

UPS140

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

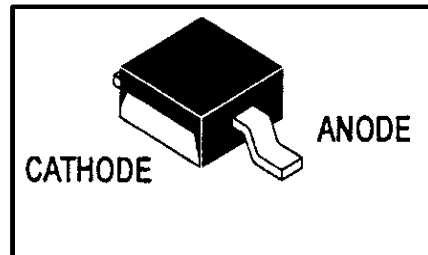
Features:

- Low Profile -- Maximum Height of 1.1 mm
- Small Footprint -- Footprint Area of 8.45 mm²
- 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

**SCHOTTKY BARRIER
 RECTIFIER
 1.0 AMPERES
 40 VOLTS**

Mechanical Characteristics:

- Powermite is JEDEC Registered as DO-216AA
- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8"
- Weight: 62 mg (approximately)
- Device Marking: S20
- 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)	R _{tj}	35	°C/W
Thermal Resistance - Junction-to-Tab (Cathode) (1)	R _{tjtab}	15	
Thermal Resistance - Junction-to-Ambient (1)	R _{tja}	248	

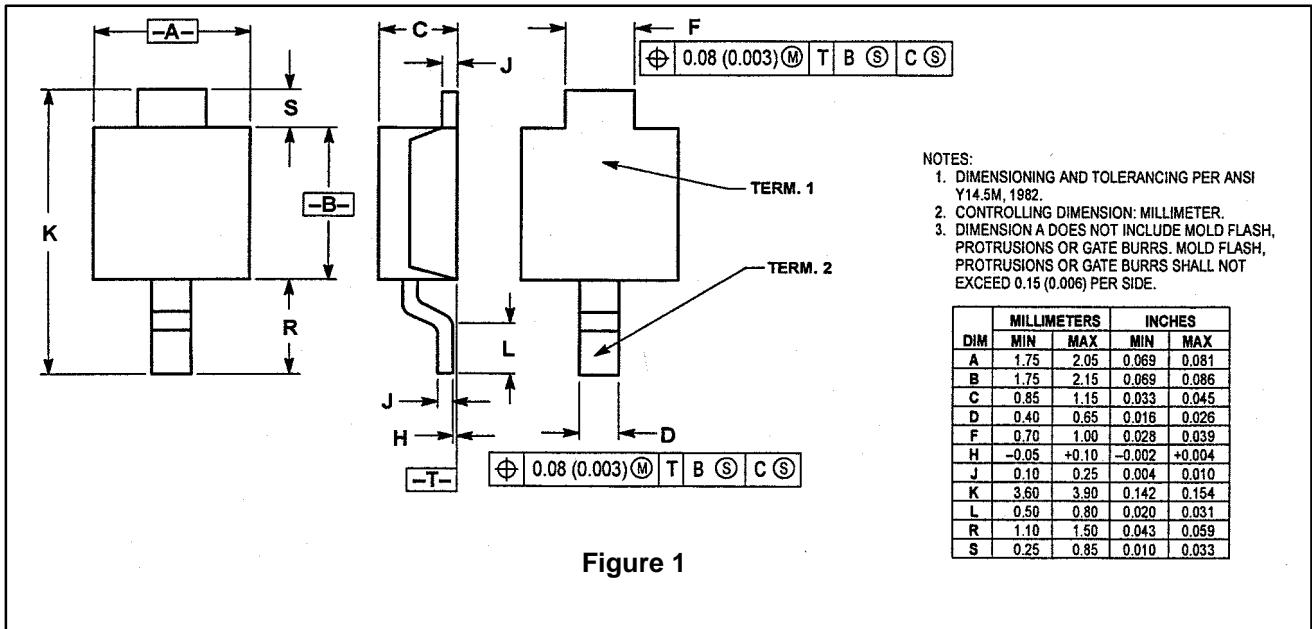
(1) Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2%.

Electrical Characteristics

Maximum Instantaneous Forward Voltage (1) $(I_F = 0.1 \text{ A})$ $(I_F = 1.0 \text{ A})$ $(I_F = 3.0 \text{ A})$	V_F	$T_J = 25^\circ\text{C}$	V
		0.36	
		0.45 0.75	
Maximum Instantaneous Reverse Current $(V_R = 40 \text{ V})$	I_R	$T_J = 25^\circ\text{C}$	mA
		0.40	

(1) Pulse Test: Pulse Width $\leq 250 \mu\text{s}$, Duty Cycle $\leq 2\%$.

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.

DIM	MILLIMETERS		INCHES	
	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