

2E002E120T1P

➤ 产品外观 / Appearance



$V_{CES} = 1200V$

$R_{DS(on)} = 2m\Omega$

$I_{DN} = 600 A / I_{DRM} = 1200 A$

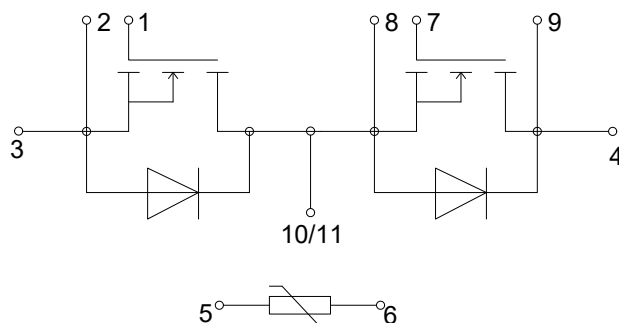
➤ 特性 / Features

- | | |
|----------------------------|--------|
| a. High Current Density | 高电流密度 |
| b. Low Switching Losses | 低开关损耗 |
| c. High Speed Switching | 高频开关 |
| d. High Reliability Module | 高可靠性模块 |

➤ 用途 / Applications

- | | |
|---|-----------|
| a. High Frequency Switching Application | 高频开关应用 |
| b. DC/DC Converter | DC/DC 整流器 |
| c. Solar Applications | 伺服应用 |
| d. Uninterruptible Power Supply | UPS 不间断电源 |

➤ 电路拓扑 / Circuit Topology



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MOSFET

最大额定值/ Maximum Rated Values

漏极-源极电压 Drain-source voltage	$T_j = 25^\circ\text{C}$	V_{DSS}	1200	V
连续漏极直流电流 DC drain current	$V_{GS} = 18\text{ V}, T_{j\max} = 150^\circ\text{C}$	I_{DN}	600	A
漏极重复峰值电流 Pulse drain current		I_{DRM}	1200	A
栅极-源极电压 Gate-source voltage		V_{GSS}	-4/+22	V
存储结温 Operating and Storage Temperature		T_{stg}	-40 to +175	$^\circ\text{C}$

电特性/ Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
漏极-源极导通电阻 Drain-Source on resistance	$I_D = 600\text{ A}, V_{GS} = 15\text{ V}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 175^\circ\text{C}$	$R_{DS\ on}$		1.8 2.9 3.4		$\text{m}\Omega$
栅极阈值电压 Gate threshold voltage	$I_D = 24\text{ mA}, V_{DS} = V_{GS}, T_j = 25^\circ\text{C}$	V_{GSth}	5.0	5.3	6.0	V
栅极电荷 Total gate charge	$V_{DD} = 600\text{ V}, I_D = 360\text{ A}, V_{GS} = -4/+18\text{ V}$	Q_G		1.78		nC
栅极-源极电荷 Gate to source Charge		Q_{gs}		0.4		
栅极-漏极电荷 Gate to Drain Charge		Q_{gd}		0.8		
内部栅极电阻 Internal gate resistor	$T_j = 25^\circ\text{C}$	R_{Gint}		0.4		Ω
跨导 Trans-conductance	$V_{DS} = 10\text{ V}, I_D = 360\text{ A}$	g_{fs}		142		S
输入电容 Input capacitance	$f = 1\text{ MHz}, V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}$	C_{iss}		28.8		nF
输出电容 Output capacitance		C_{oes}		2.37		
反向传输电容 Reverse transfer capacitance		C_{rss}		1.08		
集电极-源极截止电流 Collector-source cut-off current	$V_{DS} = 1200\text{ V}, V_{GS} = 0\text{ V}, T_j = 25^\circ\text{C}$	I_{DSS}			100	mA
栅极-源极漏电流 Gate-source leakage current	$V_{DS} = 0\text{ V}, V_{GS} = +22/-4\text{ V}, T_j = 25^\circ\text{C}$	I_{GSS}			200	μA
开通损耗能量 Turn-on Switching Loss per Pulse	$I_D = 600\text{ A}, V_{DS} = 800\text{ V}$ $V_{GS(on)} = 18\text{ V},$ $V_{GS(off)} = 0\text{ V},$ $R_G = 1\ \Omega$ Inductive Load	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$ $T_j = 175^\circ\text{C}$		11.2 9.7 10.0		mJ
关断损耗能量 Turn off Switching Loss per Pulse		$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$ $T_j = 175^\circ\text{C}$	E_{off}		7.3 7.4 7.5	
芯片 - 外壳热阻 Thermal Resistance - chip-to-case	每个 MOSFET / per MOSFET	R_{thJC}			0.08	$^\circ\text{C}/\text{W}$
开关状态下温度 Temperature under switching		$T_{j\ op}$	-40		175	$^\circ\text{C}$

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体二极管 / Body Diode

最大额定值/Maximum Rated Values

连续正向直流电流 Continuous DC forward current		I_F	160	A
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电特性/ Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
正向电压 Forward voltage	$I_F = 600\text{ A}, V_{GS} = 0\text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $T_J = 175^\circ\text{C}$	V_{SD}	4.6 4.3 4.3		V

负温度系数热敏电阻

特征值 / Characteristic Values

Parameter		Symbol	Min	Typ	Max	Unit
额定阻值 Rated resistance	$T_C = 25^\circ\text{C}$	R_{25}		5.00		k Ω
阻值误差 Deviation of R100	$T_C = 100^\circ\text{C}, R_{100} = 465\ \Omega$	$\Delta R/R$	-5		5	%
功率损耗 Power dissipation	$T_C = 25^\circ\text{C}$	P25			10.0	mW
B 值/ B - value	$R_2 = R_{25} \exp [B_{25/50}(1/T_2 - 1/(298.15\text{K}))]$	$B_{25/50}$		3375		K
B 值/ B - value	$R_2 = R_{25} \exp [B_{25/80}(1/T_2 - 1/(298.15\text{K}))]$	$B_{25/80}$		3425		K
B 值/ B - value	$R_2 = R_{25} \exp [B_{25/100}(1/T_2 - 1/(298.15\text{K}))]$	$B_{25/100}$		3443		K

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模块 / Module

绝缘配置 / Insulation Coordination

Parameter	Test Conditions	Symbol	Typ.	Unit
隔离试验电压 Isolation test voltage	RMS, f = 50 Hz, t = 1 min	V_{ISOL}	4.0	kV
模块基板材料 Material of module baseplate			Cu	
内部隔离 Internal Isolation	基本绝缘 (class 1, IEC61140) Basic insulation (class 1, IEC61140)		Si_3N_4	
爬电距离 Creepage distance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal	dCreep	14.5 13.0	mm
间距 Clearance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal	dClear	12.5 10.0	mm
相对漏电起痕指数 Comparative tracking index		CTI	> 400	

特征值 / Characteristic Values

Parameter		Symbol	Min	Typ	Max	Unit
杂散电感, 模块 Stray inductance module		L_{SDS}		20		nH
模块引线电阻 Module lead resistance	$T_c = 25^\circ C$, 每个开关 / per switch	$R_{DD'+SS'}$		1.1		m Ω
储存温度 Storage temperature		T_{stg}	-40		125	$^\circ C$
模块安装的安装扭矩 Mounting torque for module	螺丝 M5 / Screw M5	M	3.0		6.0	Nm
端子联接扭矩 Terminal connection torque	螺丝 M6 / Screw M6	M	3.0		6.0	Nm
重量 Weight		G		345		g

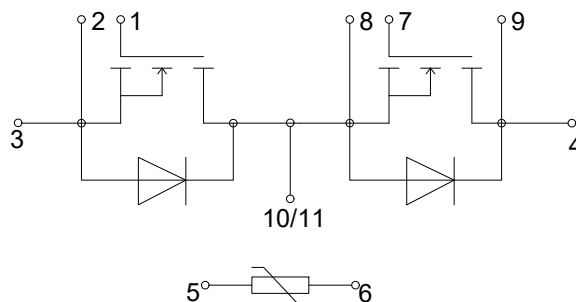
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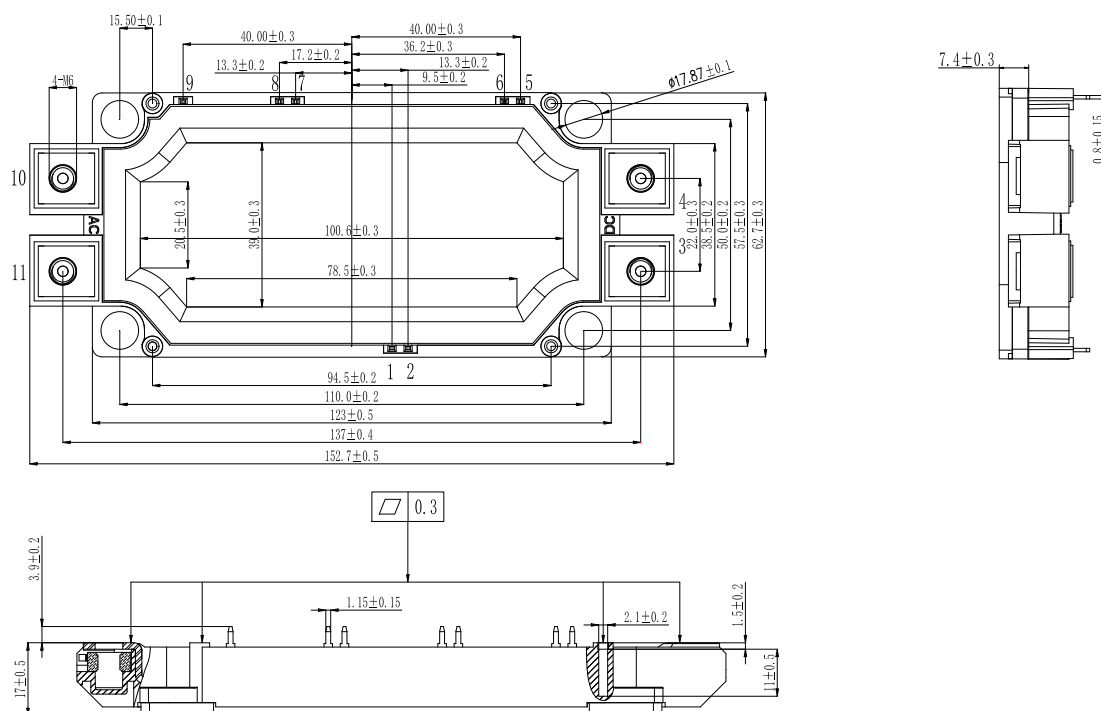
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封装/Package

电路拓扑/Circuit Topology



封装尺寸 / Package outlines



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