

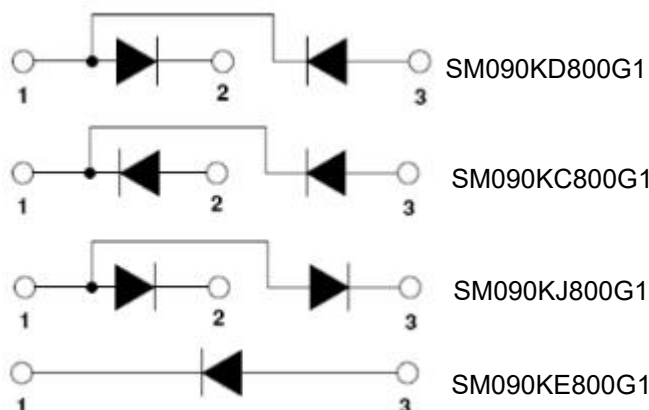
SM090KD800G1 SM090KC800G1 SM090KJ800G1 SM090KE800G1 Power Modules Standard Diodes



Features

- Heat transfer through aluminum oxide DBC
- Ceramic isolated metal baseplate
- Industrial standard package
- Thick copper baseplate
- Plastic shell meets UL 94 V-0 flammability rating
- UL approved file E517293
- This is a Pb – Free Device
- Baseplate: Nickel plated; Terminals: Nickel plated
- T1 Package compatible with JEDEC TO-240AA package
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Circuit Diagram



Applications

- Power Supplies
- AC&DC Motor Drivers
- Bridge Circuits
- Welders
- Battery Supplier

Maximum Ratings@T_J=25°C unless otherwise specified

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V_{RRM}	-	800	V
Working Peak Reverse Voltage	V_{RWM}			
DC Blocking Voltage	V_R			
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave $T_C = 112^\circ\text{C}$	100	A
Maximum RMS forward current	$I_{F(RMS)}$	DC at 90 °C case temperature	157	A
Surge forward current	I_{FSM}	$t=10\text{ms } T_J = 45^\circ\text{C}$	2000	A
Maximum I^2t for fusing	I^2t	$t=10\text{ms } T_J = 45^\circ\text{C}$	20	kA ² s
Low level value of threshold voltage	r_{f1}	$(16.7\% \times \pi \times I_{F(AV)}) < I < \pi \times I_{F(AV)}$, $T_J = T_J \text{ maximum}$	2.4	mΩ
High level value of threshold voltage	r_{f2}	$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ maximum}$	2.05	

Electrical Characteristics@T_J=25°C unless otherwise specified

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(per leg)*	V _{F1}	@ 100A, Pulse, T _J = 25 °C	0.95	1.15	V
Reverse Current(per leg)*	I _{R1}	@ V _R = rated V _R T _J = 25 °C	0.42	20	uA
	I _{R2}	@ V _R = rated V _R T _J = 150°C	0.22	5	mA
Insulation Voltage	V _{isol}	Ac. 50Hz; R.M.S; 1min	-	3000	V
		Ac. 50Hz; R.M.S; 1sec	-	3500	V

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

Thermal-Mechanical Specifications@T_J=25°C unless otherwise specified

Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	T _J	-	-40~+150		°C
Storage Temperature	T _{stg}	-	-40~+150		°C
Maximum internal thermal resistance, junction to case per leg	R _{th(J-C)}	DC operation	0.22		°C/W
Typical thermal resistance, case to heatsink per module	R _{th(C-S)}	-	0.1		°C/W
Mounting Torque ± 15%	T _M	-	Mounting Torque(M6)	5	Nm
			Terminal Torque(M5)	4	
Module(Approximately)	Weight		100		g

Ratings and Characteristics Curves

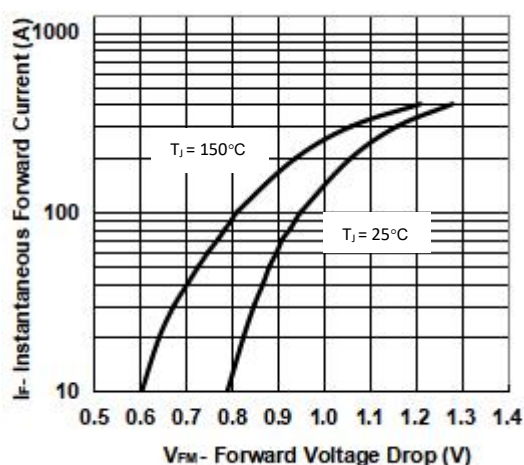


Fig. 1 - Typical Forward Characteristics

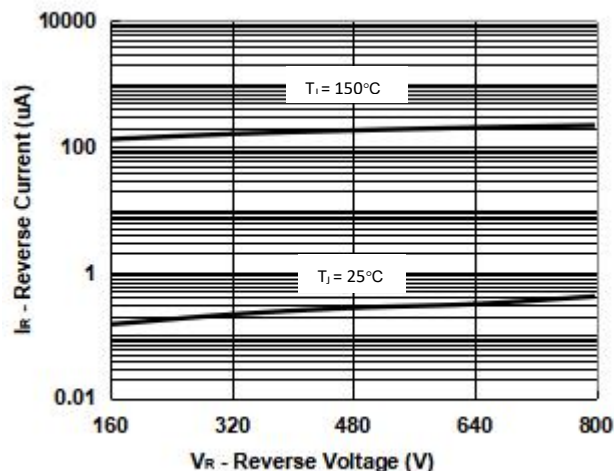


Fig. 2 - Typical Reverse Characteristics

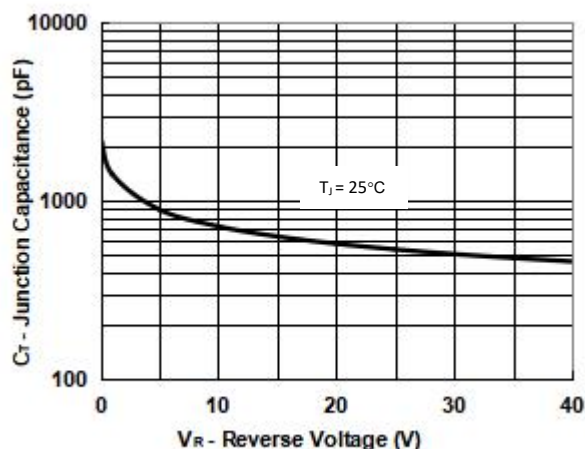


Fig. 3 - Typical Junction Capacitance

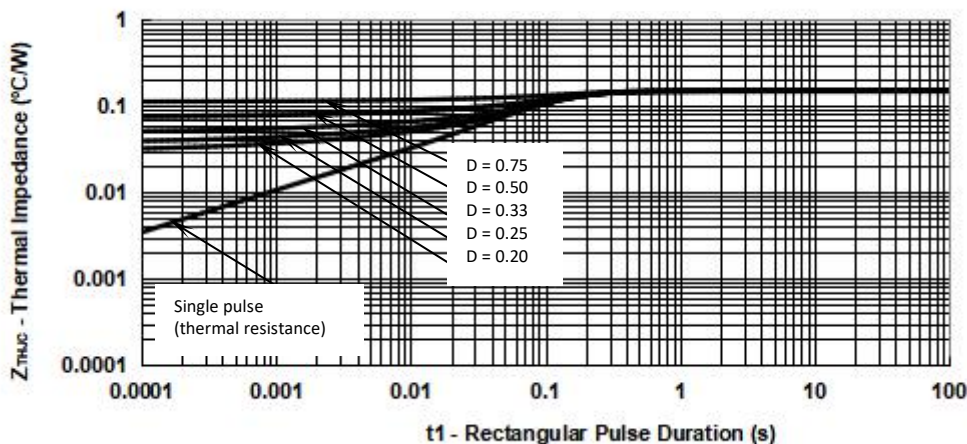
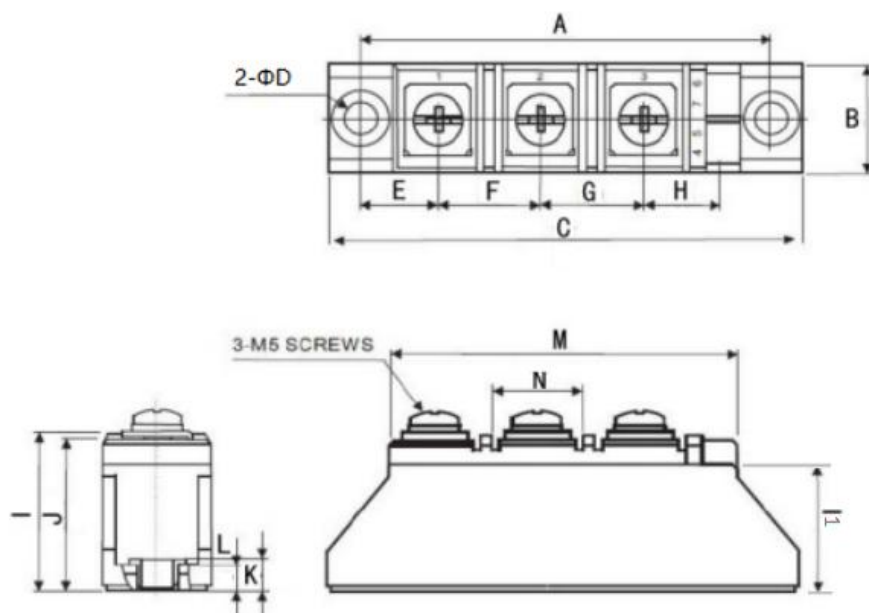


Fig. 4 Typical Thermal Impedance Z_{thJC} Characteristics (Per Leg)

Mechanical Dimensions T1 (Millimeters)



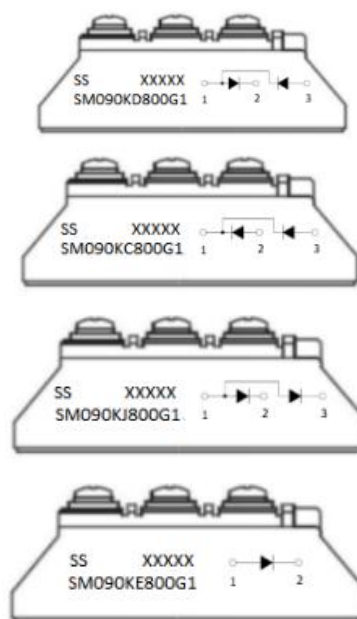
SYMBOL	Millimeters	
	Min.	Max.
A	79.5	80.5
B	20.8	21.2
C	91.35	92.75
ΦD	6.1	6.5
E	14.5	15.5
F	19.5	20.5
G	19.5	20.5
H	14.5	15.5
I	30.5	31.5
I1	24	25
J	29	30
K	5.7	6.3
L	4.7	5.3
M	67.5	68.5
N	17.5	18.5

Ordering Information

Device	Package	Shipping
SM090KD800G1 SM090KC800G1 SM090KJ800G1 SM090KE800G1	T1	14pcs/ box

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Marking Diagram



Where XXXX is YYWW

SM090KD800G1 = Part name
SM090KC800G1 = Part name
SM090KJ800G1 = Part name
SM090KE800G1 = Part name
SS = SS
YY = Year
WW = Week
L = Lot Number

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