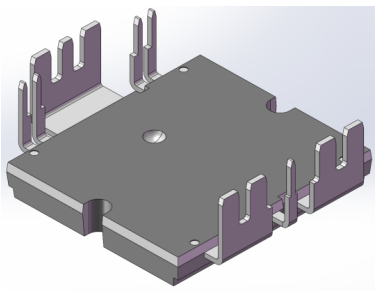
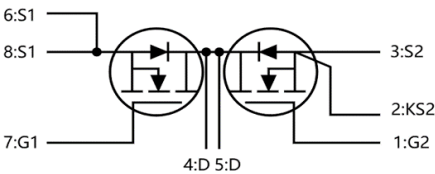


SLC800MD10SLT2 (-S)

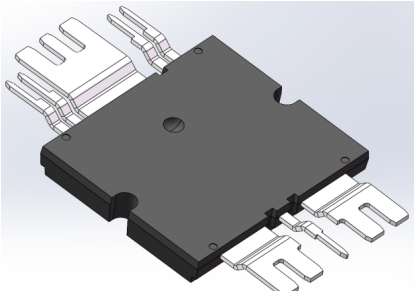


800A对管SDDS型功率模块，
100V-N沟道功率MOSFET器件。

800A pair tube SDDS type module,
100V-N-channel power MOSFET device.



SLC800MD10SLT2



SLC800MD10SLT2 (-S)

$V_{DS}=100V$
 $I_{D\ nom}=650A$
 $R_{DS\ (ON)\ typ}=0.6m\Omega$

特性

- 低导通阻抗
- 高电流密度
- 高可靠性

Features

- Low $R_{DS(on)}$
- High current density
- High Ruggedness

应用场景

- 电池保护板

Application scenarios

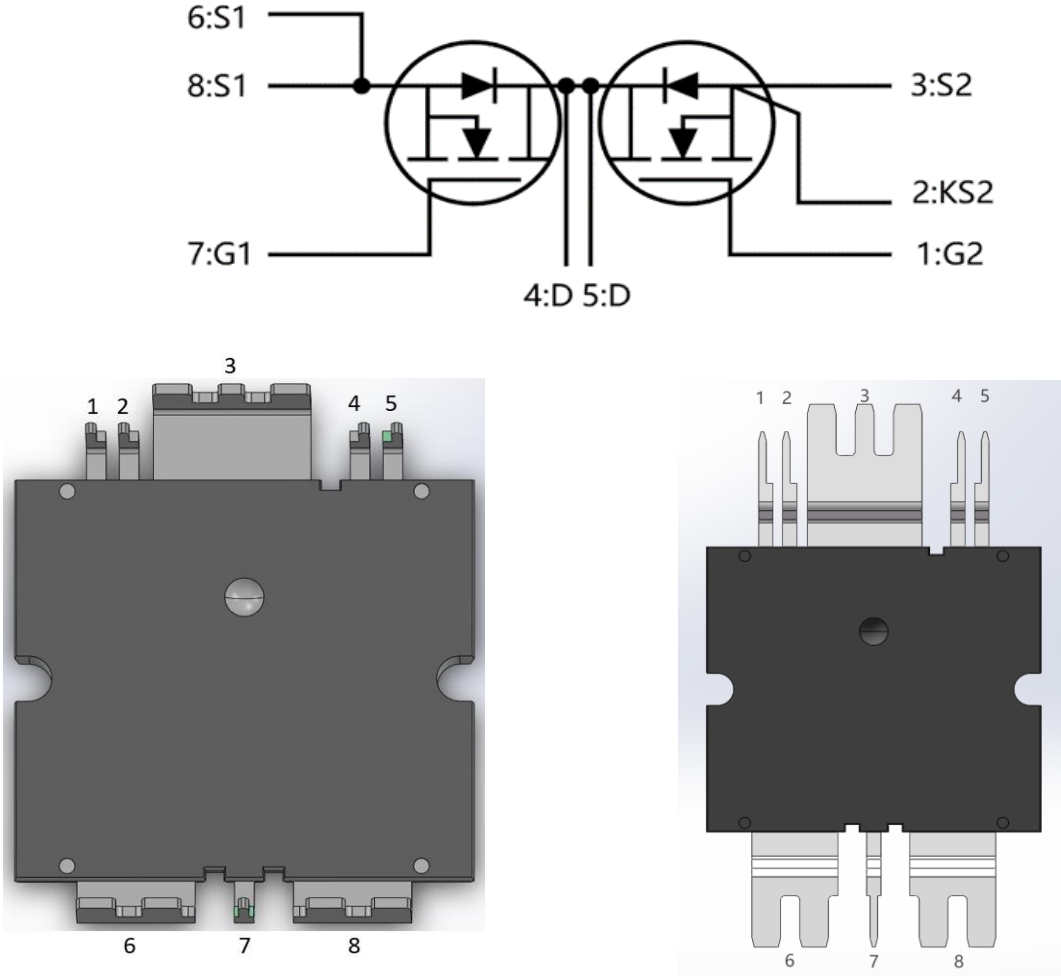
- BMS



Type / Ordering Code	Package	Marking	Related Links
SLC800MD10SLT2 (-S)	T2/T2-S		

Revision	Date	Subjects (major changes since last revision)
V1.0	2024/8/28	New version release

SLC800MD10SLT2(-S)



引脚功能描述/Pin Function Descriptions

Pin No.	Pin Name	Pin Functional Description
1	G2	2号MOSFET 栅极 / NO.2 MOSFET Gate
2	KS2	2号MOSFET 开尔文源极 / NO.2 MOSFET Kelvin Source
3	S2	2号MOSFET 源极 / NO.2 MOSFET Source
4	D	MOSFET 漏极 / MOSFET Drain
5	D	MOSFET 漏极 / MOSFET Drain
6	S1	1号MOSFET 源极 / NO.1 MOSFET Source
7	G1	1号MOSFET 栅极 / NO.1 MOSFET Gate
8	S1	1号MOSFET 源极 / NO.1 MOSFET Source

SLC800MD10SLT2(-S)



最大额定值 / Maximum Rated Values

$T_{vj} = 25^{\circ}\text{C}$, 除非另有说明/ $T_{vj} = 25^{\circ}\text{C}$, Unless Otherwise Specified

Parameter	symbol	Condition	Rating	Unit
漏源极电压 Drain-source voltage	V_{DS}	$V_{GS}=0, I_D=1\text{mA}, T_j=25^{\circ}\text{C}$	100	V
直流漏极电流 DC drain current	$I_{D\text{ nom}}$	$V_{GS}=10\text{V}, T_c=25^{\circ}\text{C}, R_{thJH}=0.1\text{K/W}$	650	A
		$V_{GS}=10\text{V}, T_c=100^{\circ}\text{C}, R_{thJH}=0.1\text{K/W}$	410	
脉冲漏极电流 Pulsed drain current	$I_{D, \text{pulse}}$	tp limited by $T_{vj\text{max}}$	1200	A
雪崩能量, 单脉冲 Avalanche energy, single pulse	E_{AS}	$V_{DD}=100\text{V}, L=0.2\text{mH}, R_g=25\Omega, V_{GS}=10\text{V}$	6.8	J
栅源峰值电压 Gate-source voltage	V_{GS}	-	+20/-20	V
总耗散功率 Power dissipation	P_{tot}	$T_{vj\text{MAX}}=150^{\circ}\text{C}, T_c=25^{\circ}\text{C}, R_{thJH}=0.1\text{K/W}$	1200	W

电气特征值 / Electrical Characteristic Values

$T_{vj} = 25^{\circ}\text{C}$, 除非另有说明/ $T_{vj} = 25^{\circ}\text{C}$, Unless Otherwise Specified

静态特性/Static Characteristic

Parameter	symbol	Condition	Value			Unit
			Min	Typ	Max	
漏源击穿电压 Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0, I_D=1\text{mA}, T_j=25^{\circ}\text{C}$	100	110	-	V
栅极阈值电压 Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS} \quad T_j=25^{\circ}\text{C}$	2.5	3.1	3.5	V
		$I_D=250\mu\text{A} \quad T_j=100^{\circ}\text{C}$	-	2.4	-	
		$T_j=125^{\circ}\text{C}$	-	2	-	
零栅电压漏极电流 Zero gate voltage drain current	I_{DSS}	$V_{DS}=100\text{V} \quad T_j=25^{\circ}\text{C}$	-	-	5	uA
		$V_{GS}=0\text{V} \quad T_j=100^{\circ}\text{C}$	-	-	50	
		$T_j=125^{\circ}\text{C}$	-	-	200	
栅极漏电流 Gate-source leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}, T_j=25^{\circ}\text{C}$	-	-	± 100	nA
漏源通态电阻 Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=10\text{V} \quad T_j=25^{\circ}\text{C}$	-	0.6	0.7	
		$I_D=40\text{A} \quad T_j=100^{\circ}\text{C}$	-	0.8	-	
		$T_j=125^{\circ}\text{C}$	-	0.9	-	
内部栅极电阻 Internal gate resistor	R_g	$V_{GS}=0, V_{DS}=0, f=0.1\text{MHz}$	-	0.47	-	Ω
跨导 Transconductance	g_{fs}	$V_{DS}=30\text{V}, I_D=100\text{A}$	-	616	-	S

动态特性/Dynamic Characteristic

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Parameter	symbol	Condition	Value			Unit
			Min	Typ	Max	
输入电容 Input Capacitance	C_{iss}	$V_{GS}=0$	—	26	—	nF
输出电容 Output capacitance	C_{oss}	$V_{DS}=25V$ $f=0.1MHz$	—	15	—	nF
反向传输电容 Reverse transfer capacitance	C_{rss}	$T_j=25^{\circ}C$	—	0.4	—	nF
开通延迟时间(电感负载) Turn on delay time, inductive load	$t_{d(on)}$	$V_{DD}=50V$ $V_{GS}=18V$ $I_D=50A$ $R_{G, ext}=10\Omega$ $T_j=25^{\circ}C$	—	70	—	ns
上升时间(电感负载) Rise time, inductive load	t_r		—	24	—	
关断延迟时间(电感负载) Turn off delay time, inductive load	$t_{d(off)}$		—	186	—	
下降时间(电感负载) Fall time, inductive load	t_f		—	62	—	
开通损耗(每脉冲) Turn-on energy loss per pulse	E_{on}		—	0.03	—	mJ
关断损耗(每脉冲) Turn-off energy loss per pulse	E_{off}		—	0.08	—	mJ
总的栅极电荷 Total gate charge	Q_g	$V_{DS}=40V, I_D=100A, V_{GS}=0\sim10V$	—	410	—	nC
栅源电荷 Gate-Source Charge	Q_{gs}		—	121	—	nC
栅漏电荷 Gate-Drain Charge	Q_{gd}		—	103	—	nC

体二极管特性/Body Diode Characteristic

Parameter	symbol	Condition	Value			Unit
			Min	Typ	Max	
正向电压 Forward voltage	V_{SD}	$V_{GS}=0, I_S=650A, T_j=25^{\circ}C$	—	1.31	—	V
二极管正向持续电流 Diode continuous forward current	I_S	$T_j=25^{\circ}C$	—	650	—	A
二极管正向脉冲电流 Diode pulse forward current	$I_{S, pulse}$	$T_j=25^{\circ}C$	—	1200	—	A
反向恢复时间 Reverse recovery time	t_{rr}	$V_R=50V$ $I_S=50A$	—	112	—	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}	$di/dt=736A/us$	—	1380	—	nC

模块特性 / Module Features

Parameter	symbol	Condition	Rating	Unit
结-散热器热阻 Thermal resistance, junction to heatsink	R_{thJH}	Junction to heat dissipation copper plate	0.1	K/W
绝缘测试电压 Isolation test voltage	V_{ISOL}	RMS, f=50Hz, t=0.3s	2.5	kV
重量 Weight	G	-	18	g
模块基板材料 Material of module baseplate			Cu	
内部绝缘 Internal isolation			Al ₂ O ₃	
爬电距离 Creepage distance		端子至散热器 / terminal to heatsink	3.78	mm
		端子至端子 / terminal to terminal	1	
电气间隙 Clearance		端子至散热器 / terminal to heatsink	2.96	mm
		端子至端子 / terminal to terminal	1	
相对电痕指数 Comperative tracking index	CTI		TBD	
模块引线电阻, 端子-芯片 Module lead resistance, terminals - chip	$R_{CC'+EE'}$	TH = 25° C, 每个开关 / per switch	TBD	mΩ
在开关状态下温度 Temperature under switching conditions	$T_{vj\ op}$		-40/150	°C
储存温度 Storage temperature	T_{stg}		-55/150	°C
最高基板工作温度 Maximum baseplate operation temperature	T_{BPmax}		100	°C

电气特性图/Electrical characteristics diagrams

Figure 1. On-Region Characteristics

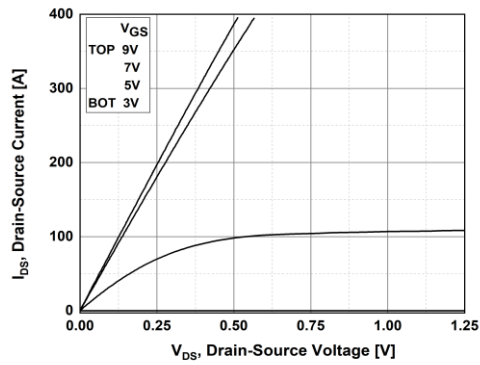


Figure 2. Transfer Characteristics

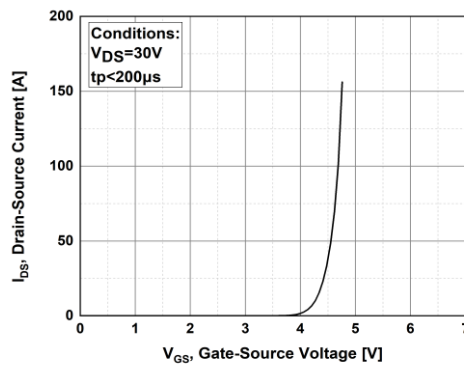


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

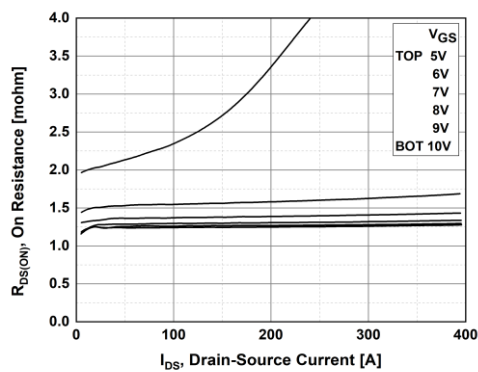


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

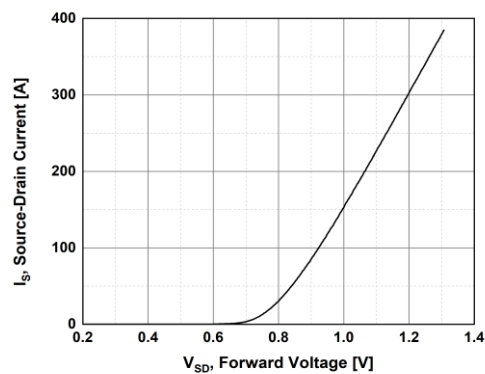


Figure 5. Capacitance Characteristics

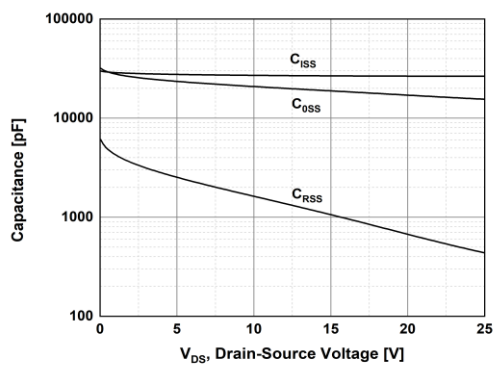


Figure 6. Gate Charge Characteristics

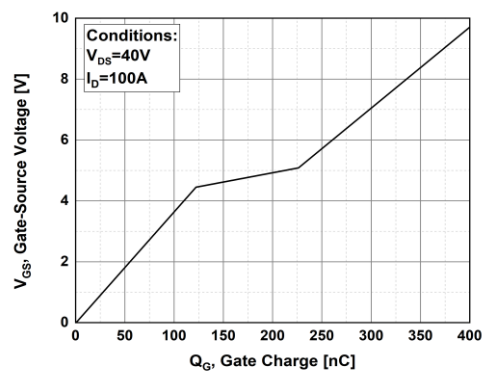


Figure 7. Breakdown Voltage Variation vs Temperature

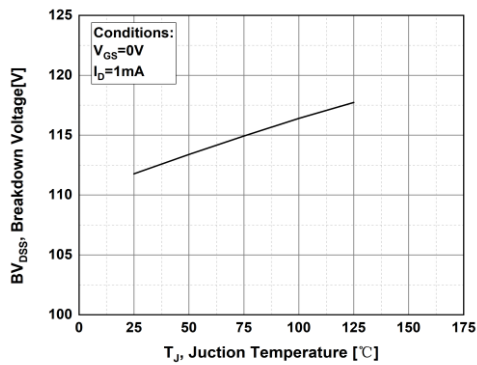


Figure 8. On-Resistance Variation vs Temperature

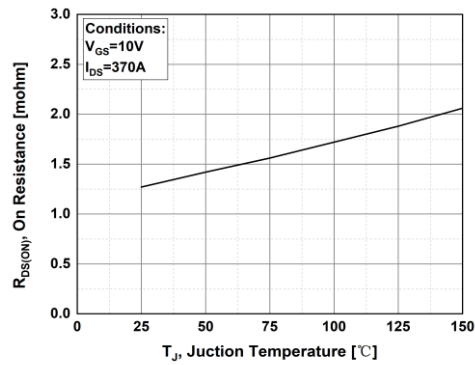


Figure 9. Maximum Drain Current vs Case Temperature

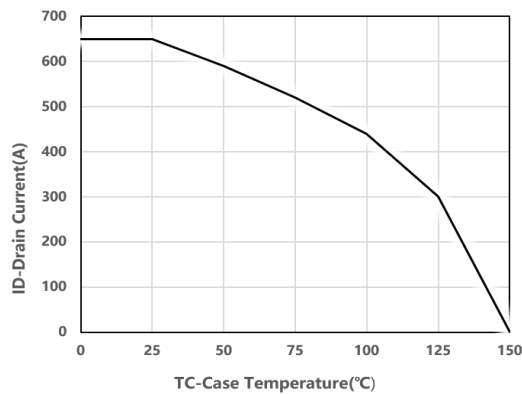


Figure 12. Maximum Safe Operating Area

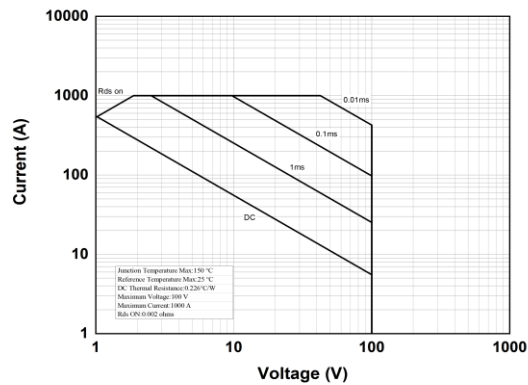
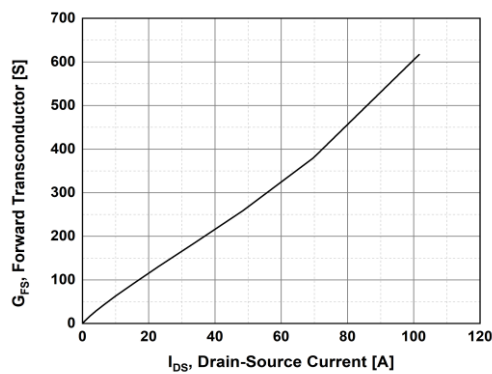


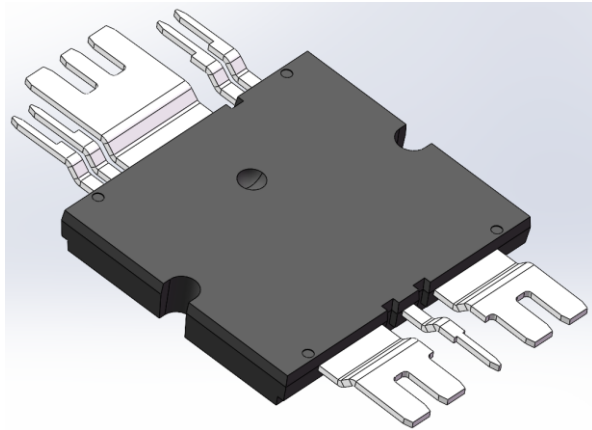
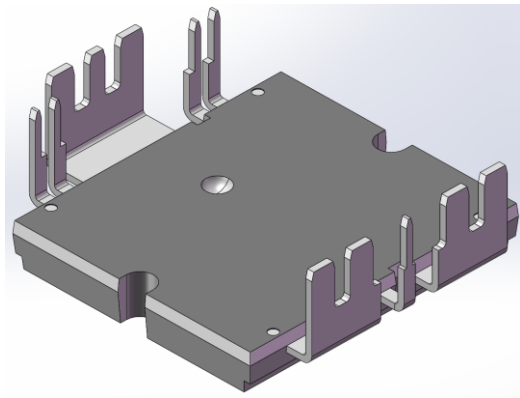
Figure 11. Transconductor Curve



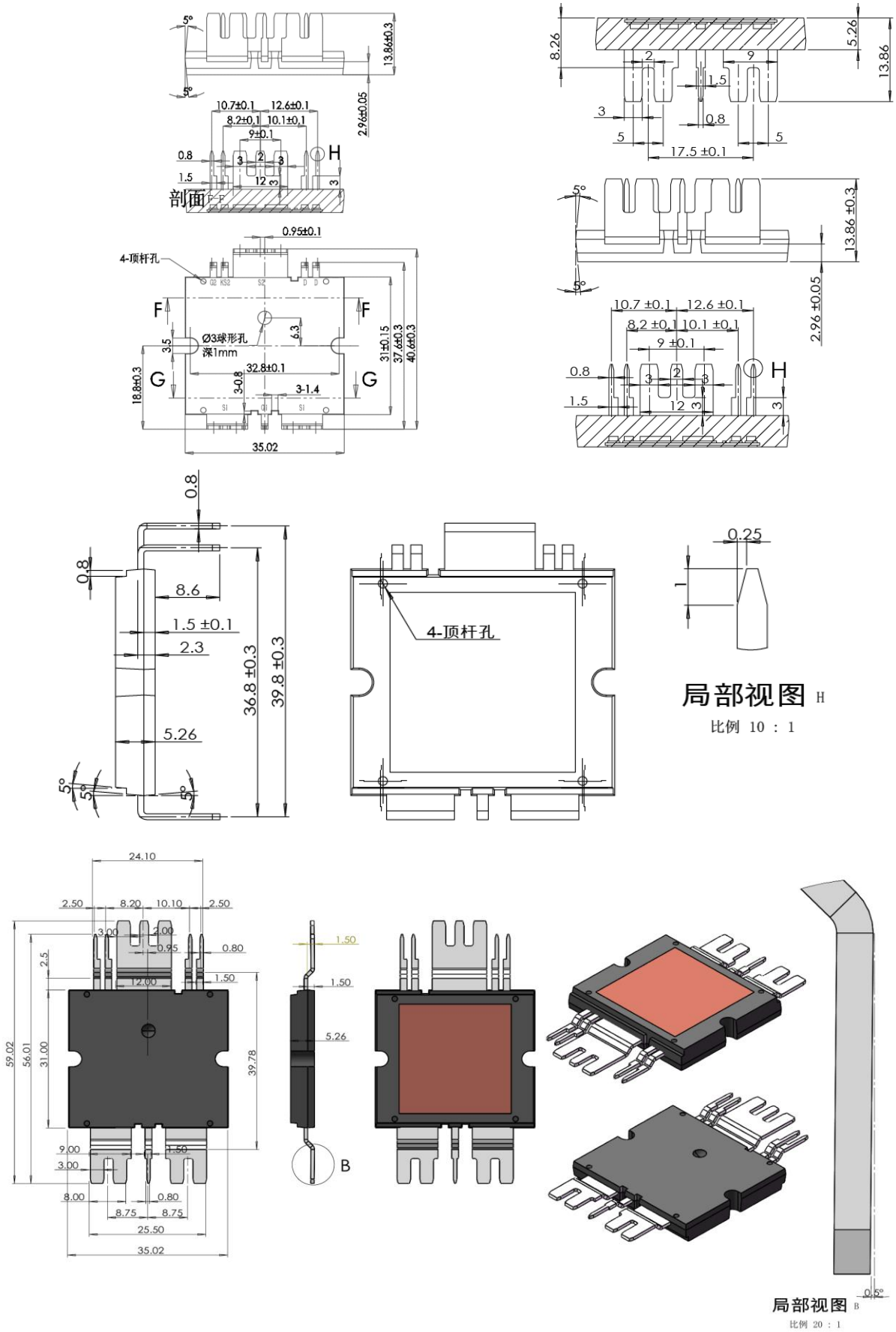
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封装外形 (单位: mm) / Package Outlines (Unit:mm)



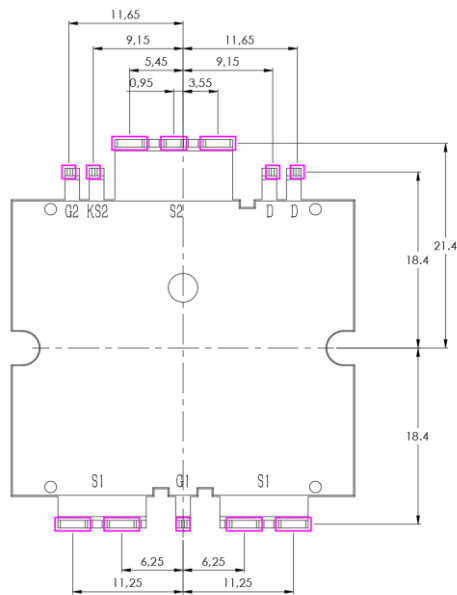
SLC800MD10SLT2 (-S)



SLC800MD10SLT2 (-S)

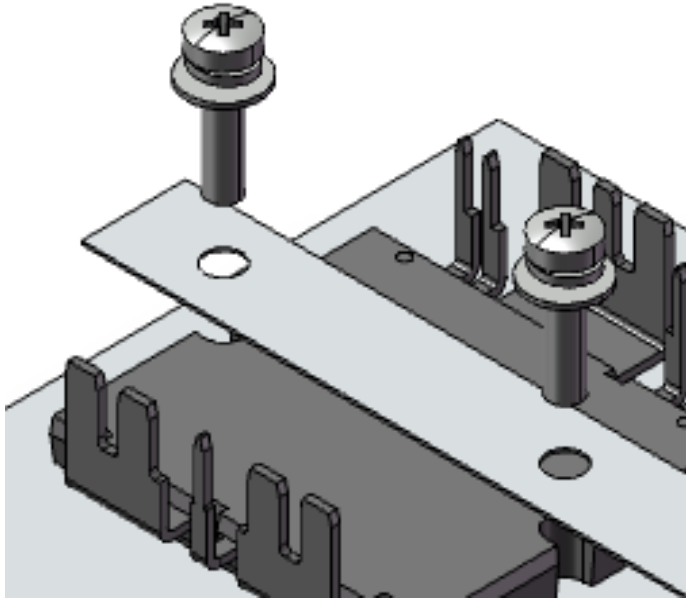


Suggested pad layout



注：所有公差 $\pm 0.3\text{mm}$

Installation advice



- 安装说明：**
- 1、请使用推荐的三合一螺栓，压条推荐用0.3mm的304不锈钢。
 - 2、安装时建议用0.3Nm的扭矩预紧，待导热硅脂充分排出后再用0.5-0.8Nm的扭矩锁紧。