

MM500HF10T2NH

MOSFET Module

Preliminary data

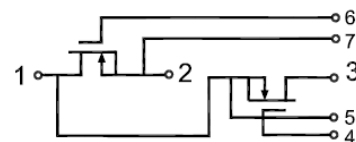
特性:

- 改进栅极、雪崩特性和动态电压 dV/dt 耐用性
- 完全特征化的电容和雪崩安全工作区
- 增大二极管的 dV/dt 和 dI/dt 的斜率
- 无铅 无卤



Features:

- Improved Gate, Avalanche and Dynamic dV/dt Ruggedness
- Fully Characterized Capacitance and AvalancheSOA
- Enhanced body diode dV/dt and dI/dt Capability
- Lead-Free Halogen-Free



应用:

- UPS 电源、开关电源
- 硬开关和高频电路

Applications:

- UPS/SMPS
- Hard Switched and High Frequency Circuits

Maximum Rated Values of MOS($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Description	Value	Units	
V_{DSS}	漏极-源极电压 Drain-Source Blocking Voltage	100	V	
V_{GSS}	栅极-源极电压 Gate-Source Voltage	± 20	V	
I_D	漏极直流电流 Continuous Drain Current, $V_{GS}=10V$	$T_C = 80^\circ\text{C}$	500	A
		$T_C = 25^\circ\text{C}$	1000	A
$I_{DM(1)}$	漏极脉冲电流 Peak Drain Current Repetitive	$T_J = 175^\circ\text{C}$	1000	A
I_S	源极直流电流 Continuous Source Current (body diode)	$T_J = 125^\circ\text{C}$	500	A
I_{SM}	源极脉冲电流 Peak Source Current Repetitive		1000	A
P_D	单最大耗散功率 Maximum Power Dissipation	$T_C = 25^\circ\text{C}$ $T_{Jmax}=175^\circ\text{C}$	1000	W

Electrical Characteristics of MOS ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

静态特性/ Static characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
$V_{GS(th)}$	栅极阈值电压 Gate Threshold Voltage	$I_D = 250 \mu\text{A}, V_{DS} = V_{GS}$	2.0	2.8	3.5	V
$R_{DS(on)}$	静态漏源导通电阻 Static Drain-Source On-Resistance	$I_D = 500\text{A}, V_{DS} = 10\text{V}$		1.00		m Ω
I_{DSS}	漏极漏电流 Drain-Source Leakage Current	$V_{DS} = V_{DSS}, V_{GS} = 0\text{V}$ $T_J = 25^{\circ}\text{C}$			1	mA
I_{GSS}	栅极漏电流 Gate- Source Leakage Current	$V_{GS} = V_{GSS}, V_{DS} = 0\text{V}$ $T_J = 25^{\circ}\text{C}$			200	nA
C_{iss}	输入电容 Input Capacitance	$V_{DS} = 50\text{V}, V_{GS} = 0\text{V},$ $f = 1\text{MHz}$		37.5		nF
C_{oss}	输出电容 Output Capacitance			2.18		nF
C_{rss}	反向传输电容 Reverse Transfer Capacitance			1.00		nF

开关特性/Switching Characteristics

Q_g	栅极总电量 Total Gate Charge	$I_D = 500\text{A}, V_{DS} = 50\text{V},$ $V_{GS} = 10\text{V}$		600		nC
Q_{gs}	栅极-源极电量 Gate-Source Charge			140		nC
Q_{gd}	栅极-漏极电量 Gate-Drain (Miller) Charge			170		nC
$t_{d(on)}$	开通延迟时间 Turn-on Delay Time	$V_{DS} = 50\text{V}, I_D = 500\text{A};$ $R_G = 2\Omega; V_{GS} = 10\text{V}$		200		ns
t_r	上升时间 Rise Time			530		ns
$t_{d(off)}$	关断延迟时间 Turn-off Delay Time			620		ns
t_f	下降时间 Fall Time			100		ns
V_{SD}	源极-漏极电量 Source-drain voltage	$I_S = 500\text{A}, V_{GS} = 0\text{V}$		0.98		V
$R_{\theta JC}$	MOSFET 芯片与外壳间热阻 Junction-To-Case MOSFET			0.15		$^{\circ}\text{C/W}$

模块 / Module

Symbol	Description	Min	Typ	Max	Unit
V_{iso}	绝缘测试电压 Isolation Voltage(All Terminals Shorted)	f = 50Hz, 1minute	2500		V
T_J	最大结温 Maximum Junction Temperature			175	°C
T_{JOP}	最大工作结温范围 Maximum Operating Junction Temperature Range	-40		+150	°C
T_{stg}	储藏温度 Storage Temperature	-40		+125	°C
$R_{\theta CS}$	使用导热脂时外壳与散热器间热阻 Case-To-Sink (Conductive Grease Applied)		0.1		°C/W
T	功率端子螺钉:M6 Power Terminals Screw:M6	3.0		5.0	N·m
T	散热器安装螺钉:M6 Mounting Screw:M6	4.0		6.0	N·m
G	重量 Weight		290		g

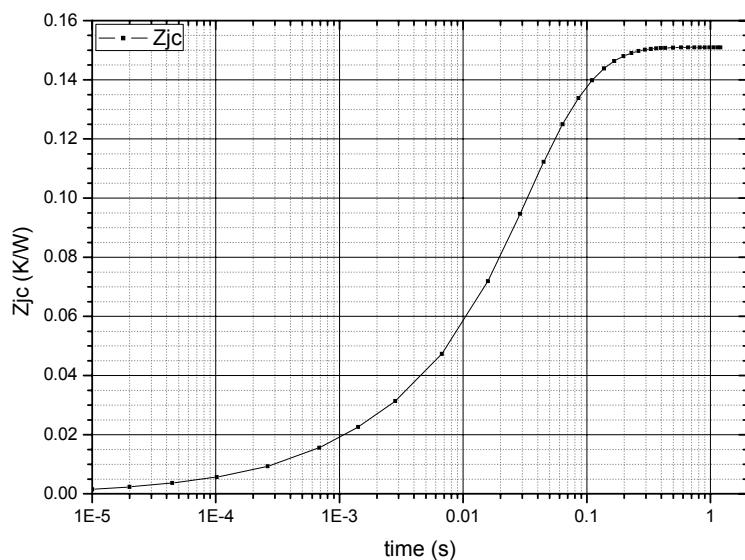
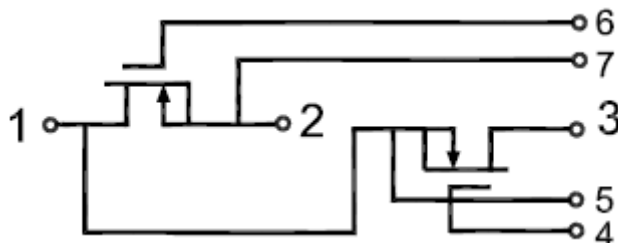
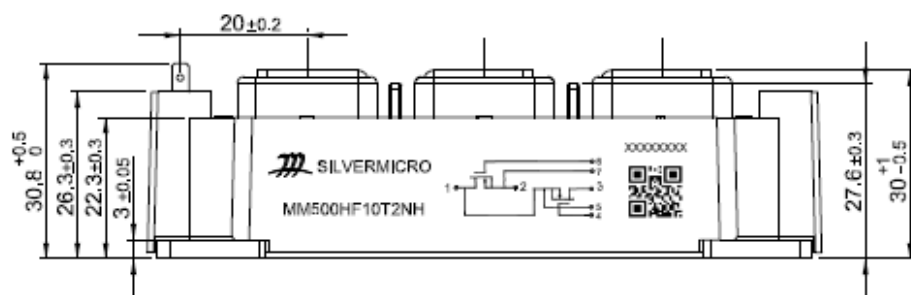


Fig.1 Transient thermal impedance (MOSFET)

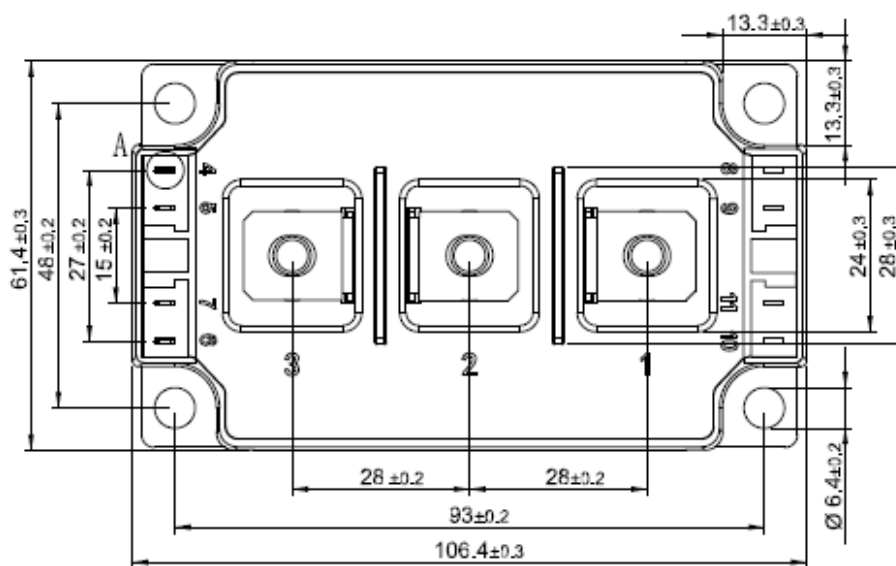
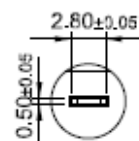
内部电路 / Internal Circuit



封装 (单位: mm) / Package Outline (Unit: mm):



View A
scale 3:1



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