge)

额定电压 Rated Voltage: 1200V
导通阻抗 Turn-on Resistance: 5.3mΩ



行业应用

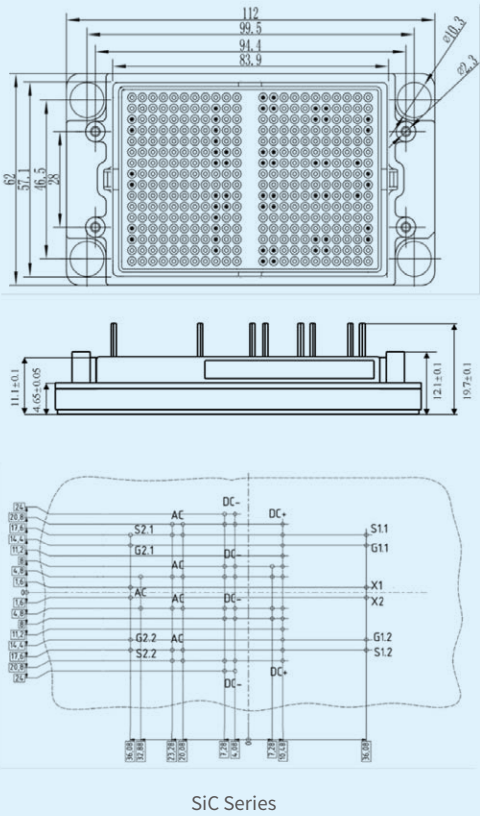
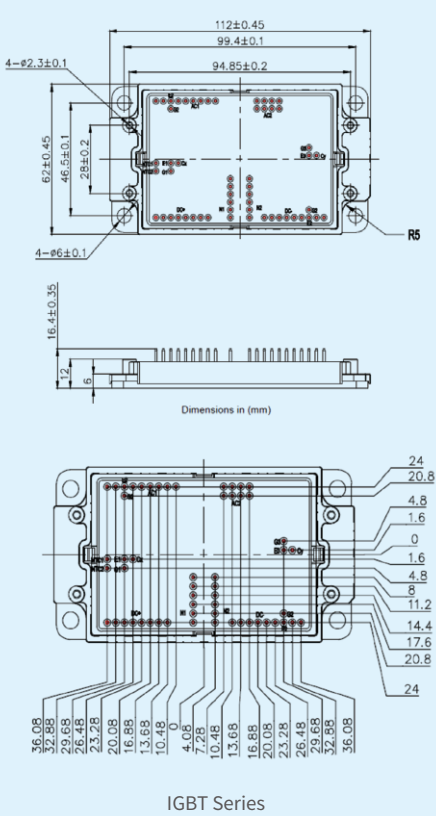
高频开关应用
不间断电源UPS
储能
太阳能光伏
新能源汽车

Applications

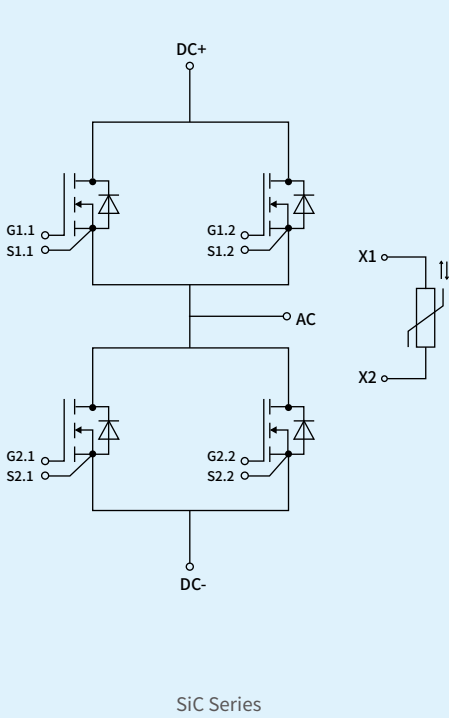
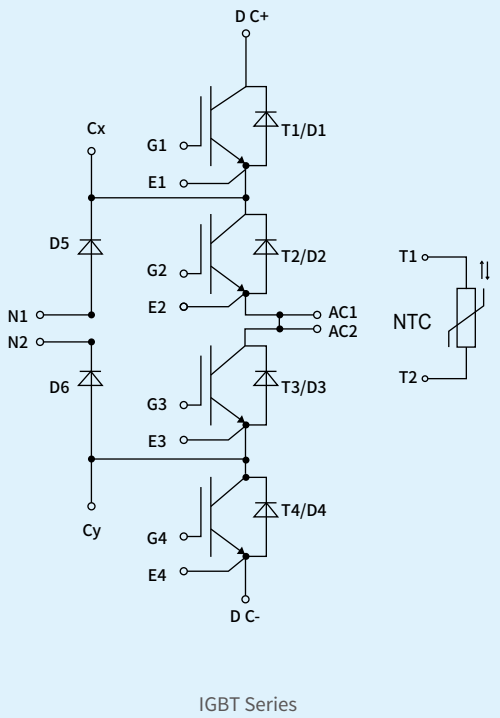
High Frequency Switching Application
Uninterrupted power supply (UPS)
Energy storage
PV solar
New energy vehicles, etc.

产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
TL400G100W3	1000	400	1.6	27.6@Rg=5Ω	0.095
产品型号 Part Number	Vdss (V)	Rds (on) Tj=25 °C (mΩ)		Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DA05C120W3	1200	5.3		1.69	0.273

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



DA系列 (DA series: Dual/Half Bridge)

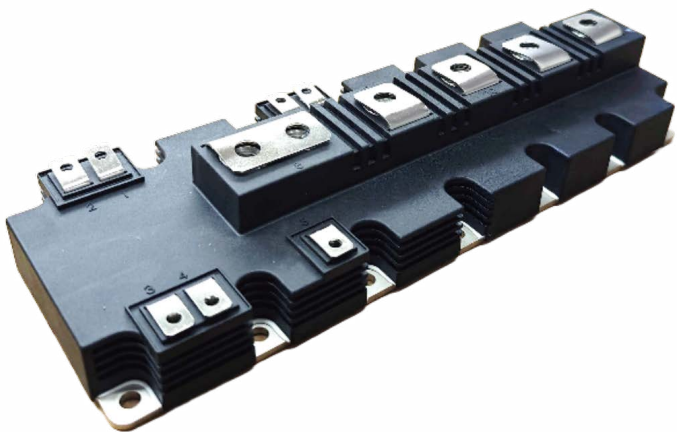
额定电压 Rated Voltage: 1700V
电流范围 Current Range: 1400A

行业应用

辅助逆变器
高功率转换器
电机驱动
风力涡轮机

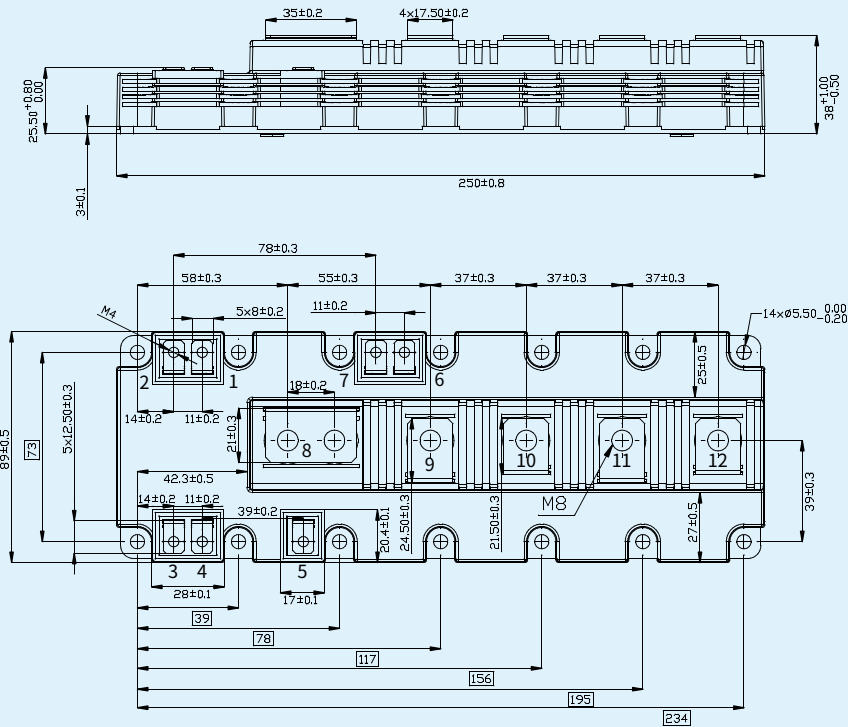
Applications

Auxiliary Inverters
High power converters
Motor Drives
wind turbine

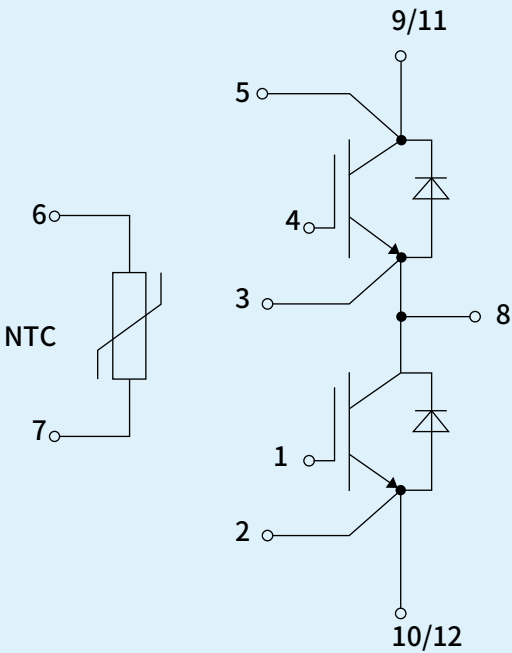


产品型号 Part Number	Vces (V)	Ic (A)	Vce(sat) Tj=25 °C (V)	Eon+Eoff Tj=25 °C (mj)	Rth, jc (K/W)
DA1K4G170T8	1700	1400	1.65	475@Rg=1.6Ω	0.016

外型尺寸图
Outline Dimension



拓扑
Circuit Diagram



DISCRETE

分立器件 (Discrete Device: Single Switch)

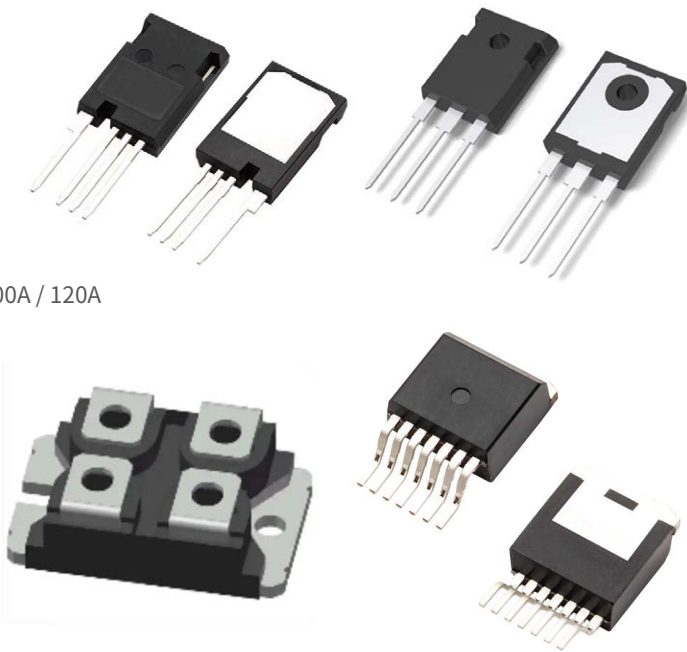
额定电压 Rated Voltage: 650V / 750V / 1200V / 1700V
电流范围 Current Range: 10A / 15A / 25A / 40A / 50A / 75A / 100A / 120A

行业应用

工业驱动
太阳能光伏
电机驱动
开关电源

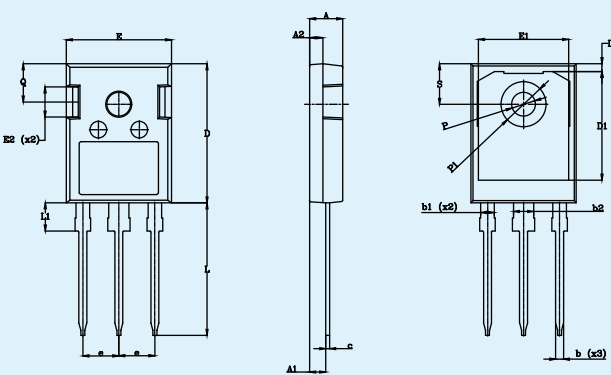
Applications

Industrial Drives
PV solar
Motor Drives
Switch power supplies

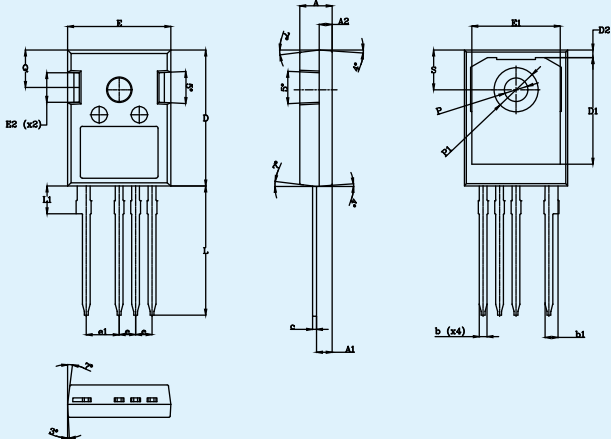


产品型号 Part Number	Vces (V)	Ic/Rds (on)	封装类型
ZA030C065ZA	650	30mΩ	TO 247-4L
ZA050G120WA	1200	50A	TO 247P-3L
ZA075G065WA	650	75A	TO 247-3L
ZA075G065WC	650	75A	TO 247-3L
M025C075ZC	750	25mΩ	TO 247-4L
M040G075WC	750	40A	TO 247-3L
ZA025G120WC	1200	25A	TO 247-3L
ZA050G120WC	1200	50A	TO 247P-3L
ZA019C170ZC	1700	19mΩ	TO 247B-4L
ZA006C120YT	1200	6mΩ	TO 247P-4L
ZA050G170QT	1700	50A	TO 247P-3L

外型尺寸图
Outline Dimension

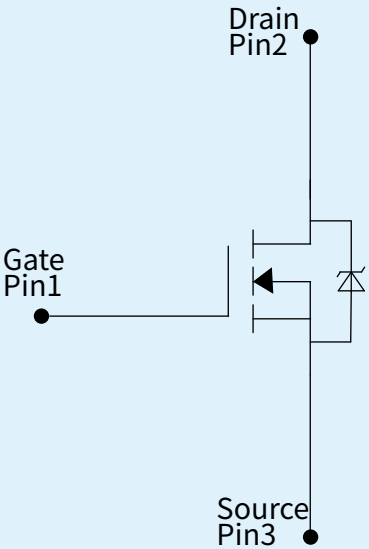
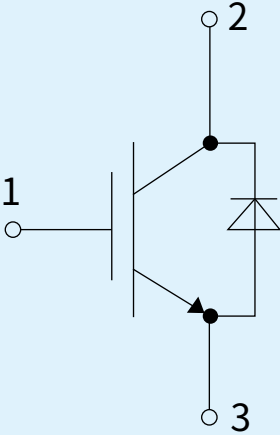


TO 247-3L



TO 247-4L

拓扑
Circuit Diagram



APPLICATION

应用领域

应用特性 Features

- 高功率密度、驱动电路简单以及宽安全工作区等
- 中大功率、中低频率电力电子设备首选
- 工作频率低于105Hz的范围内, 硅基IGBT是首选的功率半导体器件, 功率范围涵盖几千瓦至十兆瓦
- High power density, simple drive circuit and wide safe operation area
- Preferred power electronic equipments with medium or high power and low or medium frequency
- Silicon-based IGBT is the first choice of power semiconductor devices for the working frequency range below 105Hz, power ranges from several kilowatts to 10 megawatts

典型应用领域 Typical Application Fields



新能源

新能源汽车
(主电驱、OBC、空调、转向等)

新能源发电
(光伏逆变器、风电变流器)

New Energy

New energy vehicles
(main electric drive, OBC, air conditioning, steering, etc.)

New energy power generation (photovoltaic inverter, wind power converter)



工业控制

变频器
逆变焊机
不间断电源UPS等

Industrial Control

Frequency converters,
Inverter welder,
UPS, etc.



变频白色家电及其他

变频白电
轨道交通(牵引变流器)
智能电网等

Home Appliance and Others

Home appliance
Rail transit (traction converter)
Intelligent Power Management (IPM)

ADVANCED

LABORATORY

先进实验室



设有4大功能试验区:可独立进行17项可靠性测试、失效分析等各类试验室级产品分析及检测试验。

4 functional test areas: 17 reliability tests, failure analysis and other laboratory-scale product analysis and detection tests can be independently carried out.



测试规范完善,具备强大质量监控体系、系统验证能力和经验丰富的专业实验团队。

With perfect test specifications, the Company has a strong quality monitoring system, system verification ability and an experienced professional experimental team.



生产品质管控能力一流,助力高可靠性模块生产,系列产品良品率已达98%。

The production quality control ability is first-class, which helps the production of high-reliability modules, and the yield of series products has reached 98%.



以顾客为导向的应用测试,可及时响应客制产品测试和检测需求,助力客制产品系列化开发。

Customer-oriented application testing can respond to the testing and detection requirements of customized products in time and help the serial development of customized products.



四大功能测试区 4 Functional Test Areas

提升产品研发的速度,保证批量产品的高品质和稳定性,提供一流的故障分析及可靠度测试分析服务!

Improve efficiency of R&D, ensure the high quality and stability products, provide first-class test service!



生产特性监控 On-line Production Inspection

制程特性

焊接空洞
打线监控
成品弯曲等生产全特性监控

动态特性

开关特性
反向恢复
电容特性
栅极电荷
短路测试
寄生电容

静态特性

静态参数
特性曲线

Production Property

Welding cavity
Wire bonding monitoring
Finished product functional test, etc.

Dynamic Property

Switching characteristics
Reverse recovery
Capacitance characteristics
Gate charge
Short circuit test
Stray capacitance

Static Property

Static parameters
Characteristic curves

可靠性监控 Reliability Tests

环境可靠性

西门子功率循环
高温反偏
高温拉力测试
高温栅偏
高温高湿反偏
震动测试
跌落测试
温度循环
冷热冲击
高低温储存
高加速老化

Environment Reliability

Power cycling
HTRB
High temp. ensile test
HTGB
H3TRB
Vibration Test
Drop Test
TCT
TST
HTS & LHS
HAST

失效分析 Failure Analysis

失效分析

3D 轮廓
RA、RZ粗糙度
金相显微镜
EDX元素分析
机械截面分析
SAT超声波扫描
2D Xray
离子无损截面分析
KEYSIGHT曲线追踪
SEM扫描

Failure Analysis

3D Contour
RA、RZ Roughness
Optical Microscope (OM)
EDX
AFM
SAT
2D Xray
Cross Section Polisher (CP)
KEYSIGHT technologies
Scanning Electron Microscopy (SEM)

应用测试 Application Test

车载系统

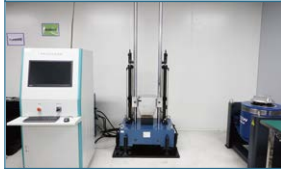
汽车牵引系统
车载充电系统
汽车充电桩
光伏逆变器系统
智能电网逆变器系统
铁路逆变器系统

Vehicle-mounted Systems

Automobile traction system
Vehicle-mounted charging system
Vehicle charging pile
Photovoltaic inverter system
Smart grid inverter system
Railway inverter system

可靠性试验是发现产品潜在的失效机制, 评估产品的失效率, 进而确保产品在正常使用阶段不会出现任何失效机制。

Reliability Test is the process that can identify potential failure mechanisms of product, evaluate its failure rate, and ensure that the product does not exhibit any failure mechanisms during normal use.

机械测试 Mechanical Test				
	测试项目 Test Item	测试目的 Test Purpose	测试标准 Test Standard	测试能力 Test Ability
	振动测试 Vibration	验证机械结构的牢固性和电气连接的稳定性。模拟器件在应用过程中的振动负载, 并验证了器件在出现故障模式(如结构脱落和材料疲劳)时的抗振动能力	IEC 60068 2-6	频率范围: 1~3500Hz 最大加速度: 981m/s 可测试X、Y、Z 三个方向
		Verify the robustness of the mechanical structure and the stability of the electrical connections. The vibration load of the power module during application is simulated and the vibration resistance of the power module is verified in the presence of failure modes such as structural detachment and material fatigue.		Frequency Range: 1~3500Hz Amax: 981m/s X, Y, Z directions test
	机械冲击测试 Shock	验证机械结构的整体性和电气连接的稳定性	IEC 60068 2-27	加速度范围 :0~15000m/s2 脉宽: 0.5~20ms 可测试X、Y、Z 三个方向
		Verify the integrity of the mechanical structure and the stability of the electrical connections.		Acceleration range :0~15000m/s2 Pulse Width: 0.5~20ms X, Y, Z directions test
	端子强度 Terminal Strength	评估产品端子是否有足够的机械强度	外观无破损、PIN针无脱落 The appearance is not damaged, and the PIN is not falling off.	温度范围: -40~200°C 拉力范围: 0~960N.m
		Evaluate whether the product terminals have sufficient mechanical strength.		Temp. Range: -40~200°C Tension Range: 0~960N.m
	安装强度 Mounting Strength	评估产品在固定力矩下的可靠性	外壳完整度、无破裂 Shell integrity, no rupture	扭力范围: 0.2~20N.m
		Evaluate the reliability of the product in condition of fixed torque.		Torque Range : 0.2~20N.m
	焊锡性 Solderability	评估产品的可焊性	GB/T 2423.28	温度范围: 0~350°C
		Evaluate the weldability of the product.		Temp. Range: 0~350°C
	焊接耐热性 Resistance to Solder Heat	评估产品PIN针的耐热性	GB/T 2423.28	温度范围: 0~350°C
		Evaluate the heat resistance of product pins.		Temp. Range: 0~350°C

环境测试 Environmental Test				
	测试项目 Test Item	测试目的 Test Purpose	测试标准 Test Standard	测试能力 Test Ability
	高温存储试验 HTS	评估产品在高温条件下的可靠性及电性性能 Evaluate the reliability and electrical performance of products in condition of high temperature.	IEC 60749-6	温度范围: 60~300 °C Temperature range: 60~300 °C
	低温存储测试 LHS	评估产品在低温条件下的可靠性及电性性能 Evaluate the reliability and electrical performance of products in condition of low temperature.	JESD22-A119	温度范围: -70~150 °C 湿度范围: 20~98% RH Temperature range: -70~150 °C Humidity range: 20~98% RH
	高加速 老化测试 HAST	评估产品在环境应力与工作应力条件下的产品寿命及电性性能 Evaluate the lifespan and electrical performance of products in condition of environmental stress and working stress.	IEC 60068-2-66	温度范围: 105~142.9°C 湿度范围:75~100%RH 压力范围:0.02~0.196MPa Temperature range: 105~142.9°C Humidity range:75~100%RH Pressure range:0.02~0.196MPa
	温湿度 储存测试 THS	评估产品在恒温恒湿条件下的可靠性及电性性能 Evaluate the reliability and electrical performance of products in condition of constant temperature and humidity.	IEC 60068-2-67	温度范围: -20~180 °C 湿度范围: 10~98% RH Temperature range: -20~180 °C Humidity range: 10~98% RH
	温度循环试验 TCT	用于模拟外界温度变化对产品的影响, 验证器件或模块的整体结构和材料 Used to simulate the impact of external temperature changes on products, verify the overall structure and materials of power devices or modules.	IEC 60749-25	温度范围: -70~180 °C 温度变换速率:26°C/min Temperature range: -70~180 °C Temperature change rate: 26 °C/min
	温度冲击测试 TST	验证IGBT在被动温度变化的情况下对机械应力的抵抗能力 Verify the resistance of IGBT to mechanical stress in condition of passive temperature changes.	IEC 60068-2-14	高温温度范围: 60~205 °C 低温温度范围: -77~0 °C 温度转换阶段时间: 10s High temperature range: 60~205 °C Low temperature range: -77~0 °C Temperature conversion phase time: 10s
耐力测试 Endurance Test				
	测试项目 Test Item	测试目的 Test Purpose	测试标准 Test Standard	测试能力 Test Ability
	高温反 偏老化试验 HTRB	主要用于验证长期稳定情况下芯片的漏电流, 考验对象是IGBT边缘结构和钝化层的弱点或退化效应。 Evaluate the leakage current of the power device in condition of high temperature and reverse bias conditions.	IEC 60749-9	温度范围: 20~200 °C 电压范围: 0~2000V Temperature range: 20~200 °C Voltage range: 0~2000V
	高温栅 反偏老化试验 HTGB	主要用于验证栅极漏电流的稳定性, 考验对象是IGBT栅极氧化层。 Verify the stability of gate leakage current, the test object is the IGBT gate oxide layer.	IEC 60749-9	温度范围: 20~200 °C 电压范围: 0~30V Temperature range: 20~200 °C Voltage range: 0~30V
	高温高湿 反偏老化试验 H3TRB	又名双85测试, 主要用于测试湿度对功率器件长期特性的影响。 Also known as Double 85 Test, it is mainly used to test the impact of humidity on the long-term characteristics of power devices.	IEC 60749-9	温度范围: 20~100 °C 湿度范围: 25~98% RH 电压范围: 0~2000V Temperature range: 20~100 °C Humidity range: 25~98% RH Voltage range: 0~2000V
	功率循环测试 (分钟级) PC / min	评估器件在重复热应力下的可靠性和寿命。(分钟级) Evaluate the reliability and lifespan of the device in condition of repeated thermal stress. (Minute-level)	IEC 60749-34	设备输出:四通道 单通道最大电流600A 最大可输出电流2400A Current output: four channels Single channel maximum current 600A Maximum output current 2400A
	功率循环测试 (秒级) PC / sec	评估器件在重复热应力下的可靠性和寿命。(秒级) Evaluate the reliability and lifespan of the device in condition of repeated thermal stress. (Second-level)	IEC 60749-34	设备输出:四通道 单通道最大电流600A 最大可输出电流1800A Current output: four channels Single channel maximum current 600A Maximum output current 1800A

失效分析实验室 Failure Analysis Laboratory

失效分析是为确定和分析失效器件的失效模式、失效机理、失效原因和失效性质而对产品所做的分析和检查。

Failure analysis is the analysis and inspection of a product to determine and analyze the failure mode, failure mechanism, failure cause, and failure property for failed devices.



拥有经验丰富的专业实验团队，高效的失效分析能力。精湛的样品制备技术，如切片分析+离子束研磨等。

Experienced professional experimental team, efficient failure analysis ability. Excellent sample preparation techniques, such as Cross Section Polisher + ion beam grinding, etc.



独立失效分析实验室，具备各类专业仪器设备，实验规范及制度完善，贯穿产品生命周期的各个环节。可对材料表面和剖面、材料内部及材料半成品进行微区或其成份元素的全面分析。

Independent failure analysis laboratory, with all kinds of professional instruments and equipments, experimental standards and perfect system, throughout all aspects of the product life cycle. The surface and profile of the material, the interior of the material and the semi-finished product of the material can be fully analyzed in microregion or their component elements.



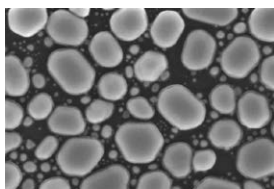
系统级测试平台，以全覆盖测试方式，对设计研发、生产和应用过程中的失效问题进行精细化分析，可快速有效找到失效具体位置、失效原因及预防措施，满足用户对高品质高可靠性产品要求。

System-level test platform, with full coverage test method, fine analysis of failure problems during the R&D, production and application process, can quickly and effectively find the failure specific location, failure causes and preventive measures to meet customers' requirements for high-quality and reliable products.

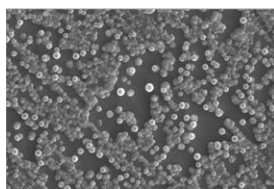
SEM/EDX

SEM景深大、分辨率高，放大倍率可达到数十万倍以上，可用来观察样品表面及剖面微结构；另配备EDS，可对样品表面同时进行微区之材料分析，包括定性、半定量之成分分析以及特定区域之Point、Line Scan、Mapping分析。

SEM has a large depth of field, high resolution, and a magnification of hundreds of thousands of times or more, which can be used to observe the surface and profile microstructure of samples; Equipped with EDS, it can simultaneously perform micro area material analysis on the surface of the sample, including qualitative and semi quantitative component analysis, as well as point, line scan, and mapping analysis for specific areas.



金颗粒的高解析影像
High resolution images of gold particles

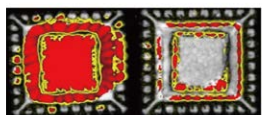
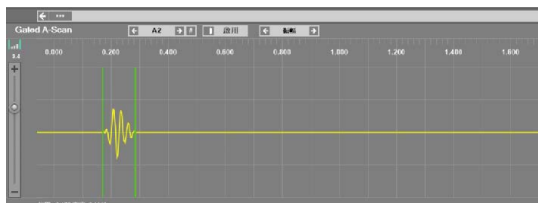


铜颗粒的高解析影像
High resolution images of copper particles

SAT 超声波扫描

SAT超声波可用来检测芯片组件内部不同位置的脱层(Delamination)、裂缝(Crack)、气洞及粘着状况，多用于检察芯片密封胶内的缺陷。

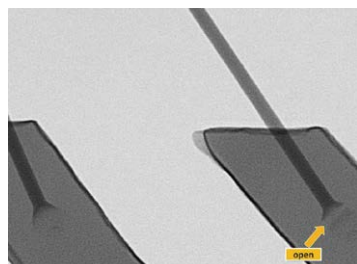
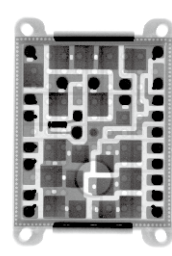
SAT ultrasound can be used to detect delamination, cracks, air holes, and adhesion at different positions inside chip components, and is often used to inspect defects inside chip seals.



2D X-ray

2D X-ray检测，是当前非破坏检测产品内部缺陷分析有效率且快速的方法，X-ray可检测待测物内部结构及是否有缺陷、空洞(Void)、Crack等异常。

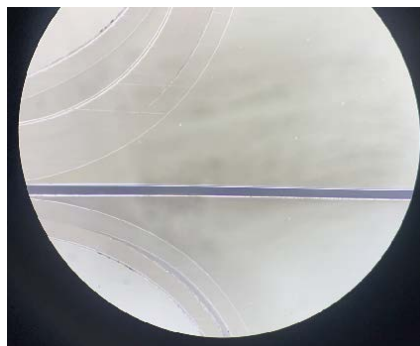
2D X-ray detection is currently an effective and fast method for analyzing internal defects in non-destructive testing products. X-ray can detect the internal structure of the tested object and whether there are defects, voids, cracks, and other abnormalities.



切片分析 PCBA (X-section)

快速的样品制备方式之一，利用砂纸或钻石砂纸，加上后续的抛光，可处理出清晰的样品表面。

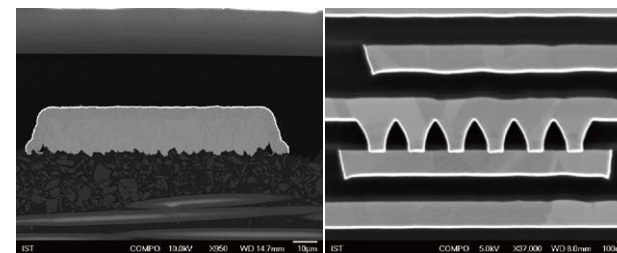
One of the fast sample preparation methods is to use sandpaper or diamond sandpaper, combined with subsequent polishing, to produce a clear sample surface.



离子束研磨 Cross Section Polisher (CP)

离子束剖面研磨、离子束截面研磨(Cross Section Polisher, 简称CP)，是利用离子束切割方式，去切割出样品的剖面，不同于一般样品剖面研磨，离子束切割的方式可避免因研磨过程所产生的应力影响。

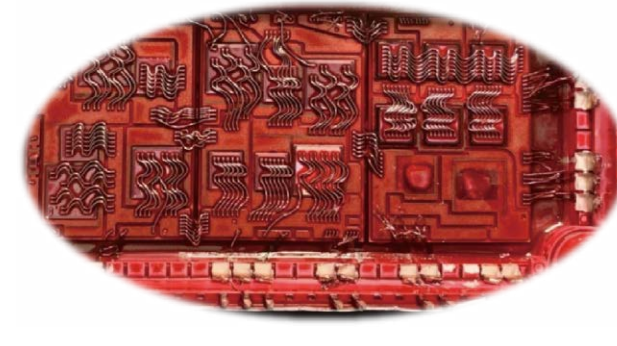
Ion beam profile grinding, Cross Section Polisher (referred to as CP), it uses ion beam cutting to cut the profile of a sample. Unlike general sample profile grinding, ion beam cutting can avoid stress effects caused by the grinding process.



红药水渗透 Red Medicine Penetration Test

利用液体具有渗透的特性，可以渗透到所有的焊锡缝隙来判断焊接是否完好。

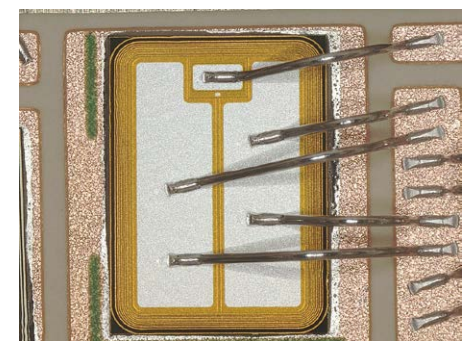
By utilizing the permeability of liquids, it can penetrate all solder gaps to determine the integrity of the welding process.



双眼显微镜 Optical Microscope (OM)

透过光学透镜放大、缩小及CCD来撷取影像，进行表面形貌观察。

Using optical lenses for magnification, reduction, and CCD to capture images and observe surface morphology.



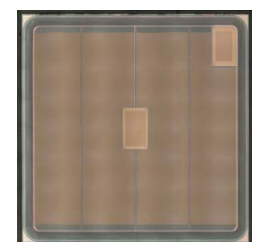
弹坑试验 Crater Test

芯片失效分析时，需分析内部的芯片、打线、组件，因封装胶体阻挡观察，利用「laser蚀刻」及「湿式蚀刻」两种搭配使用，使封装体内包覆的对象裸露出来，以便后续相关实验处理、观察。

It is necessary to analyze the internal chips, wiring, and components during chip failure analysis. Due to the obstruction of the packaging colloid, two combinations of "laser etching" and "wet etching" are used to expose the objects inside the packaging for subsequent experimental processing and observation.



弹坑前



弹坑后

BRAND

CULTURE

品牌文化



战略目标

STRATEGIC GOAL

致力于
高端功率半导体器件国产化

Committed to the localization of high-end power semiconductor devices.



愿景

VISION

从“芯”出发 改变世界

Changing the world starts from the chips!



使命

MISSION

智造赋能“芯”未来

Empower the future of “chip” based on smart manufacturing.



价值观

VALUES

知常明变 守正创新
协同互信 精业笃行

Knowledgeable Flexible Integrity Innovation
Collaborative Mutual trust Diligent Dedicated



经营理念

BUSINESS PHILOSOPHY

功“芯”兴国
功率之芯, 兴盛国家

Achieving national prosperity with powerful “chip”.
Making the country prosperous with powerful chips.

创“芯”引领
创新之芯, 技术领先

Leading the technology with innovative “chip”.
Achieving technological leadership with innovative chips.

效“芯”双益
效能之芯, 双赢益彰

Making mutual benefits with efficient “chip”.
Achieving win-win with efficient chips.

初“芯”共进
初心之芯, 同心共进

Making progress together with original intention.
Developing together with the original intention in mind.



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