

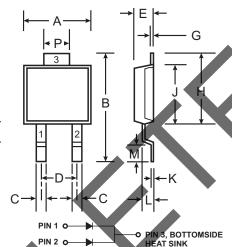
10A SURFACE MOUNT DUAL SCHOTTKY BARRIER RECTIFIER POWERMITE® 3

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- Very Low Reverse Leakage Current
- For Use in Low Voltage, High Frequency Inverters, OR'ing, and Polarity Protection Applications
- Available in Lead Free Finish/RoHS Compliant Version (Note 1)

Mechanical Data

- Case: POWERMITE®3 Molded Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking: See Page 4
- Weight: 0.072 grams (approx.)



POWERMITE®3				
Dim	Min	Max		
Α	4.03	4.09		
В	6.40	6.61		
С	.864 .914			
D	1.83 NOM			
E	1.10	1.14		
G	.173	.203		
Н	5.01	5.17		
J	4.37	4.43		
K	.173 .203			
L	.71	.77		
M	.36	.46		
Р	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	$egin{array}{c} V_{RRM} \ V_{R} \end{array}$	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (Also see Figure 5) per element total device	lo	5 10	А
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load Per Package, total device T _C = 115°C	I _{FSM}	50	А
Typical Thermal Resistance Junction to Soldering Point Per Element	$R_{ heta JS}$	2.5	°C/W
Operating Temperature Range	Tj	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

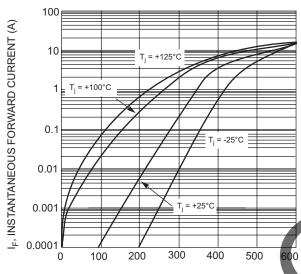
Notes: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.



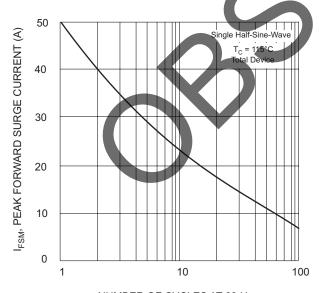
Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 2)		V _{(BR)R}	40	_	_	V	$I_R = 500 \mu A$
Forward Voltage	Per Element	V _F		0.45 0.39 0.53 0.50	0.48 0.42 0.575 0.55	V	$\begin{array}{ll} I_F = 5A, \ T_j = \ 25^{\circ}C \\ I_F = 5A, \ T_j = \ 100^{\circ}C \\ I_F = 10A, \ T_j = \ 25^{\circ}C \\ I_F = 10A, \ T_j = \ 100^{\circ}C \end{array}$
Reverse Current (Note 2)	Per Element	I _R		35 4 10 2	150 10 80 5	l uA	$\begin{array}{l} V_R = 35 \text{V}, \ T_j = 25^{\circ}\text{C} \\ V_R = 35 \text{V}, \ T_j = 100^{\circ}\text{C} \\ V_R = 17.5 \text{V}, \ T_j = 25^{\circ}\text{C} \\ V_R = 17.5 \text{V}, \ T_j = 100^{\circ}\text{C} \\ \end{array}$
Total Capacitance	Per Element	Ст	_	375	_	pF	f = 1.0MHz, V _R = 4.0V DC

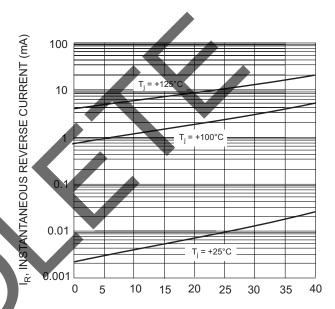
Notes: 2. Short duration test pulse used to minimize self-heating effect.



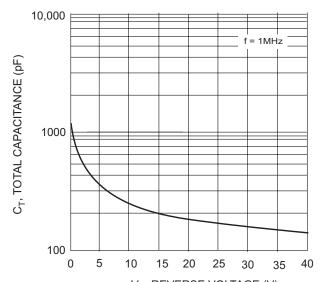
V_F, INSTANTANEOUS FORWARD VOLTAGE (mV) Fig. 1 Typical Forward Characteristics, Per Element



NUMBER OF CYCLES AT 60 Hz Fig. 3 Max Non-Repetitive Peak Fwd Surge Current



 V_R , INSTANTANEOUS REVERSE VOLTAGE (V) Fig. 2 Typical Reverse Characteristics, Per Element



V_R, REVERSE VOLTAGE (V) Fig. 4 Typical Capacitance vs. Reverse Voltage, Per Element

NOT RECOMMENDED FOR NEW DESIGNS USE PDS1040CTL



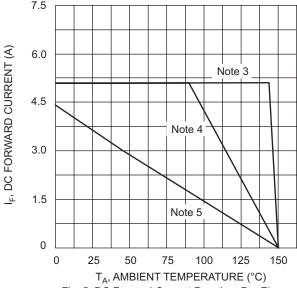
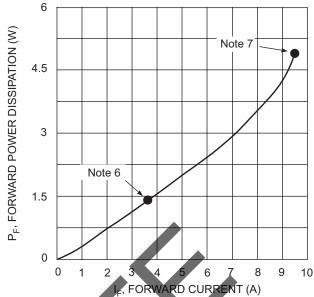


Fig. 5 DC Forward Current Derating, Per Element



USE PDS1040CTL

Fig. 6 Forward Power Dissipation, Per Element

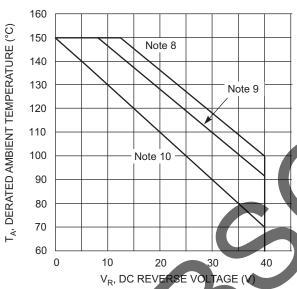


Fig. 7 Operating Temperature Derating, Per Element

Notes: 3. $T_A = T_{SOLDERING POINT}$, $R_{\theta JS} = 2.5^{\circ}C/W$, $R_{\theta SA} = 0^{\circ}C/W$.

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_{0.1} in range of 25-30°C/W.

 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_{θJA} in range of 05 100°C/W

6. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 4.

7. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 3.

8. R_{0,JA} = 10-15°C/W when mounted on 2"x2", single-sided, ceramic board with cathode pad dimensions 0.75"x1.0", anode pad dimensions 0.25"x1.0".

9. $R_{\theta,JA} = 20-25^{\circ}\text{C/W}$ when mounted on 2"x2", single-sided, FR-4 board with cathode pad dimensions 0.5"x1.0", anode pad dimensions 0.5"x1.0", 2 oz. copper pads.

10. R_{0JA} = 60-65°C/W when mounted on 0.5"x0.625", single-sided, FR-4 board with minimum recommended pad layout.



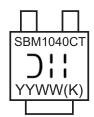
Ordering Information (Note 11)

Device	Packaging	Shipping
SBM1040CT-13	POWERMITE®3	5000/Tape & Reel

Notes:

- 11. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.
- 12. For Lead Free Finish/RoHS Compliant version part number, please add "-F" suffix to the part number above. Example: SBM1040CT-13-F.

Marking Information



SBM1040CT = Product type marking code

Oli = 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

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