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SBM1040CT-13-F

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SBM1040CT

10A SURFACE MOUNT DUAL SCHOTTKY BARRIER RECTIFIER
POWERMITE®3

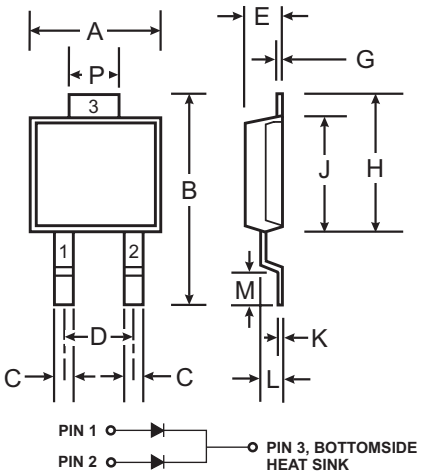
NOT RECOMMENDED FOR NEW DESIGNS USE PDS1040CTL

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**
A	4.03	4.09
B	6.40	6.61
C	.864	.914
D	1.83 NOM	
E	1.10	1.14
G	.173	.203
H	5.01	5.17
J	4.37	4.43
K	.173	.203
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 (Also see Figure 5) per element total device	I_O	5 10	A
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	A
Typical Thermal Resistance Junction to Soldering Point Per Element	$R_{\theta JS}$	2.5	°C/W
Operating Temperature Range	T_j	-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	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 2)		$V_{(BR)R}$	40	—	—	V	I_R = 500μA
Forward Voltage	Per Element	V_F	— — — —	0.45 0.39 0.53 0.50	0.48 0.42 0.575 0.55	V	I_F = 5A, T_j = 25°C I_F = 5A, T_j = 100°C I_F = 10A, T_j = 25°C I_F = 10A, T_j = 100°C
Reverse Current (Note 2)	Per Element	I_R	— — — —	35 4 10 2	150 10 80 5	μA mA μA mA	V_R = 35V, T_j = 25°C V_R = 35V, T_j = 100°C V_R = 17.5V, T_j = 25°C V_R = 17.5V, T_j = 100°C
Total Capacitance	Per Element	C_T	—	375	—	pF	f = 1.0MHz, V_R = 4.0V DC

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

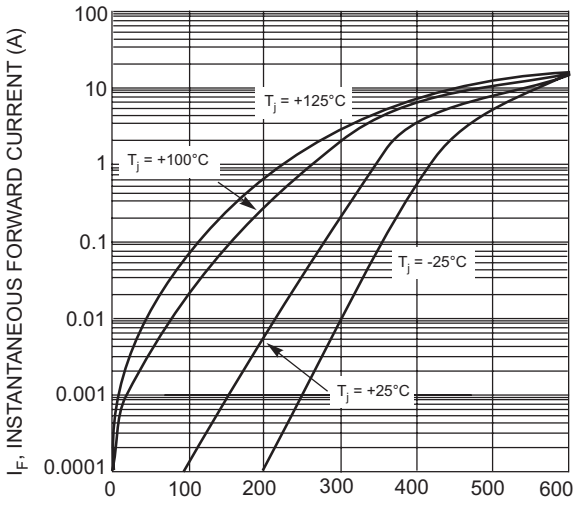


Fig. 1 Typical Forward Characteristics, Per Element

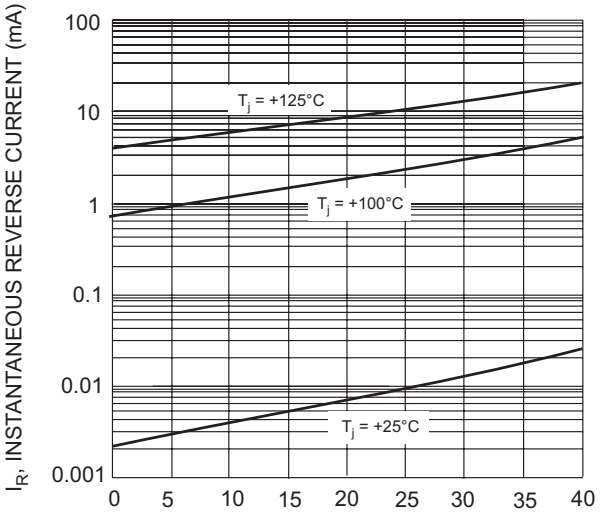


Fig. 2 Typical Reverse Characteristics, Per Element

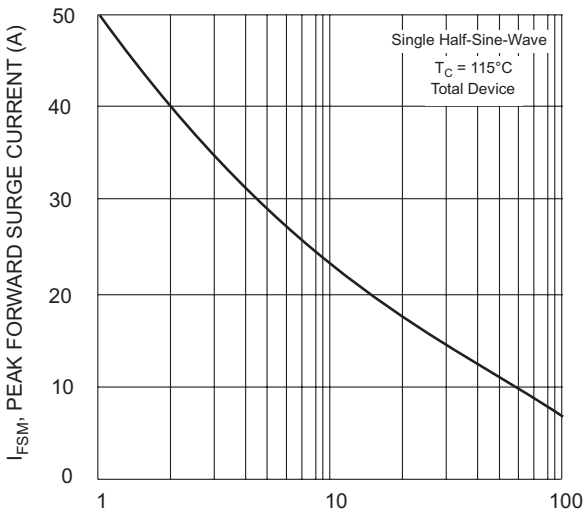


Fig. 3 Max Non-Repetitive Peak Fwd Surge Current

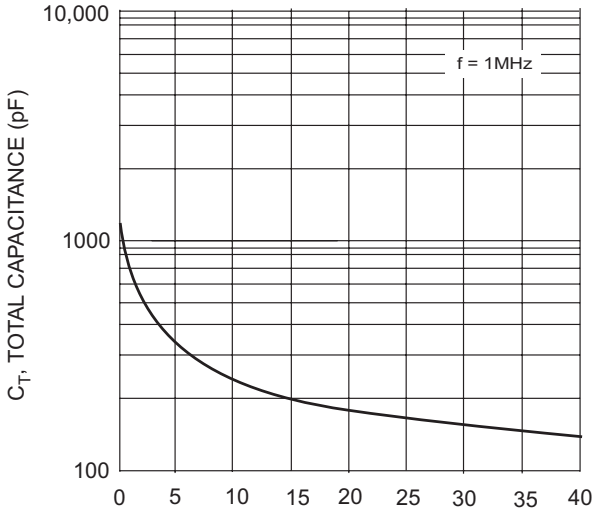


Fig. 4 Typical Capacitance vs. Reverse Voltage, Per Element

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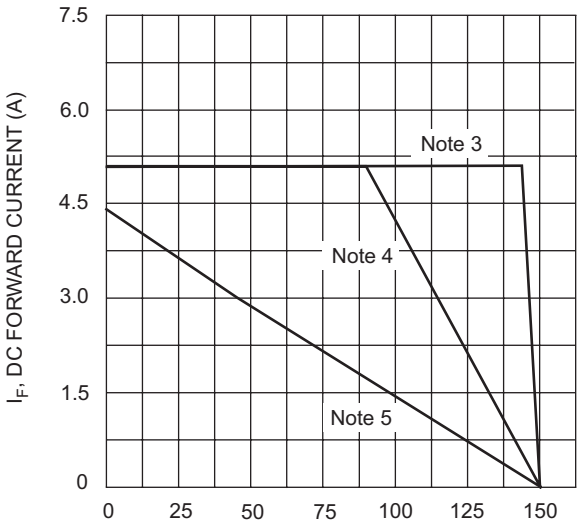

Fig. 5 DC Forward Current Derating, Per Element

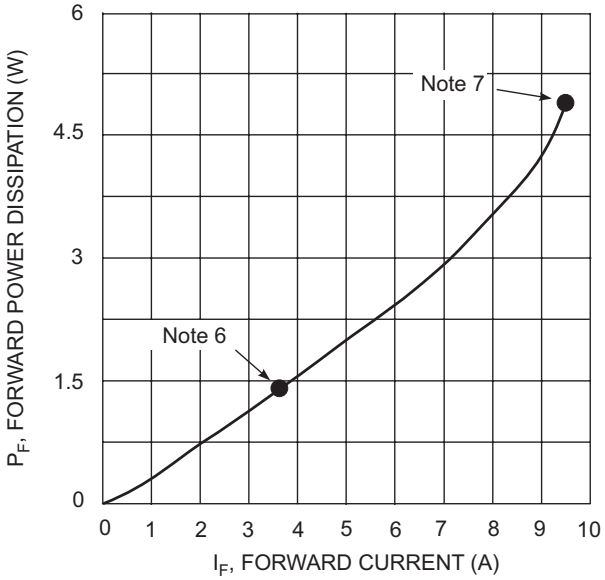

Fig. 6 Forward Power Dissipation, Per Element

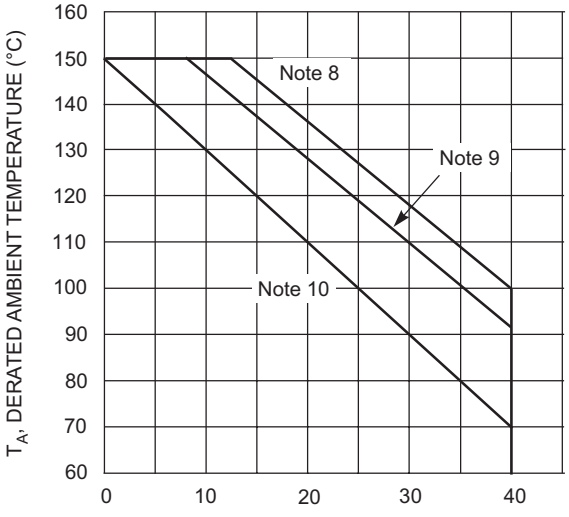

Fig. 7 Operating Temperature Derating, Per Element

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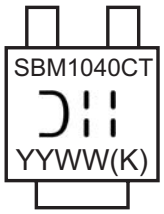
Notes:
3. $T_A = T_{SOLDERING\ POINT}$, $R_{\theta JS}$ = 2.5°C/W, $R_{\theta SA}$ = 0°C/W.
4. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 25-30°C/W.
5. Device mounted on FR-4 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. $R_{\theta JA}$ in range of 95-100°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. $R_{\theta JA}$ = 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°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. $R_{\theta JA}$ = 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
= 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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