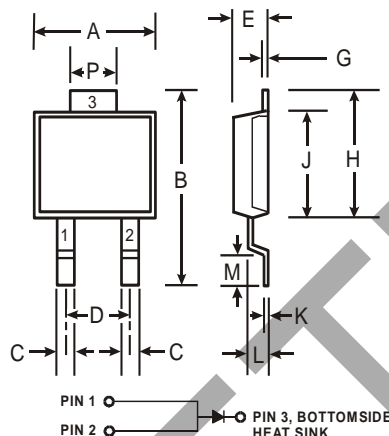


Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 2)**

Mechanical Data

- Case: POWERMITE®3
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish). (e3)
- Polarity: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



Note: Pins 1 & 2 must be electrically connected at the printed circuit board.

POWERMITE®3		
Dim	Min	Max
A	4.03	4.09
B	6.40	6.61
C	.889 NOM	
D	1.83 NOM	
E	1.10	1.14
G	.178 NOM	
H	5.01	5.17
J	4.37	4.43
K	.178 NOM	
L	.71	.77
M	.36	.46
P	1.73	1.83
All Dimensions in mm		

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
 For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	28	V
Average Rectified Output Current (see also Figure 5)	I _O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load @ T _C = 90°C	I _{FSM}	100	A
Typical Thermal Resistance Junction to Soldering Point	R _{θJS}	3.2	°C/W
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V _{(BR)R}	40	—	—	V	I _R = 0.5mA
Forward Voltage	V _{FM}	—	0.48	0.52	V	I _F = 5A, T _S = 25°C
		—	0.45	—		I _F = 5A, T _S = 125°C
		—	0.59	—		I _F = 10A, T _S = 25°C
		—	0.56	—		I _F = 10A, T _S = 125°C
Reverse Current (Note 1)	I _{RM}	—	0.05	0.5	mA	T _S = 25°C, V _R = 40V
		—	2.5	20		T _S = 100°C, V _R = 40V
Total Capacitance	C _T	—	250	—	pF	f = 1.0MHz, V _R = 4.0V DC

Notes: 1. Short duration pulse test used to minimize self-heating effect.
 2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.

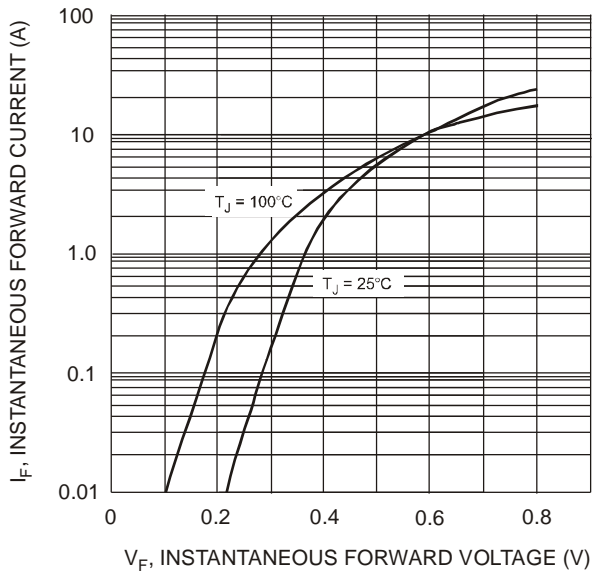


Fig. 1 Typical Forward Characteristics

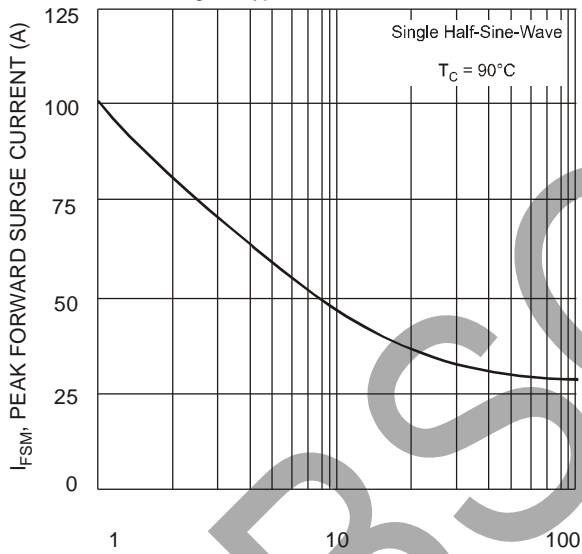


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

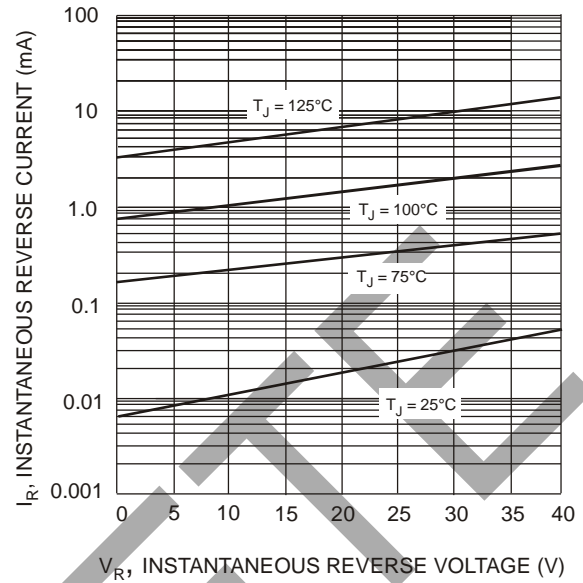


Fig. 2 Typical Reverse Characteristics

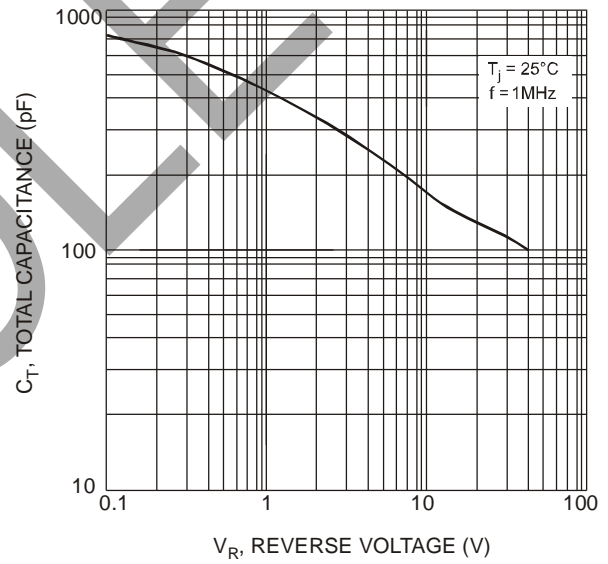


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

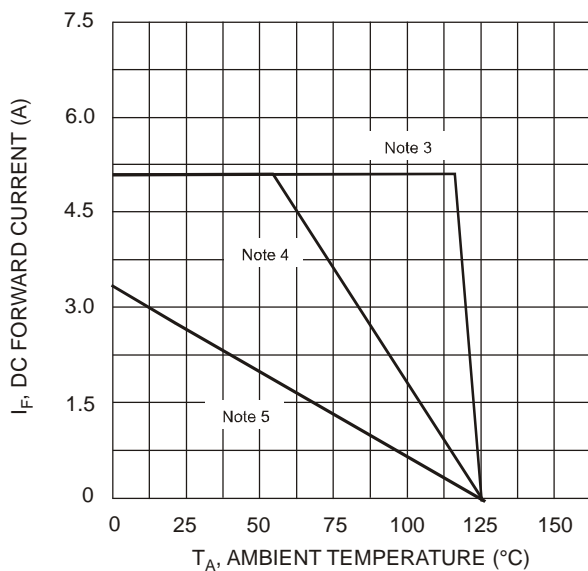


Fig. 5 DC Forward Current Derating

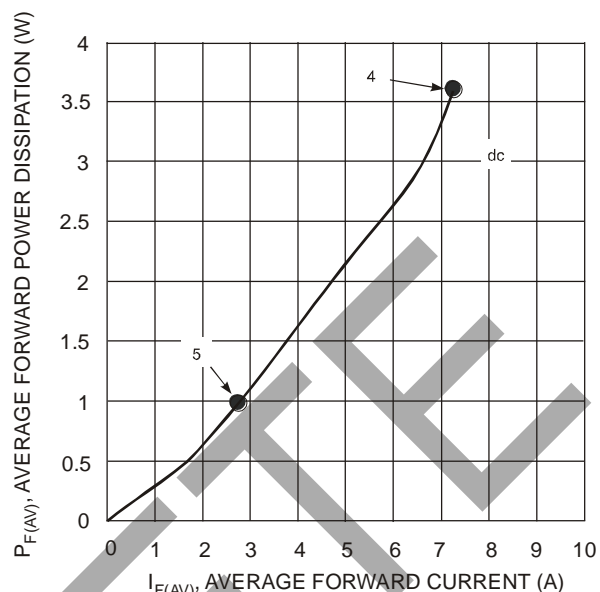


Fig. 6 Forward Power Dissipation

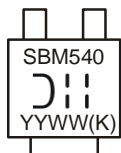
- Notes:
3. $T_A = T_{\text{SOLDERING POINT}}$, $R_{\theta JS} = 3.2^\circ\text{C/W}$, $R_{\theta SA} = 0^\circ\text{C/W}$.
 4. Device mounted on GETEK substrate, 2" x 2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 15-30°C/W.
 5. Device mounted on FR-4 substrate, 2" x 2", 2 oz. copper, single-sided, pad layout as per Diodes Inc. suggested pad layout document AP02001 which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>. $R_{\theta JA}$ in range of 60-75°C/W.

Ordering Information (Note 6)

Device	Packaging	Shipping
SBM540-13-F	POWERMITE®3	5000/Tape & Reel

- Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



SBM540 = Product type marking code
 J = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last digit of year (ex: 02 for 2002)
 WW = Week code (01 to 53)
 (K) = Factory Designator

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