合肥中恒微半导体有限公司
HeFei Cpower Technology.,Ltd.
SDB800M120S1P

➢ 产品外观 / Appearance

Preliminary

V_{CES} = 1200V

$I_{C\ nom}$ = 800A / I_{CRM} = 1600A

➢ 特性 / Features

A. 低 V_{CEsat}

B. 最高结温 150℃

C. 绝缘包装

A. Low V_{CEsat}

B. Maximum Junction Temperature 150℃

C. Isolation Type Package

➢ 用途 / Applications

A. 大功率变流器

B. 电机控制和驱动

C. 不间断电源系统

A. High Power Converters

B. Motor Control and Drives

C. UPS Systems

➢ 相关信息 / Related Information

条形码 / Barcode Code

二维码 / DMX – Code

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IGBT，逆变器 / IGBT, Inverter

最大额定值 / Maximum Rated Values

集电极-发射极电压 Collector-emitter voltage	T_i=25℃	V_{CES}	1200	V
连续集电极直流电流 Continuous DC collector current	T_C = 80℃, $T_{j\,max}$ = 150℃	$I_{C\,nom}$	800	A
集电极重复峰值电流 Repetitive peak collector current	t_p= 1 ms	I_{CRM}	1600	A
栅极-发射极峰值电压 Gate-emitter peak voltage		V_{GES}	+/-20	V

特征值 / Characteristic Values

				Min.	Typ.	Max.	
集电极-发射极饱和电压 Collector-emitter saturation voltage	I_C = 800 A, V_{GE} = 15 V	T_j = 25℃ T_j = 125℃	$V_{CE\,sat}$		1.75 2.00	2.10	V
栅极阈值电压 Gate threshold voltage	I_C = 5mA, V_{CE} = V_{GE}, T_j = 25℃		V_{GEth}	5.0	5.8	6.5	V
集电极-发射极截止电流 Collector-emitter cut-off current	V_{CE} = 1200 V, V_{GE} = 0 V, T_j = 25℃		I_{CES}			5.1	mA
栅极-发射极漏电流 Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 15V, T_j = 25℃		I_{GES}			400	nA
开通延迟时间 Turn-on delay time	I_C = 800 A, V_{CE} = 600 V V_{GE} = ±15 V R_G = 3 Ω Inductive Load	T_j = 25℃ T_j = 125℃	$t_{d\,on}$		250 270		ns
上升时间/Rise time		T_j = 25℃ T_j = 125℃	t_r		170 180		ns
关断延迟时间 Turn-off delay time		T_j = 25℃ T_j = 125℃	$t_{d\,off}$		890 950		ns
下降时间/Fall time		T_j = 25℃ T_j = 125℃	t_f		130 180		ns
开通损耗能量 Turn-on energy loss		T_j = 25℃ T_j = 125℃	E_{on}		53.1 59.7		mJ
关断损耗能量 Turn-off energy loss		T_j = 25℃ T_j = 125℃	E_{off}		119 135		mJ
短路数据/SC data	V_{GE} ≤ 15 V, V_{CC} = 600 V t_p ≤ 10μs,T_j = 125℃		I_{SC}		4000		A
结 – 外壳热阻 Thermal resistance, junction to case	每个 IGBT / per IGBT		R_{thJC}			0.035	K/W
在开关状态下温度 Temperature under switching			$T_{j\,op}$	-40		125	℃

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二极管，逆变器 / Diode, Inverter

最大额定值 / Maximum Rated Values

反向重复峰值电压 Repetitive peak reverse voltage	T_j = 25℃	V_{RRM}	1200	V
连续正向直流电流 Continuous DC forward current		I_F	800	A
正向重复峰值电流 Repetitive peak forward current	t_p= 1 ms	I_{FRM}	1600	A

特征值 / Characteristic Values

				Min.	Typ.	Max.	
正向电压/Forward voltage	I_F = 800 A, V_{GE} = 0 V	T_j = 25℃ T_j = 125℃	V_F		1.75 1.95		V
恢复电荷/Recovered charge	I_F = 800 A, V_R = 600 V -di/dt=5100 A/us	T_j = 25℃ T_j = 125℃	Q_r		62 82		μC
反向恢复损耗 Reverse recovery energy		T_j = 25℃ T_j = 125℃	E_{rec}		40 74		mJ
结 – 外壳热阻 Thermal resistance,junction to case	每个二极管 / per diode		R_{thJC}			0.06	K/W
在开关状态下温度 Temperature under switching			$T_{j\,op}$	-40		125	℃

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模块 / Module

绝缘测试电压 Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V_{ISOL}		2.5		kV
模块基板材料 Material of module baseplate				Cu		
内部绝缘/Internal isolation	基本绝缘 (class 1, IEC 61140) Basic insulation (class1, IEC 61140)			Al_2O_3		
爬电距离/Creepage distance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal			25.0 19.0		mm
电气间隙/Clearance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal			25.0 10.0		mm
相对电痕指数 Comperative tracking index		CTI		> 400		

			Min.	Typ.	Max.	
杂散电感，模块 Stray inductance module		L_{sCE}		16		nH
模块引线电阻 Module lead resistance	T_C = 25℃， 每个开关 / per switch	$R_{CC'+EE'}$		0.50		mΩ
储存温度/Storage temperature		T_{stg}	-40		125	℃
模块安装的安装扭距 / Mounting torque for module mounting	螺丝 M6 / Screw M6	M	3.00		6.00	Nm
端子联接扭距 Terminal connection torque	螺丝 M4 / Screw M4 螺丝 M6 / Screw M6	M	1.1 2.5		2.0 2.5	Nm
重量/Weight		G		300		g

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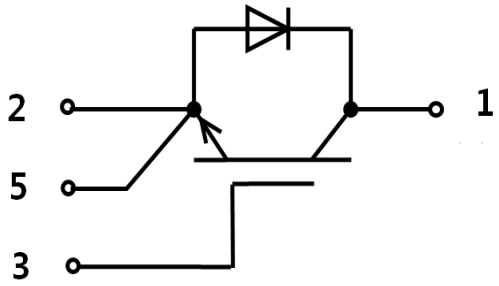
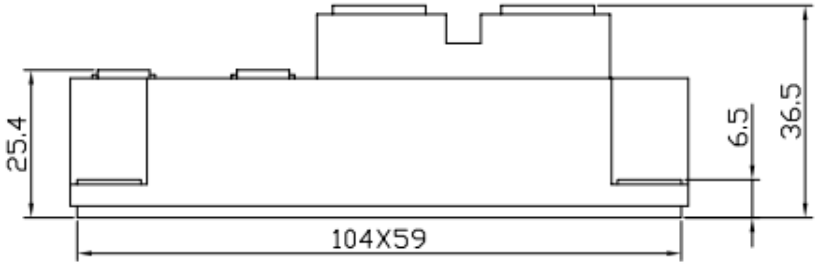
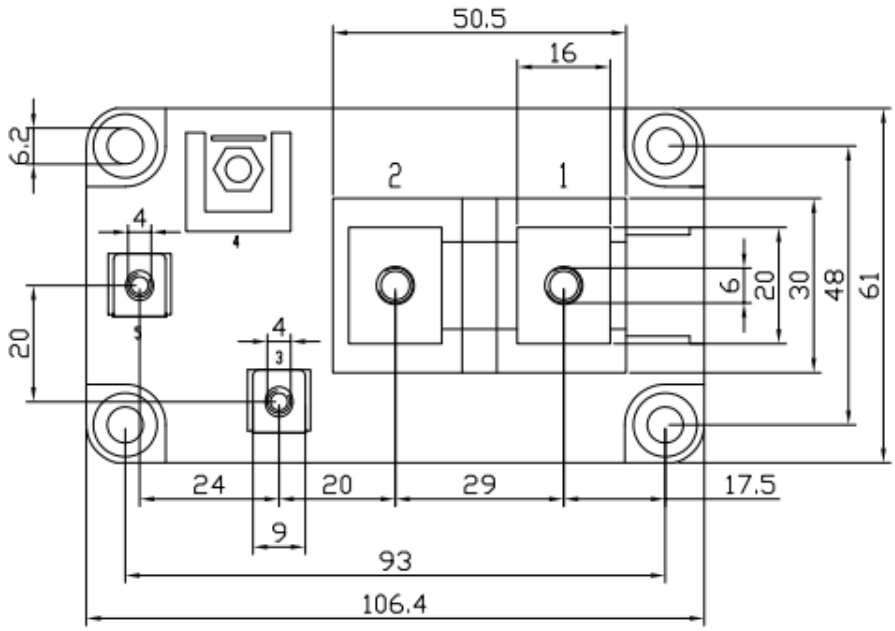
封装 / Package

接线图 / Circuit Diagram



封装尺寸 / Package outlines





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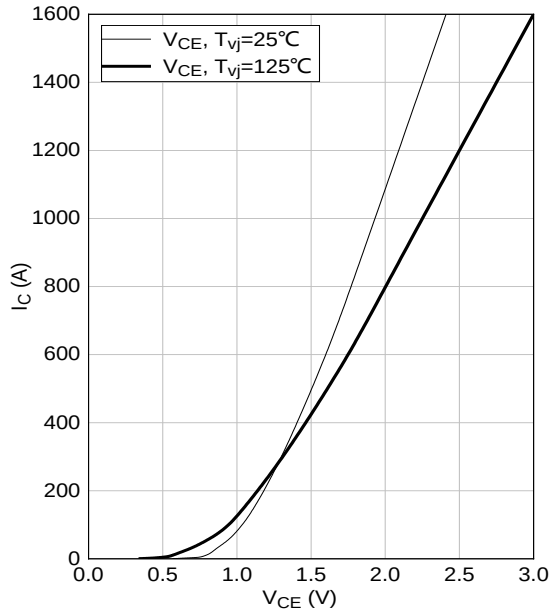
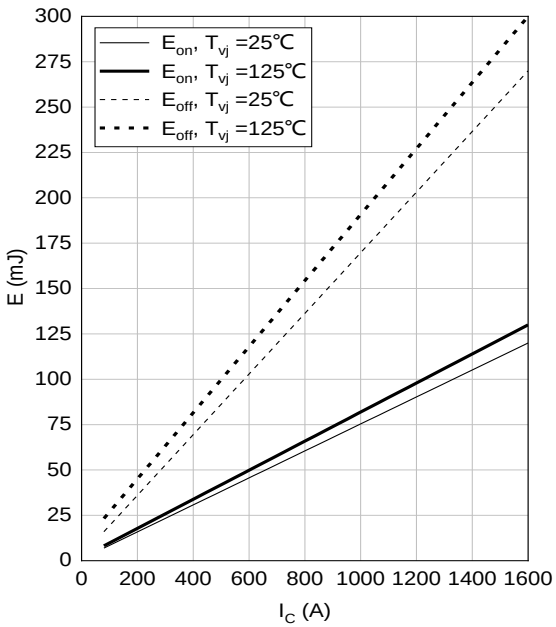
性能 / Performance

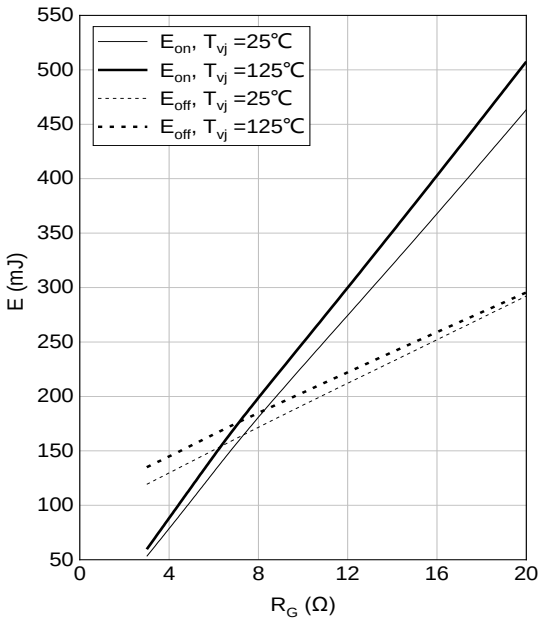
输出特性 IGBT, 逆变器（典型）
output characteristic IGBT,Inverter (typical)
V_{GE} = 15V



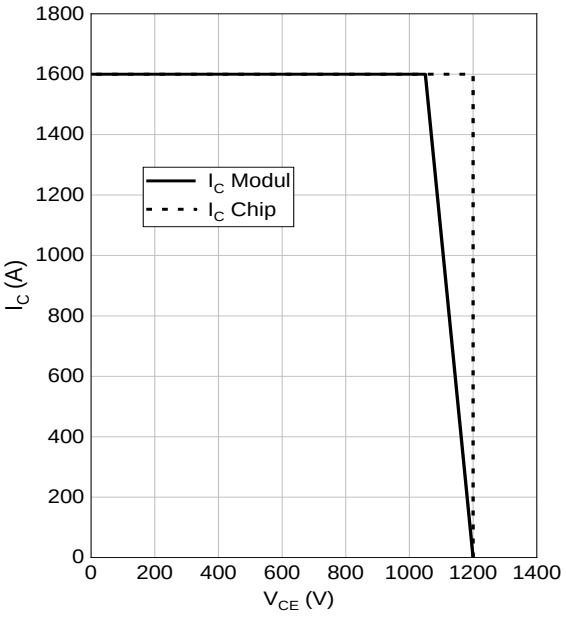
开关损耗 IGBT, 逆变器（典型）
switching losses IGBT,Inverter (typical)
V_{GE} = ±15V, R_G =3Ω, V_{CE} = 600V



开关损耗 IGBT, 逆变器（典型）
switching losses IGBT, Inverter (typical)
V_{GE} = ±15V, I_C = 800A, V_{CE} = 600V



反偏安全工作区 IGBT, 逆变器（典型）
RBSOA IGBT, Inverter (typical)
V_{GE} = ±15V, R_G = 3Ω, T_j = 125℃



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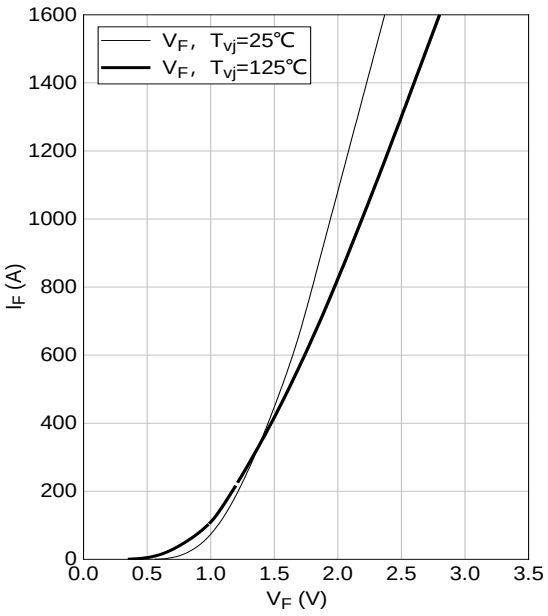
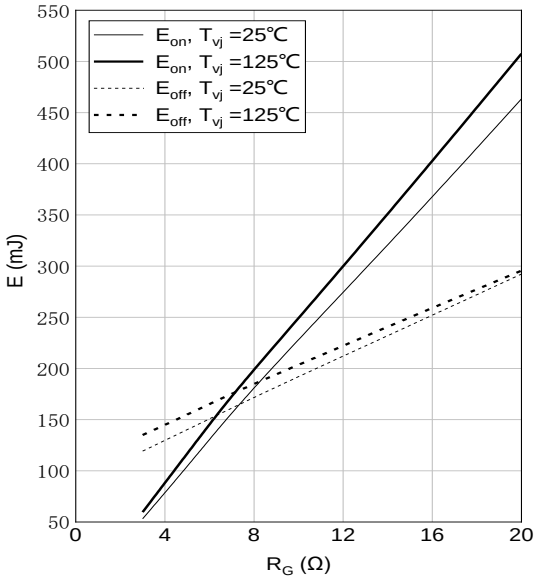
性能 / Performance

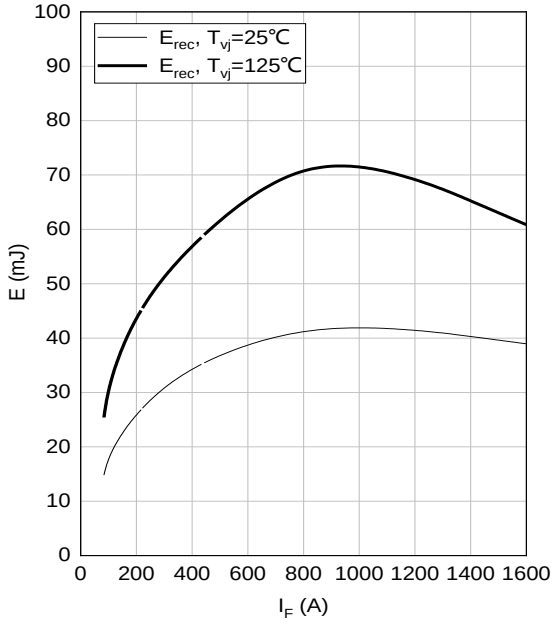
正向偏压特性 二极管,逆变器（典型）
forward characteristic of Diode, Inverter(typical)



开关损耗 二极管，逆变器（典型）
switching losses Diode, Inverter (typical)
I_F = 800A, V_{CE} = 600V



开关损耗 二极管，逆变器（典型）
switching losess of Diode, Inverter (typical)
R_G = 3Ω, V_{CE} = 600V



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