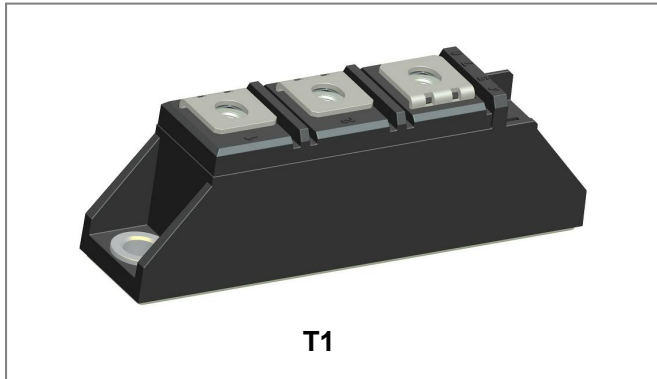


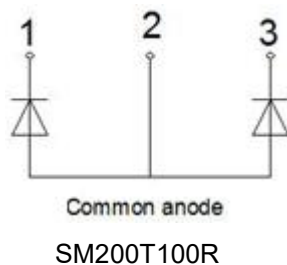
SM200T100R SCHOTTKY RECTIFIER



Features

- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and
- Long term reliability
- Designed and qualified for industrial level
- Baseplate: Nickel plated; Terminals: Nickel plated
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Circuit Diagram



Applications

- High current switching power supplies
- Plating power supplies
- UPS system
- Converters
- Freewheeling
- Welder
- Reverse battery protection

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	-	100	V
Average Forward Current	$I_{F(AV)}$	50% duty cycle at $T_C = 142^\circ\text{C}$, rectangular waveform	100(per leg) 200(per device)	A
Peak One Cycle Non-Repetitive Surge Current(per leg)	I_{FSM}	8.3 ms, half Sine pulse	1700	A
Non- repetitive avalanche energy (per leg)	E_{AS}	$T_J = 25^\circ\text{C}$, $I_{AS} = 13\text{A}$, $L = 0.2\text{mH}$	15	mJ
Repetitive avalanche current (per leg)	I_{AR}	Current decaying linearly to zero in $1\mu\text{s}$ Frequency limited by T_J maximum $V_A = 1.5\text{xV}$ typical	1	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units	
Forward Voltage Drop (per leg)*	V _{F1}	@ 100A, Pulse, T _J = 25 °C @ 200A, Pulse, T _J = 25 °C	0.90 1.05	V	
	V _{F2}	@ 100A, Pulse, T _J = 125 °C @ 200A, Pulse, T _J = 125 °C	0.70 0.85	V	
Reverse Current(per leg)*	I _{R1}	@V _R = rated V _R T _J = 25 °C	2	mA	
	I _{R2}	@V _R = rated V _R T _J = 125 °C	30	mA	
junction capacitance per leg	C _j	V _R = 5 VDC (test signal range 100 kHz to 1 MHz) 25° C	2650	pF	
Typical series inductance per leg	L _s	From top of terminal hole to mounting plane	7.0	nH	
Voltage rate of change	dV/dt	Rated V _R	10000	V/μs	
RMS insulation voltage (for insulated type)	V _{iso}	a.c.50HZ	1min	2500	V
			3s	3500	

* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units	
Junction Temperature	T _J	-	-55 to +175	°C	
Storage Temperature	T _{stg}	-	-55 to +175	°C	
Thermal resistance, junction to case per leg	R _{θJC}	DC operation	0.54	°C/W	
Thermal resistance, junction to case per module			0.27		
Typical Approximate Weight	wt	-	100	g	
Mounting Torque	T _M	-	Mounting Torque	35(min) 46(max)	Kg-cm
			Terminal Torque	24(min) 35(max)	
Case Style	T1				

Ratings and Characteristics Curves

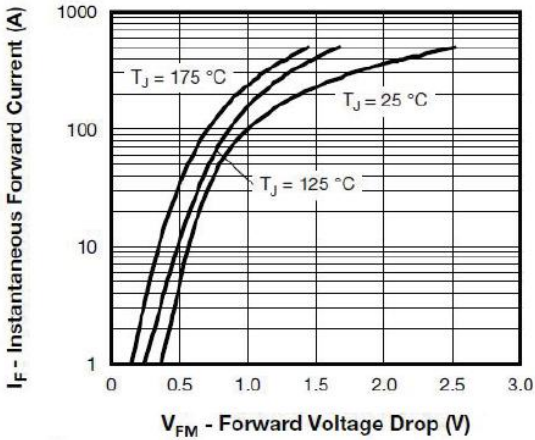


Fig. 1 - Maximum Forward Voltage Drop Characteristics

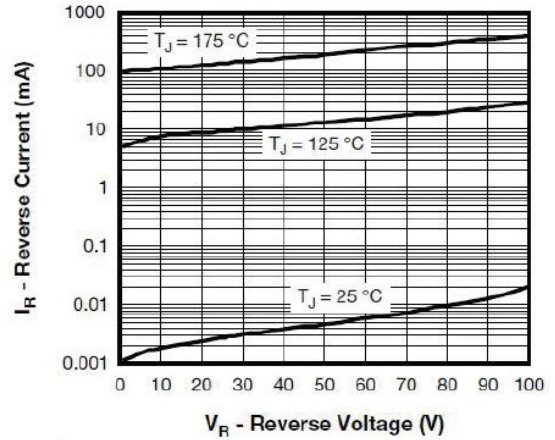


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

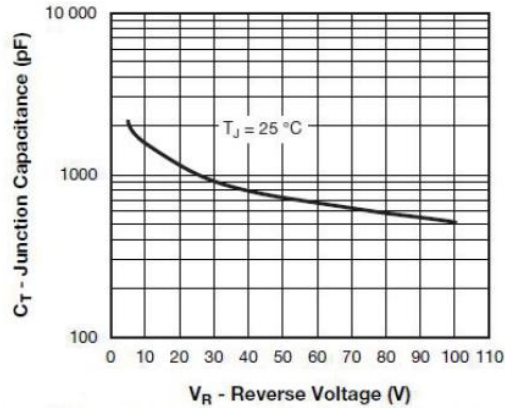


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

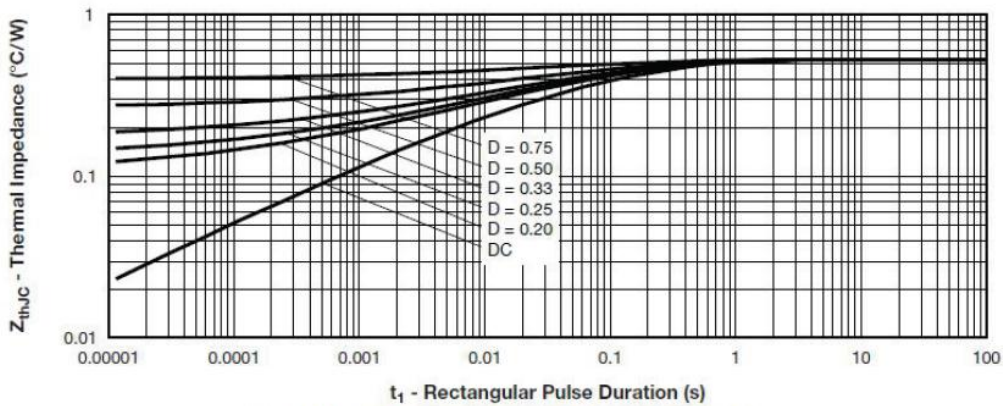


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

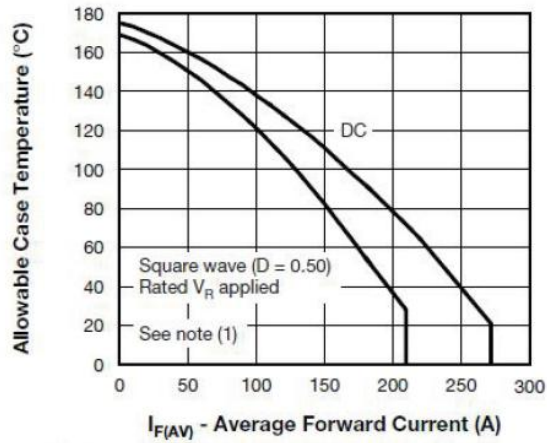


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

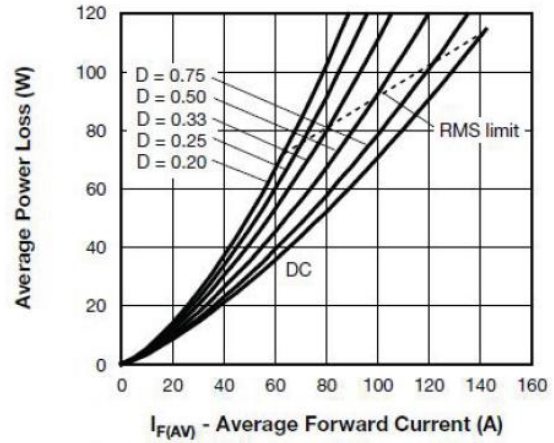


Fig. 6 - Forward Power Loss Characteristics

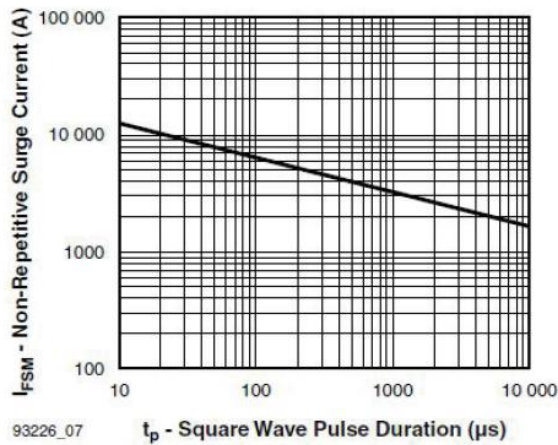


Fig. 7 - Maximum Non-Repetitive Surge Current

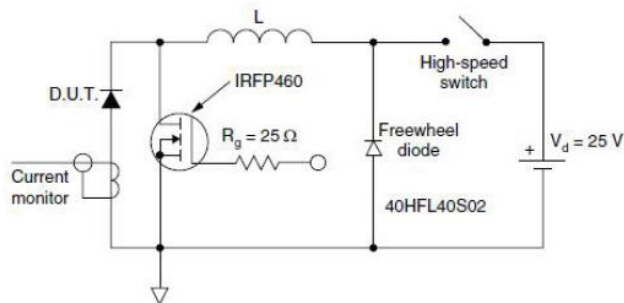
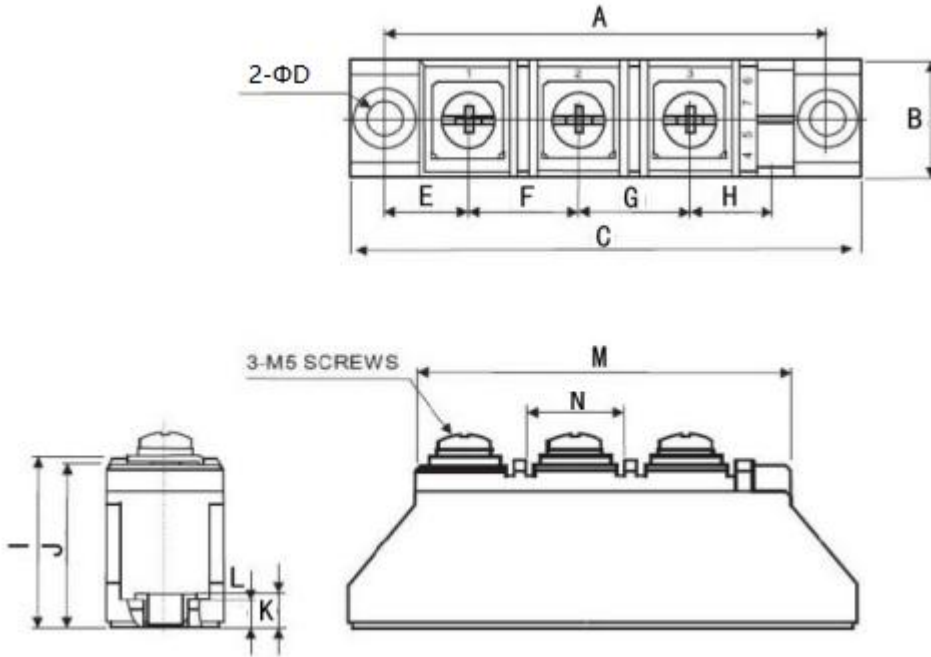


Fig. 8 - Unclamped Inductive Test Circuit

Note

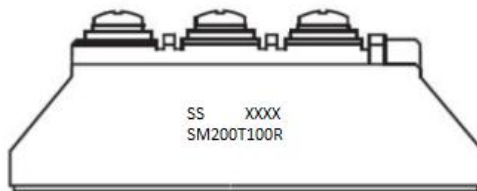
(1) Formula used: $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$;
 P_d = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6);
 P_{dREV} = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at $V_{R1} = 80\%$ rated V_R

Mechanical Dimensions T1 (Millimeters)



SYMBOL	Millimeters	
	Min.	Max.
A	79.5	80.5
B	20.8	21.2
C	91.35	92.75
ΦD	6.2	6.6
E	14.5	15.5
F	19.5	20.5
G	19.5	20.5
H	14.5	15.5
I	30.5	31.5
J	29	30
K	5.7	6.3
L	4.7	5.3
M	67.5	68.5
N	17.5	18.5

Marking Diagram



Where XXXX is YYWW

SM200T100R = Part name
SS = SS
YY = Year
WW = Week

Cautions: Molding resin
Epoxy resin UL:94V-0

DISCLAIMER:

1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Diode Solutions sales department for the latest version of the datasheet(s).

2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.

3- In no event shall SMC Diode Solutions be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Diode Solution assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.

4- In no event shall SMC Diode Solutions be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.

5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Diode Solutions.

6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Diode Solutions.

7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..