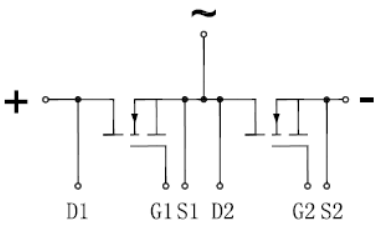
SILVERMICRO

MM550HF20B1H

Preliminary Data

MOSFET Module



Features：

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

Applications：

- Hard Switched and High Frequency Circuits
- Main And Auxiliary AC Drives of Electric Vehicles

Absolute Maximum Ratings(T_C=25℃Unless otherwise specified)

Symbol	Description		Value	Units
V_{DSS}	Drain-Source Blocking Voltage		200	V
V_{GSS}	Gate-Source Voltage		±30	V
I_D	Continuous Drain Current, V_{GS}=10V	T_C=25℃	780	A
		T_C=100℃	550	A
I_{DM}	Pulsed Drain Current	Pulse width limited by max. junction temperature	3120	A
I_S	Continuous Source Current(Body Diode)		780	A
I_{SM}	Pulsed Source Current	Pulse width limited by max. junction temperature	3120	A
P_D	Maximum Power Dissipation	T_C =25℃ T_{Jmax}=175℃	2775	W

Electrical Characteristics of MOSFET (T_J=25℃Unless otherwise specified)

Static Characteristics

Symbol	Description	Conditions	Min	Typ	Max	Unit
$V_{GS(th)}$	Gate Threshold Voltage	I_D=1.5mA, V_{DS}=V_{GS}	3.0		5.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	I_D=480A ,V_{GS}=10V		1.33	1.62	m Ω
I_{DSS}	Drain-Source Leakage Current	V_{DS}= V_{DSS},V_{GS}=0V T_J = 25℃			120	uA
I_{GSS}	Gate- Source Leakage Current	V_{GS} = V_{GSS},V_{DS} = 0V T_J = 25℃			1	uA
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz		64.3		nF
C_{oss}	Output Capacitance			4.86		nF
C_{rss}	Reverse Transfer Capacitance			0.96		nF

Switching Characteristics

Q_g	Total Gate Charge	I_D=480A , V_{DS}=100V, V_{GS}=10V		966	1446	nC
Q_{gs}	Gate-Source Charge			324		nC
Q_{gd}	Gate-Drain (Miller) Charge			312		nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=130V, I_D=480A; R_g=0.45Ω; V_{GS}=10V ; T_J=25℃		246		ns
t_r	Rise Time			630		ns
$t_{d(off)}$	Turn-off Delay Time			384		ns
t_f	Fall Time			444		ns
R_G	Internal Gate Resistor			0.17		Ω
$R_{\theta JC}$	MOSFET Thermal Resistance: Junction-To-Case			0.054		℃/W

Electrical Characteristics of Body Diode (T_J=25℃ unless otherwise specified)

Symbol	Description	Conditions		Min	Typ	Max	Unit
V_{SD}	Forward Voltage	I_S=480A, V_{GS}=0V	T_J = 25℃			1.3	V
t_{rr}	Reverse Recovery Time	I_F=480A, V_R=100V, di/dt =100A/μs,	T_J = 25℃		780		ns
			T_J = 125℃		930		ns
Q_{rr}	Reverse Recovery Charge		T_J = 25℃		3.80		μC
			T_J =125℃		5.66		μC

Module

Symbol	Description		Min	Typ	Max	Unit
V_{iso}	Isolation Voltage (All Terminals Shorted)	f = 50Hz, 1minute	2500			V
T_J	Maximum Junction Temperature				175	℃
T_{JOP}	Maximum Operating Junction Temperature Range		-40		+150	℃
T_{stg}	Storage Temperature		-40		+125	℃
CTI	Comparative Tracking Index		200			V
$R_{\theta CS}$	Case-To-Sink Thermally (Conductive Grease Applied)			0.1		℃/W
M	Power Terminals Screw:M5		3.0		6.0	N·m
M	Mounting Screw:M5		3.0		6.0	N·m
G	Weight			230		g

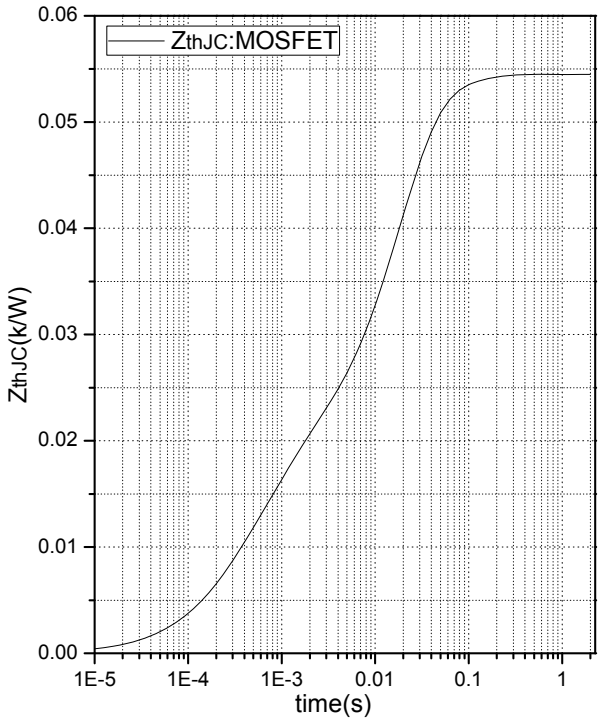
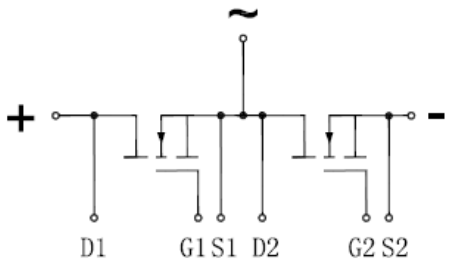
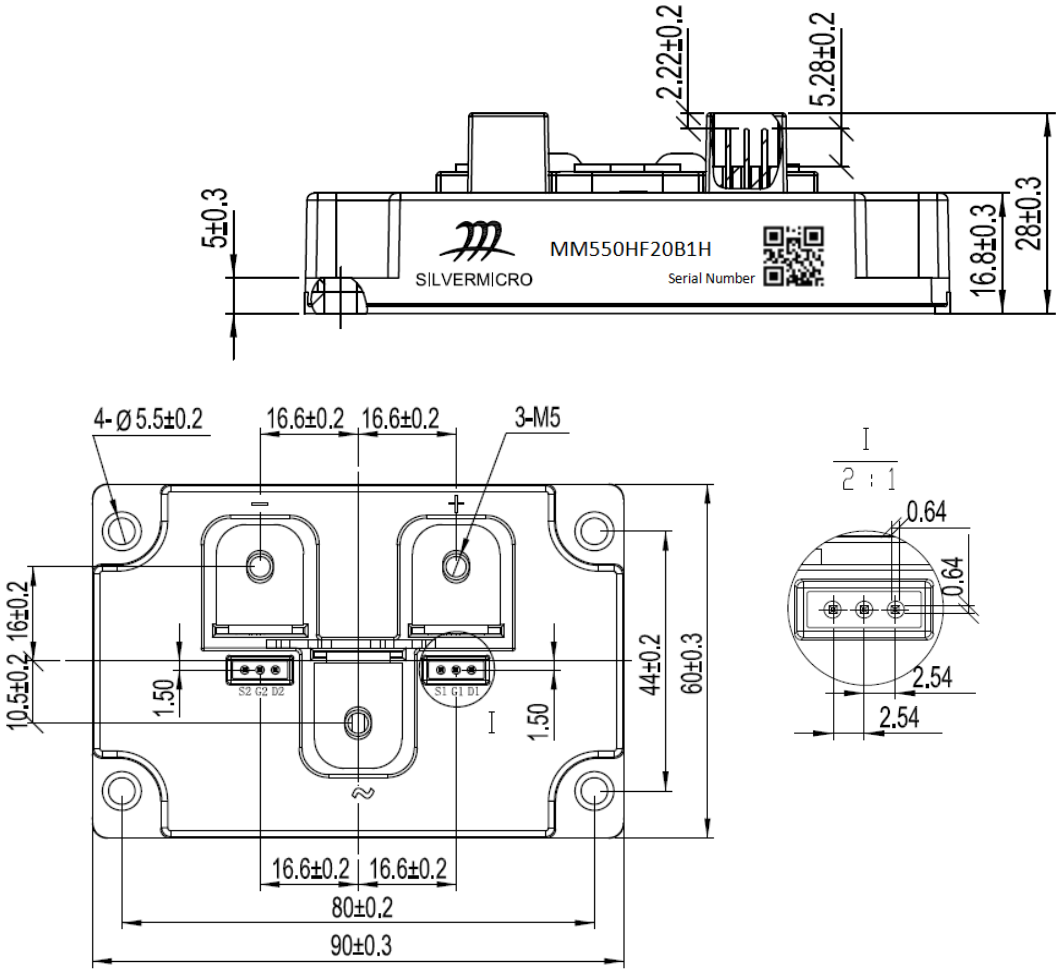


Fig.1 Transient Thermal Impedance (MOSFET)

Internal Circuit:



Package Outline (Unit: mm):



Date	Revision	Notes
09/09/2018	01	Initial release

Announcement

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