

**DESCRIPTION**

In Microsemi's new Powermite SMT Package, these high efficiency Schottky rectifiers offer 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.

**SURFACE MOUNT**

**POWERMITE® Surface Mount Power Package**

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

**MECHANICAL CHARACTERISTICS**

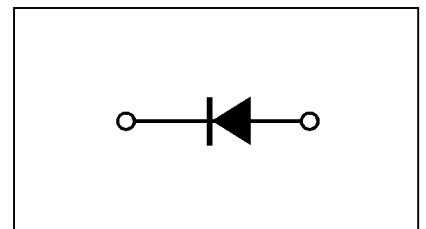
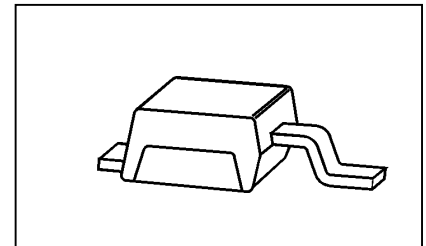
- Case: Molded Epoxy
- Meets UL94VO at 1/8 inch
- Device Marking S54
- Lead and Mounting Surface Temperature for Soldering = 260°C Maximum for 10 Seconds

**KEY FEATURES**

- Low Profile – Maximum height of 1.1 mm
- Footprint Area of 10 mm
- Low  $V_F$  Provides Higher Efficiency
- Low Thermal Resistance with Direct Thermal Path of Die on Exposed Cathode Heat Sink
- Supplied in 8mm Tape and Reel – 3,000 units/7" Reel; 12,000 units/13" Reel

**APPLICATIONS/BENEFITS**

- High power Surface Mount Package
- Guard Ring Protection
- Low forward voltage
- Integral Heat Sink/Locking Tabs
- Compatible with Automatic Insertion Equipment
- Full Metallic Bottom Eliminates Flux Entrapment



**PRELIMINARY**

**MAXIMUM RATINGS**

RATING	(Conditions)	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage		$V_{RRM}$	40	V
Working Peak Reverse Voltage		$V_{RWM}$		V
DC Blocking Voltage		$V_R$		V
Average Rectified Forward Current	(@ Rated $V_R$ and $T_C = 100^\circ\text{C}$ )	$I_O$	0.5	A
Repetitive Peak Surge Current	(Non-Repetitive peak surge current @ $I_O = 0.5$ Amps )	$I_{FSM}$	10	A
Storage Temperature Range		$T_{STG}, T_C$	-55 to 125	$^\circ\text{C}$
Operating Temperature Range		$T_J$	-55 to 125	$^\circ\text{C}$
Voltage Rate of Change	(@ Rated $V_R$ and $T_J = 25^\circ\text{C}$ )	dv/dt	1000	V/us

**THERMAL CHARACTERISTICS**

RATING	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction – to – Case (1)	$R_{tjtab}$	70	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient (1)	$R_{tja}$	230	$^\circ\text{C/W}$

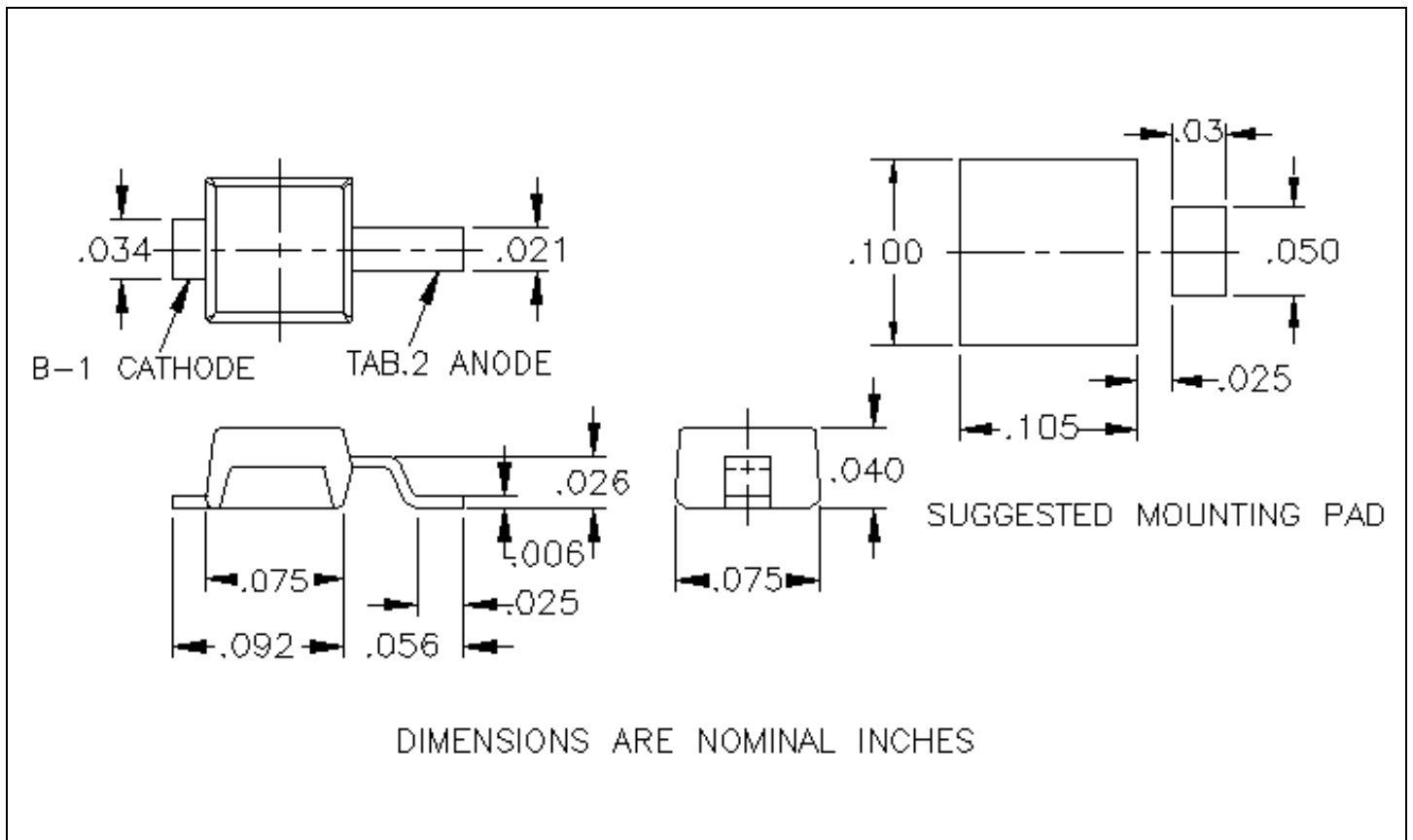
(1) Devices mounted on 2 in. sq. FR-4 Board (2 oz) with minimum footprint

**ELECTRICAL CHARACTERISTICS**

RATING	(Conditions)	SYMBOL	VALUE		UNIT
			25 $^\circ\text{C}$	100 $^\circ\text{C}$	
Maximum Instantaneous Forward Voltage	( $I_F = 0.5$ Amps, $T_J = +25^\circ\text{C}$ )	$V_F$	0.51	0.46	Volts
	( $I_F = 1$ Amps, $T_J = +25^\circ\text{C}$ )	$V_F$	0.62	0.61	
Maximum Instantaneous Reverse Current	( $V_R = 15$ Vdc, $T_J = +25^\circ\text{C}$ )	$I_R$	10	5,000	$\mu\text{A}$
	( $V_P = 40$ Vdc)	$I_R$	20	13,000	

# PRELIMINARY

MECHANICAL SPECIFICATIONS



PRELIMINARY



UPS540

SCHOTTKY BARRIER RECTIFIER  
0.5 AMP. 40 VOLT

PRELIMINARY