

**DESCRIPTION**

In Microsemi's new Powermite® SMT package, these high efficiency Schottky rectifiers offer the power handling capabilities previously found only in much larger packages. They are ideal for SMD applications that operate at high frequencies.

In addition to its size advantages, Powermite® package features include a full metallic bottom that eliminates the possibility of solder flux entrapment during assembly, and a unique locking tab acts as an integral heat sink. Its innovative design makes this device ideal for use with automatic insertion equipment.

**KEY FEATURES**

- High power surface mount package
- Guard ring die construction for transient protection
- Internal heat sink locking tabs
- Low forward voltage
- Full metallic bottom eliminates flux entrapment
- Compatible with automatic insertion equipment
- Low profile-maximum height of 1mm supplied in 16 mm tape reel- 5000 units/ 13" reel

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>


**ABSOLUTE MAXIMUM RATINGS AT 25° C  
(UNLESS OTHERWISE SPECIFIED)**

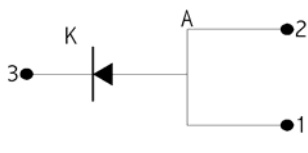
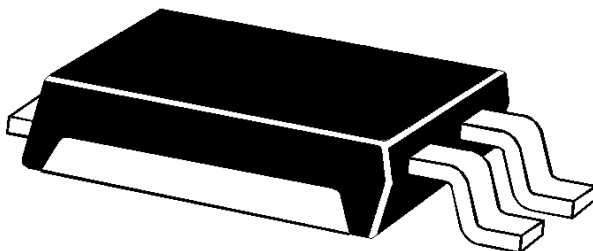
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current	$I_o$	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine wave Superimposed on Rated Load@ $T_c = 88^\circ C$	$I_{FSM}$	150	A
Storage Temperature	$T_{STG}$	-65 to +150	°C
Junction Temperature	$T_J$	-65 to +150	°C

**THERMAL CHARACTERISTICS  
(UNLESS OTHERWISE SPECIFIED)**

Thermal Resistance			
Junction-to Bottom (case)	$R_{\theta JC}$	2.5	°C/Watt

**APPLICATIONS/BENEFITS**

- Switching and Regulating Power Supplies
- Silicon Schottky (hot carrier) rectifier for minimal reverse voltage recovery
- Elimination of reverse-recovery oscillations to reduce need for EMI filtering
- Charge Pump Circuits
- Reduces reverse recovery loss due to low  $I_{RM}$
- Small foot print  =  
190 X 270 mils  
1:1 Actual size

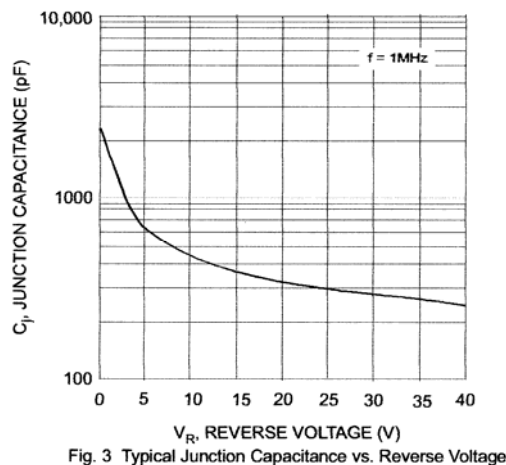
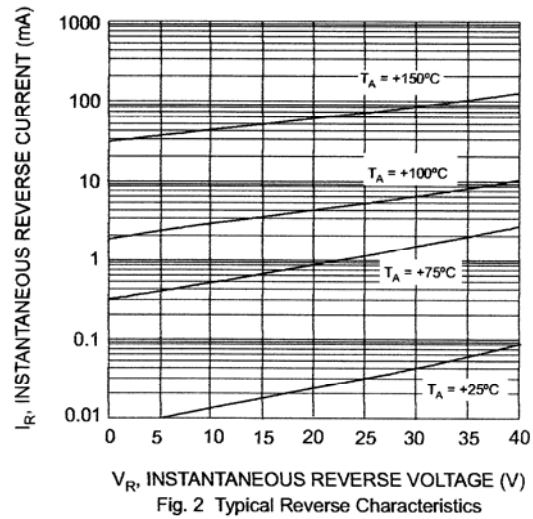
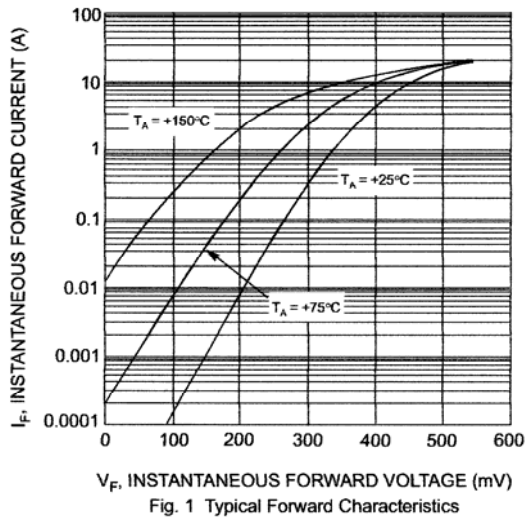


**ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)**

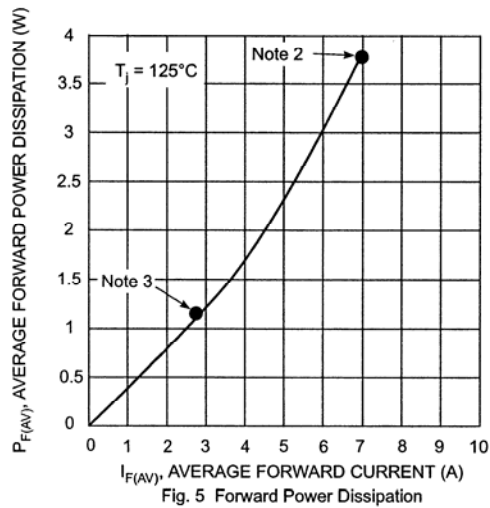
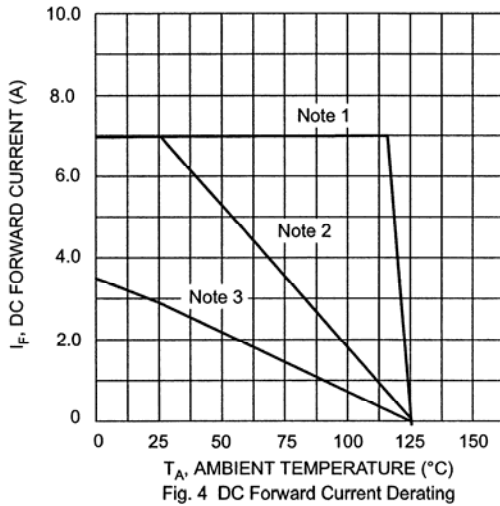
Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Forward Voltage (Note 1)	$V_F$	$I_F = 8\text{ A}, T_j = 25\text{ °C}$ $I_F = 8\text{ A}, T_j = 125\text{ °C}$ $I_F = 10\text{ A}, T_j = 25\text{ °C}$		0.45 0.47	0.49 0.51	V
Reverse Break Down Voltage (Note 1)	$V_{BR}$	$I_R = 1\text{ mA}$	40			V
Reverse Current (Note1)	$I_R$	$V_R = 35\text{ V}, T_j = 25\text{ °C}$ $V_R = 35\text{ V}, T_j = 100\text{ °C}$		0.1 12.5	0.3 25	mA mA
Capacitance	$C_T$	$V_R = 4.0\text{V}; F = 1\text{ MHz}$		700		pF

Note: 1 Short duration test pulse used to minimize self – heating effect.

**GRAPHS**



**GRAPHS**



- NOTE 1:  $T_A = T_C$  at case bottom where  $R_{\theta JC} = 2.5^\circ \text{C/W}$  and  $R_{\theta CA} = 0^\circ \text{C/W}$  (infinite heat sink).  
 NOTE 2: 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 20-35° C/W.  
 NOTE 3: Device mounted on FRA-4 substrate, 2" x 2", 2 oz. copper, single-sided, pad layout  $R_{\theta JA}$  in range of 65° C/W. See mounting pad dimensions on next page.

**MECHANICAL**

**MARKING:**

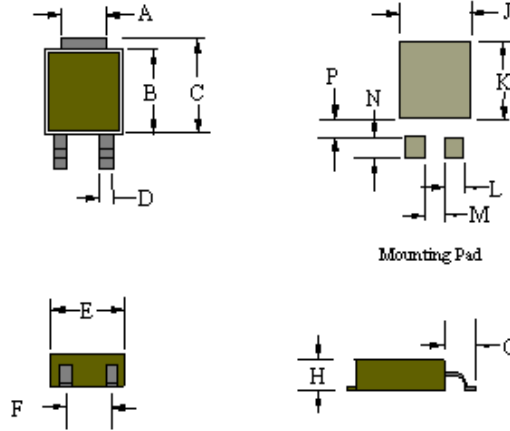
**UPS1040  
MSC  
DATE CODE**

**Terminals: Solderable per MIL-STD-202, Method 208**

**PACKAGE & MOUNTING PAD DIMENSIONS**

**PACKAGING:**

DIM	INCHES	MILLIMETERS
	NOMINAL	NOMINAL
A	0.070	1.778
B	0.173	4.392
C	0.200	5.080
D	0.035	0.889
E	0.160	4.064
F	0.072	1.829
G	0.056	1.422
H	0.044	1.118
J	0.190	4.826
K	0.210	5.344
L	0.038	0.965
M	0.034	0.864
N	0.030	0.762
P	0.030	0.762



PRODUCT PRELIMINARY DATA – Information contained in this document is pre-production data, and is proprietary to Microsemi Corp. It may not be modified in any way without the express written consent of Microsemi Corp. Product referred to herein is not guaranteed to achieve preliminary or production status and product specifications, configurations, and availability may change at any time.



**UPS1040**

**10 A LOW Vf Schottky BARRIER RECTIFIER**

NOTES:

www.Microsemi.com

UPS1040

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Microchip:](#)

[UPS1040/TR13](#)