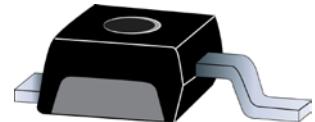




Powermite Package Commercial Two-Way Radio Antenna Switch Diode

DESCRIPTION

With high isolation, low loss, and low distortion characteristics, this Microsemi Powermite PIN diode is perfect for two-way radio antenna switch applications where size and power handling capability are critical. Its advantages also include the low forward bias resistance and high zero bias impedance that are essential for low loss, high isolation and wide bandwidth antenna switch performance. The Powermite package's full metallic bottom eliminates the possibility of solder flux entrapment during assembly, and its unique locking tab acts as an integral heat sink. Its innovative design makes this device ideal for use with automatic insertion equipment.



DO-216 Package

Important: For the latest information, visit our website <http://www.microsemi.com>.

FEATURES

- High power surface mount package with very low thermal resistance.
- Specified low distortion.
- Low bias current requirements.
- High zero bias impedance.
- Full metallic bottom eliminates flux entrapment.
- Integral heat sink/locking tabs.
- RoHS compliant.

APPLICATIONS / BENEFITS

- Two-way radio antenna switch.
- Low forward bias resistance.
- High zero bias resistance.
- Low loss high isolation for wide bandwidth performance.
- Small size DO-216 package.
- Compatible with automatic insertion equipment.
- Very low inductance and capacitance.

MAXIMUM RATINGS

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T _J and T _{STG}	-55 to +150	°C
Thermal Resistance Junction-to-Tab 1	R _{EJL}	30	°C/W
Thermal Resistance Junction-to-Case	R _{EJC}	10	°C/W
Steady-State Power Dissipation @ T _{TAB1} = 75 °C ⁽¹⁾	P _D	2.5	W
Reverse Voltage @ I _R = 10 µA	V _R	100 200 400	V
Solder Temperature @ 10 s	T _{SP}	260	°C

Notes: 1. When mounted on a PC board with 2 oz copper.

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MECHANICAL and PACKAGING

- CASE: Void-free transfer molded thermosetting epoxy compound meeting UL94V-0.
- TERMINALS: Annealed matte-tin over copper and readily solderable per MIL-STD-750, method 2026.
- MARKING: P01• for UPP1001, P02• for UPP1002, and P04• for UPP1004 (dot indicates “e3” designation).
- POLARITY: Cathode designated by TAB 2.
- TAPE & REEL option: 16 mm tape per standard EIA-481-B. Consult factory for quantities.
- WEIGHT: Approximately 0.016 gram.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

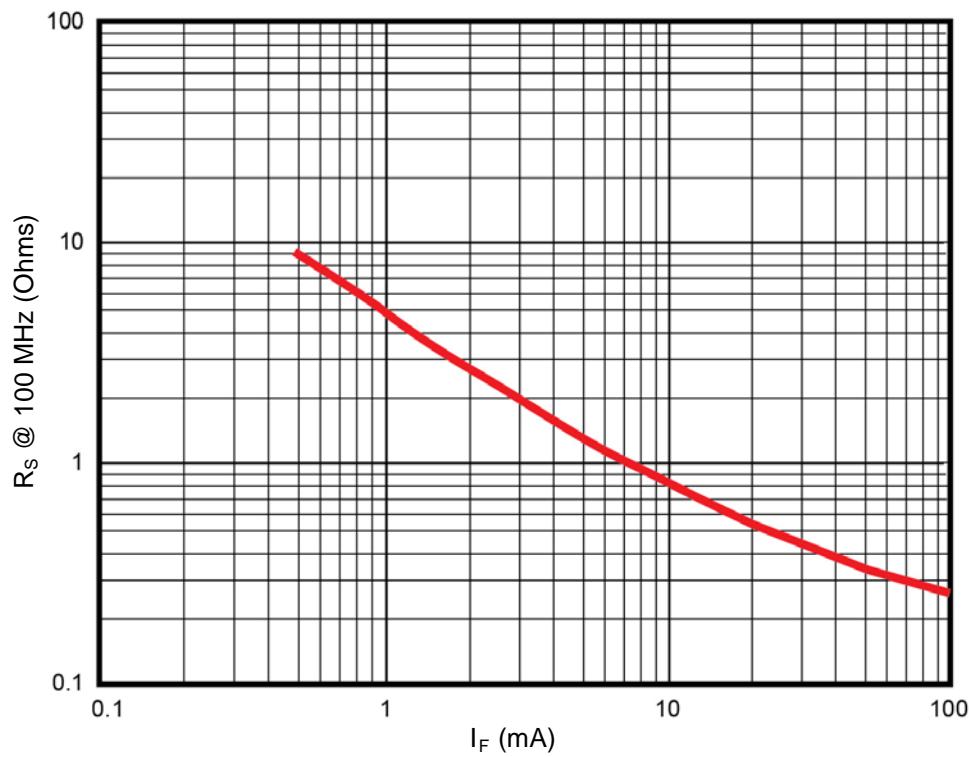
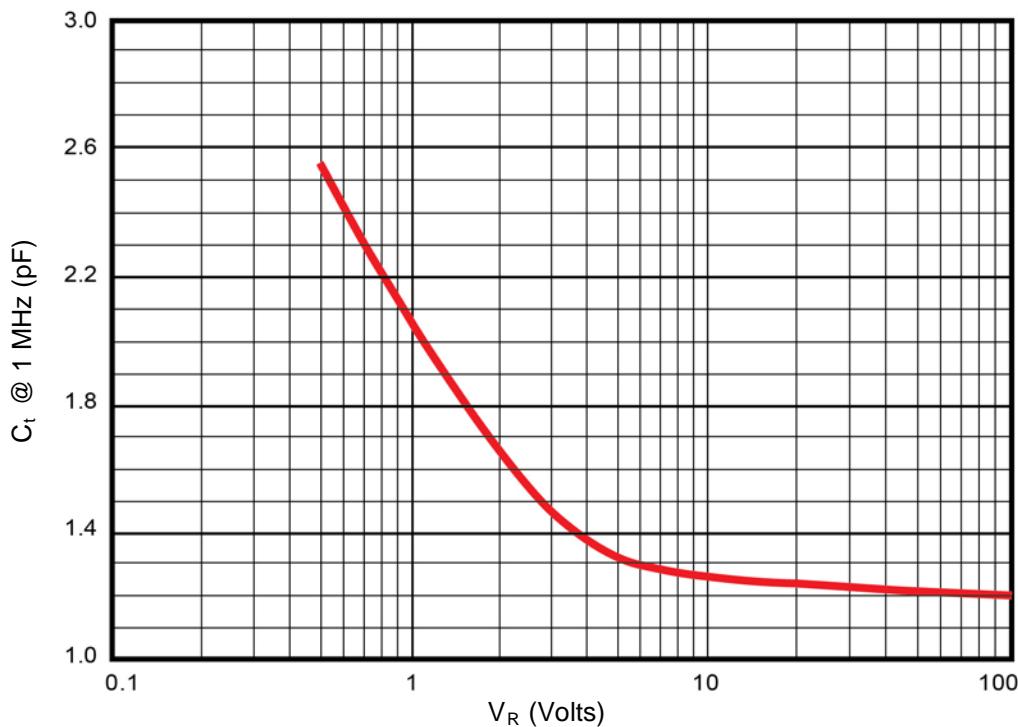
UPP 1001 e3
Powermite PIN diode _____ RoHS Compliant
Series Number _____

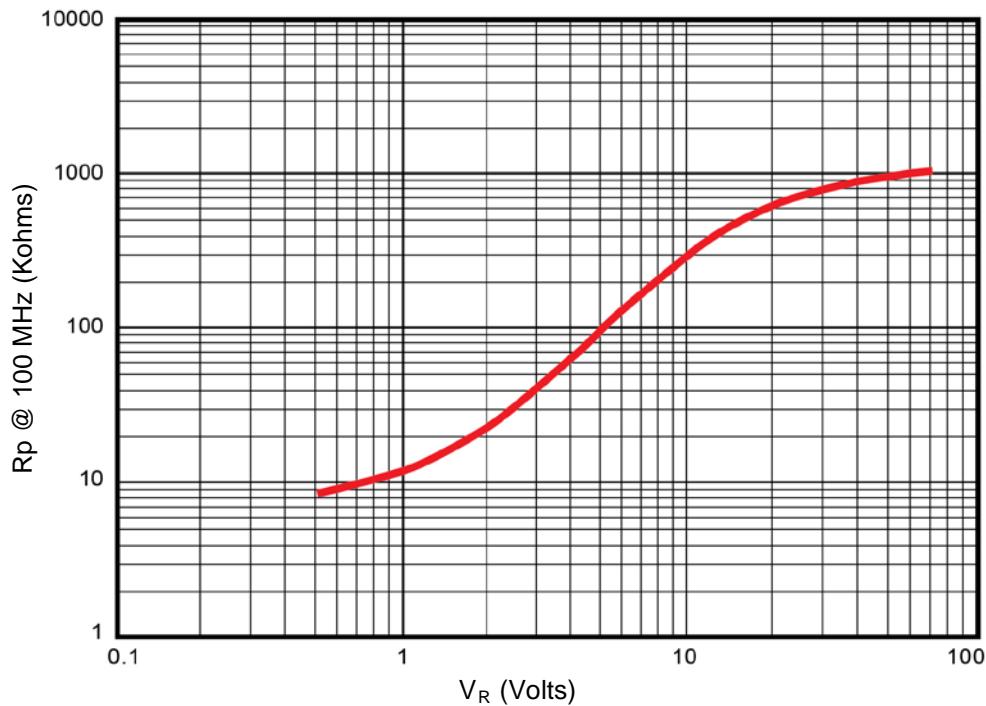
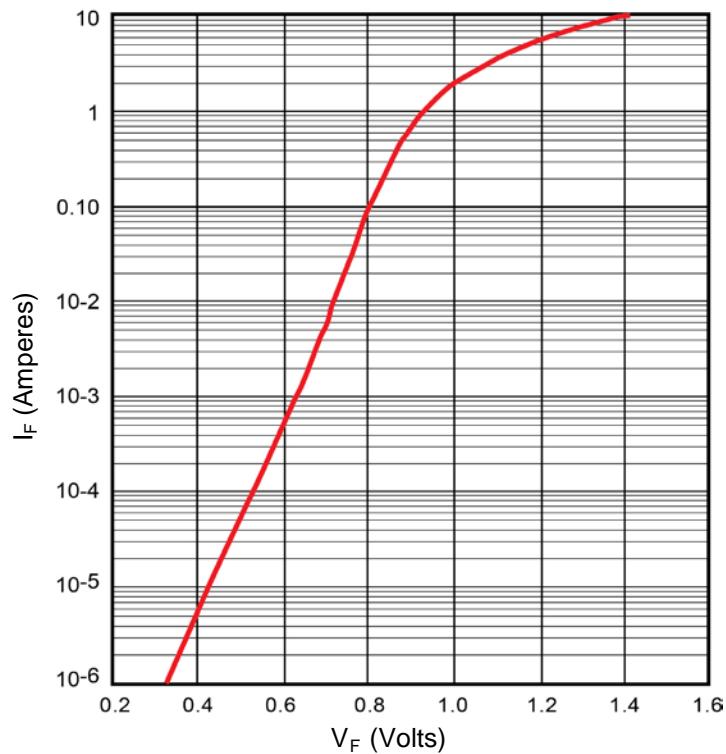
SYMBOLS & DEFINITIONS

Symbol	Definition
f	Frequency
I _R	Reverse current
I _F	Forward current

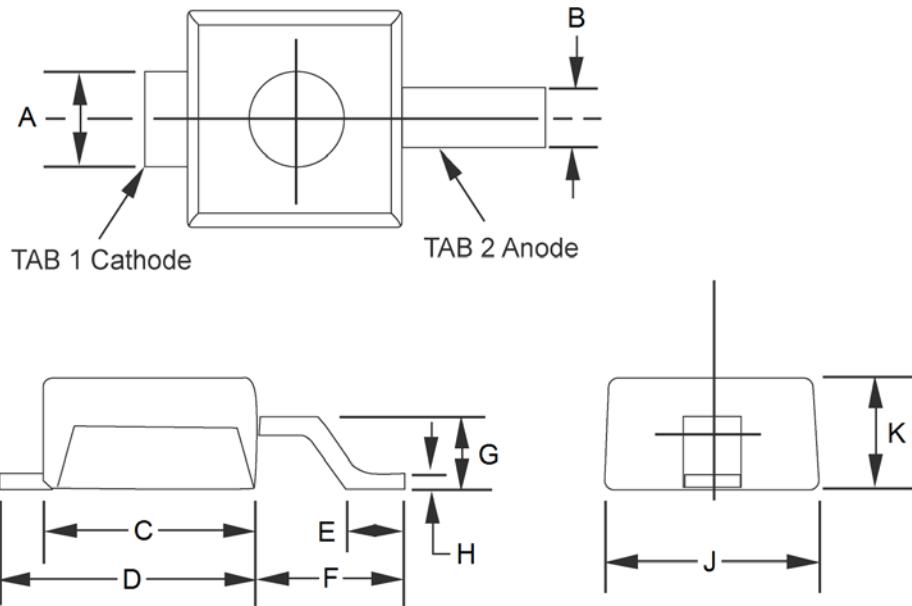
ELECTRICAL CHARACTERISTICS @ T_A = +25 °C unless otherwise noted

Series Resistance R _S @ f = 100 MHz I _F = 10 mA (see Figure 1)		Series Resistance R _S @ f = 100 MHz I _F = 50 mA		Capacitance C _T @ f = 1 MHz V _R = 0 V (see Figure 2)		Parallel Resistance R _P @ f = 100 MHz V = 0 V (see Figure 3)		Carrier Lifetime τ @ I _F = 10 mA		Reverse Current I _R @ V _R		Forward Voltage V _F @ I _F = 50 mA (see Figure 4)	
Ohms		Ohms		pF		KOhms		μS		μA		Volts	
TYP	MAX	TYP	MAX	TYP	MAX	MIN	TYP	MIN	TYP	MAX	TYP	MAX	
0.75	1.0	0.35	0.45	1.2	1.6	5	8	2.0	3.5	0.1	10	0.75	1.0

GRAPHS**FIGURE 1 - SERIES RESISTANCE (TYPICAL)****FIGURE 2 – CAPACITANCE (TYPICAL)**

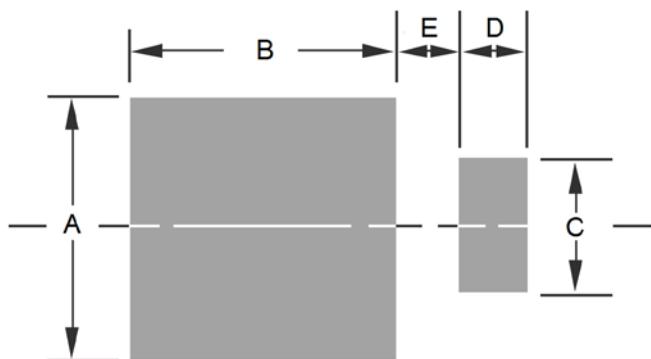
GRAPHS (continued)**FIGURE 3 – PARALLEL RESISTANCE (TYPICAL)****FIGURE 4 – FORWARD CURRENT vs FORWARD VOLTAGE (TYPICAL)**

PACKAGE DIMENSIONS



Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
A	0.029	0.039	0.73	0.99
B	0.016	0.026	0.40	0.66
C	0.070	0.080	1.77	2.03
D	0.087	0.097	2.21	2.46
E	0.020	0.030	0.50	0.76
F	0.051	0.061	1.29	1.54
G	0.021	0.031	0.53	0.78
H	0.004	0.008	0.10	0.20
J	0.070	0.080	1.77	2.03
K	0.035	0.045	0.89	1.14

MOUNTING PAD DIMENSIONS



Ltr	Dimensions	
	Inch	Millimeters
A	0.100	2.54
B	0.105	2.67
C	0.050	1.27
D	0.030	0.76
E	0.025	0.64

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