Microsemi
Progress Powered by Technology

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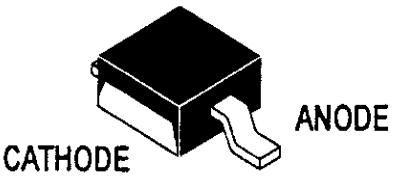
UPS140

SURFACE MOUNT
1A SCHOTTKY RECTIFIER
POWERMITE® Power Surface Mount Package

SCHOTTKY BARRIER RECTIFIER
1.0 AMPERES
40 VOLTS

Features:

- Low Profile -- Maximum Height of 1.1 mm
- Small Footprint -- Footprint Area of 8.45 mm^2
- Low V_F Provides Higher Efficiency and Extends Battery Life
- Supplied in 12 mm Tape and Reel -- 12,000 Units per Reel
- Low Thermal Resistance with Direct Thermal Path of Die on Exposed Cathode Heat Sink



Mechanical Characteristics:

- Powermite is JEDEC Registered as DO-216AA
- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8"
- Weight: 62 mg (appoximately)
- Device Marking: S40
- Lead and Mounting Surface Temperature for Soldering Purposes,
- 260°C Maximum for 10 Seconds

Description:

The UPS140 Powermite Schottky rectifier is designed to offer optimized forward voltage characteristics for battery powered portable products such as cellular and cordless phones, chargers, notebook computers, printers, PDA's and PCMCIA cards. Typical applications include ac/dc and dc-dc converters, reverse battery protection and "Oring" of multiple supply voltages.

The Powermite's patented heat sink design offers the same thermal performance rating as an SMA while being 50% smaller in footprint area and less than 1 mm in overall height. The result is a unique, highly efficient Schottky rectifier in a space saving surface mount package.

Maximum Ratings

RATING	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
Average Rectified Forward Current (At Rated V_R, T_C = 135°C)	I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 100 KHz, T_C = 135°C	I_{FRM}	2.0	A
Non-Repetitive Peak Surge Current (Non-Repetitive peak surge current, halfwave, single phase, 60 Hz)	I_{FSM}	50	A
Storage / Operating Case Temperature	T_{stg}, T_C	-55 to 150	°C
Operating Junction Temperature	T_J	-55 to 125	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)	dv/dt	10,000	V/µs

Thermal Characteristics

Thermal Resistance - Junction-to-Lead (Anode) (1} Thermal Resistance - Junction-to-Tab (Cathode) (1} Thermal Resistance - Junction-to-Ambient (1}	Rtji Rtjtab Rtja	35 15 248	°C/W

(1) Pulse Test: Pulse Width ≤ 250 µs, Duty Cycle ≤ 2%.

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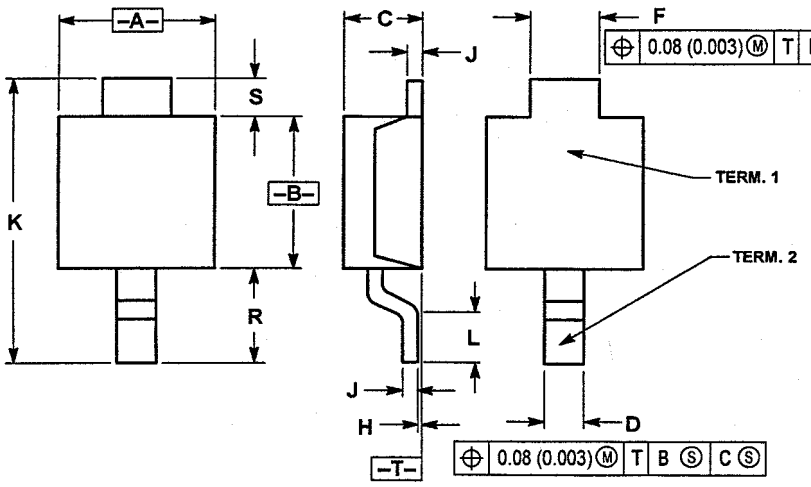
Electrical Characteristics

Maximum Instantaneous Forward Voltage (1)	V_F	T_J = 25°C	V
(I_F = 0.1 A)		0.36	
(I_F = 1.0 A)		0.45	
(I_F = 3.0 A)		0.75	
Maximum Instantaneous Reverse Current	I_R	T_J = 25°C	mA
(V_R = 40 V)		0.40	

(1) Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2%.

MECHANICAL DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	1.75	2.05	0.069	0.081
B	1.75	2.15	0.069	0.086
C	0.85	1.15	0.033	0.045
D	0.40	0.65	0.016	0.026
F	0.70	1.00	0.028	0.039
H	−0.05	+0.10	−0.002	+0.004
J	0.10	0.25	0.004	0.010
K	3.60	3.90	0.142	0.154
L	0.50	0.80	0.020	0.031
R	1.10	1.50	0.043	0.059
S	0.25	0.85	0.010	0.033

Figure 1

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