SBM540

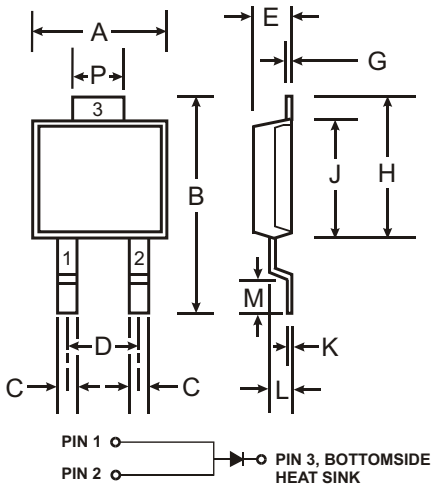
5A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER
POWERMITE 3

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-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish). e3
- Polarity: See Diagram
- Marking: Type Number, See also Sheet 3
- Ordering Information, See Sheet 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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
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_{JS}	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 0.45 0.59 0.56	0.52	V	I_F = 5A, T_S = 25 C I_F = 5A, T_S = 125 C I_F = 10A, T_S = 25 C I_F = 10A, T_S = 125 C
Reverse Current (Note 1)	I_{RM}		0.05 2.5	0.5 20	mA	T_S = 25 C, V_R = 40V 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 test pulse used to minimize self-heating effect.
2. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied, see *EU Directive Annex Note 7*.

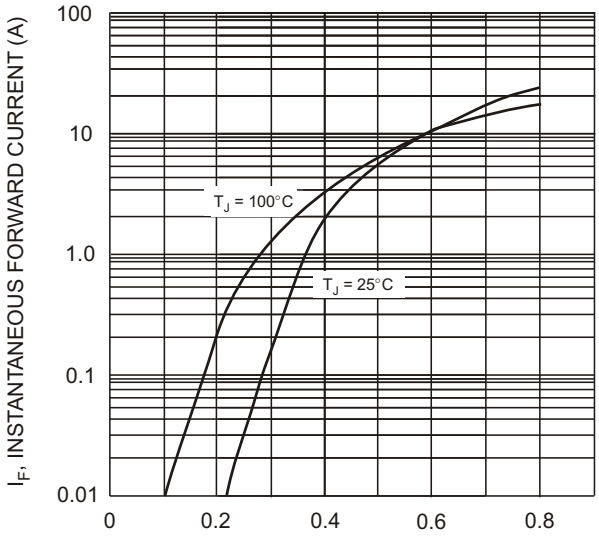


Fig. 1 Typical Forward Characteristics

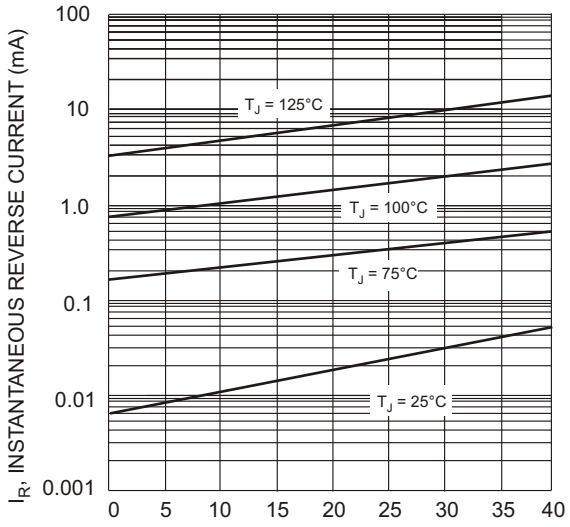


Fig. 2 Typical Reverse Characteristics

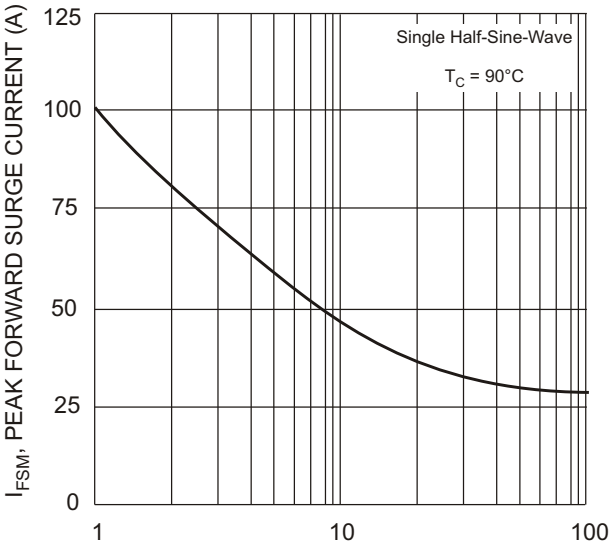


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

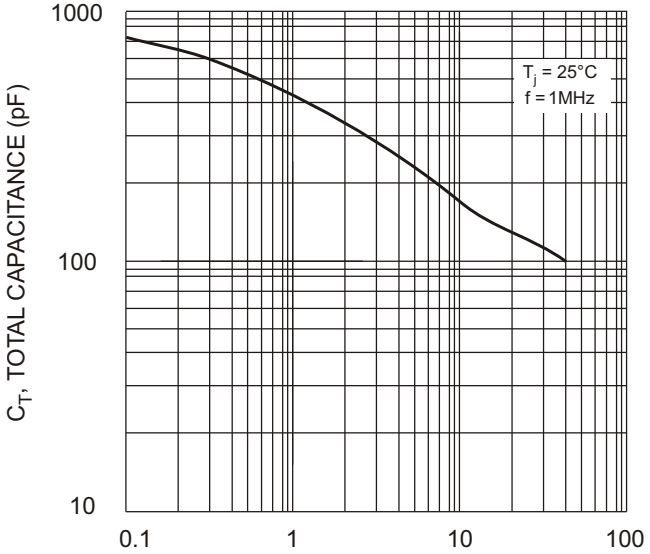


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

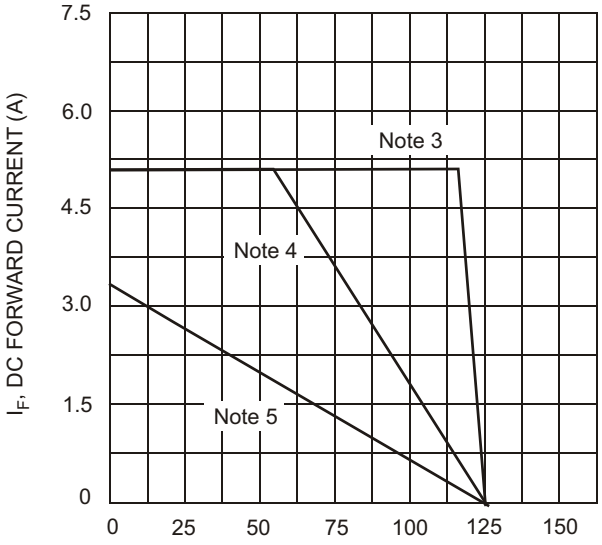


Fig. 5 DC Forward Current Derating

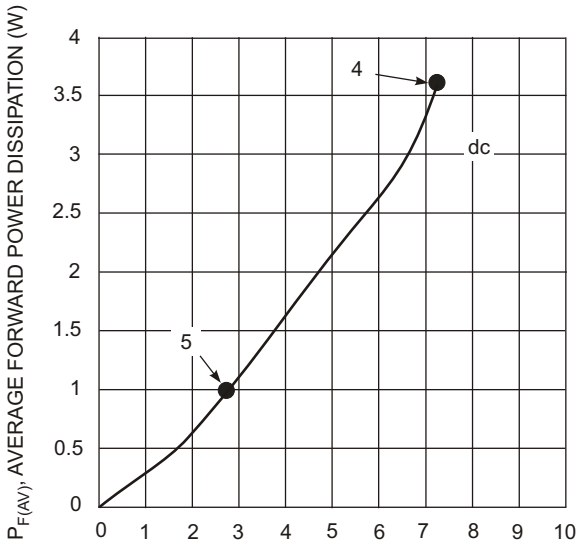


Fig. 6 Forward Power Dissipation

Notes: 3. $T_A = T_{SOLDERING\ POINT}$, $R_{JS} = 3.2$ C/W, $R_{SA} = 0$ C/W.

4. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". R_{JA} in range of 15-30°C/W.

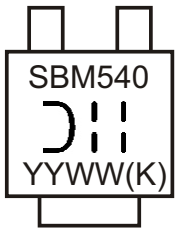
5. Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, pad layout as per Diodes Inc. suggested pad layout document AP02001 which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. R_{JA} in range of 60-75°C/W.

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
= Manufacturers' code marking
YYWW = Date code marking
YY = Last digit of year ex: 02 for 2002
WW = Week code 01 to 52
(K) = Factory Designator