

**UPS120E  
PRELIMINARY**

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

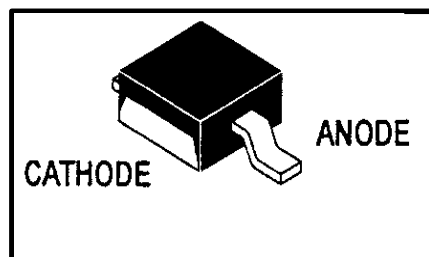
**Features:**

- Low Profile -- Maximum Height of 1.1 mm
- Small Footprint -- Footprint Area of 8.45 mm<sup>2</sup>
- 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 (approximately)
- Device Marking: S20
- Lead and Mounting Surface Temperature for Soldering Purposes, 260°C Maximum for 10 Seconds

**SCHOTTKY BARRIER  
RECTIFIER  
1.0 AMPERES  
20 VOLTS**



**Description:**

The UPS120E Powermite Schottky rectifier is designed to offer optimized reverse leakage 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	$V_{RRM}$	20	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
Average Rectified Forward Current (At Rated $V_R$ , $T_C = 130^\circ\text{C}$ )	$I_O$	1.0	A
Peak Repetitive Forward Current (At Rated $V_R$ , Square Wave, 20 KHz, $T_C = 135^\circ\text{C}$ )	$I_{FRM}$	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	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	-55 to 125	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ , $T_J = 25^\circ\text{C}$ )	$dv/dt$	10,000	V/ $\mu\text{s}$

**Thermal Characteristics**

Thermal Resistance - Junction-to-Lead (Anode) (1)	$R_{tjl}$	35	$^\circ\text{C/W}$
Thermal Resistance - Junction-to-Tab (Cathode) (1)	$R_{tjtab}$	15	
Thermal Resistance - Junction-to-Ambient (1)	$R_{tja}$	248	

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

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**Electrical Characteristics**

Maximum Instantaneous Forward Voltage (1) ( $I_F = 0.1$ A) ( $I_F = 1.0$ A) ( $I_F = 2.0$ A)	$V_F$	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	V
		0.455	0.360	
		0.530	0.455	
Maximum Instantaneous Reverse Current ( $V_R = 20$ V) ( $V_R = 10$ V) ( $V_R = 5$ V)	$I_R$	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	$\mu\text{A}$
		10	1600	
		1.0	500	
		.5	300	

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

**MECHANICAL DIMENSIONS**

