UMX9501FMR

PIN DIODE

Low Magnetic Switching Diode For MR Application

RoHS Compliant

GENERAL DESCRIPTION

With high isolation, low loss, and low distortion characteristics, this Microsemi packaged PIN diode is suited for antenna switch applications where size and power handling capability are critical. The assembly is designed for MRI applications where low susceptance is necessary. The surface mount package is ideal for high volume automated assembly applications.

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. Its square design makes this device ideal for use with automatic insertion equipment.

KEY FEATURES

- High Power Surface Mount Package.
- Specified low distortion, low loss.
- Low bias current requirements.
- High zero bias impedance.
- Low magnetic signature for MR applications.
- Compatible with automatic insertion equipment.
- RoHS compliant [1]

[1] The UMX9501FMR is supplied with a RoHS compliant matte tin finish.

Consult factory for details.

APPLICATION/BENEFITS

- Low Loss T/R Switching.
- MRI Switching.
- Available on Tape & Reel

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ABSOLUTE MAXIMUM RATINGS @ 25°C (UNLESS OTHERWISE SPECIFIED)

Rating	Symbol	Value	Unit
Maximum Reverse Voltage	V_R	150	V
Average Power Dissipation	P_D	4	W
Storage Temperature Range	T_{STG}	-65 to 175	°C
Operating Temperature Range	T_{OP}	- 65 to 175	°C
Thermal resistance. (25°C contacts, free air)	R_θ	37.5	°C/W

ELECTRICAL PERFORMANCE @ 25°C (UNLESS OTHERWISE SPECIFIED)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Total Capacitance	C_T	V_R = 50V f = 1 MHz		0.75	0.9	pF
Series Resistance	R_S	I_F = 50 mA f = 100 MHz		0.5	0.75	Ohms
Parallel Resistance	R_P	f = 100MHz Vr = 0V	5	10		kOhms
Carrier Lifetime	T_L	I_F = 10 mA	2	4		µs
Reverse Current	I_R	V_R = 50			10	µA
Forward Voltage	V_F	I_F = 100mA			1.0	V
Transmit Harmonic Distortion		P_{IN} = 50 W f = 50 MHz I_F = 50 mA	80			-dB
Receive 3rd Order Harmonic Distortion		F = 100 MHz V = 0 V F_A = 50 MHz F_B = 51 MHz	60			-dB

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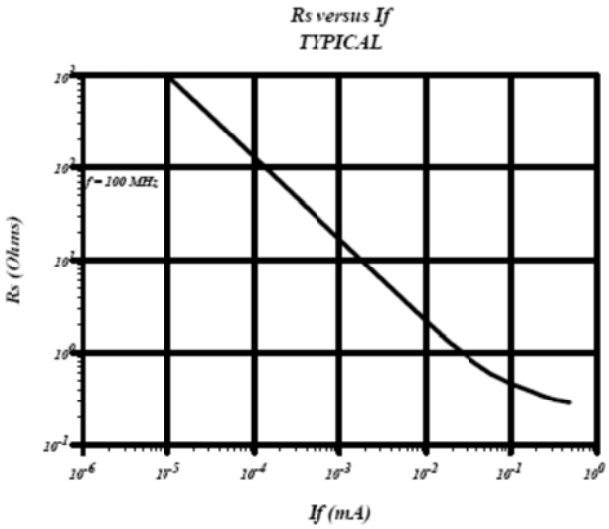
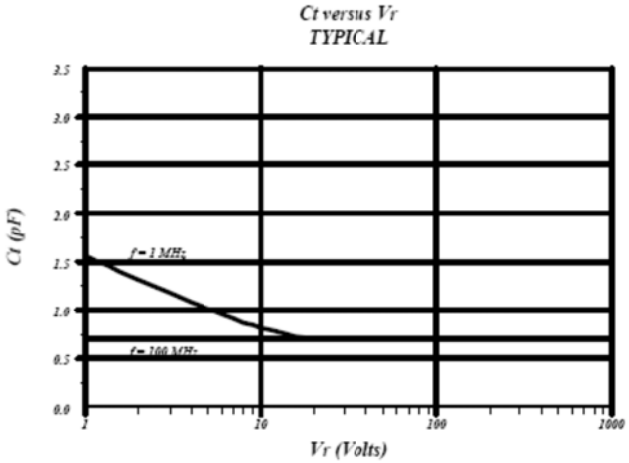
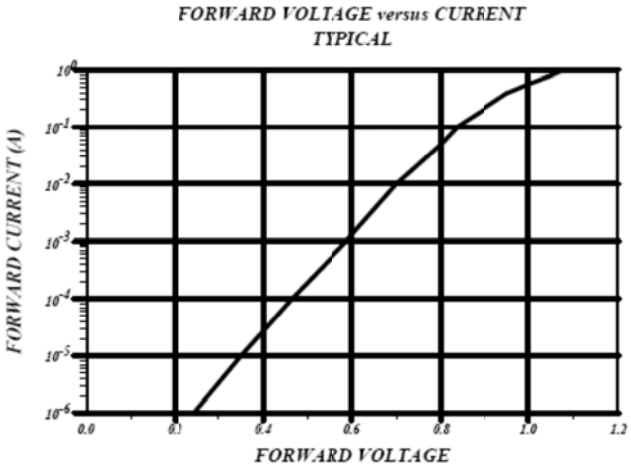
TYPICAL RS VS IF



TYPICAL CT VS VR



IF CURVE



For the most current data, consult MICROSEMI's website: ***www.MICROSEMI.com***
Specifications are subject to change, consult the RFIS factory at (978) 442-5600 *for the latest information.*

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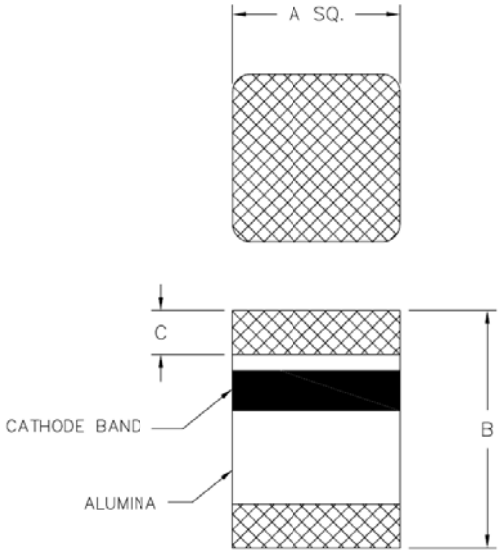
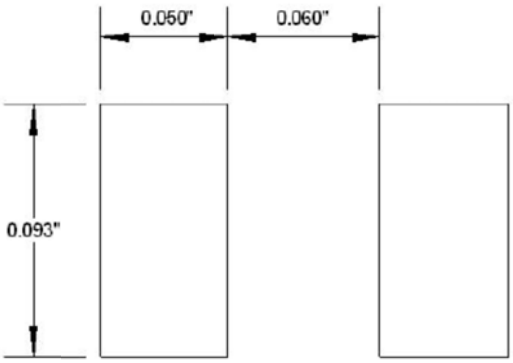
PACKAGE OUTLINE



DIM	INCHES			MM		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.080	–	0.095	2.032	–	2.413
B	0.115	–	0.135	2.921	–	3.429
C	0.008	–	0.030	0.203	–	0.762

FOOTPRINT



NOTES:

1. These dimensions will match the terminals and provide for additional solder fillets at the outboard ends at least as wide as the terminals themselves, assuming accuracy of placement within 0.005”.
2. If the mounting method chosen requires use of an adhesive separate from the solder compound, a round (or square) spot of cement should be centrally located.

Revision History

Revision Level / Date	Para. Affected	Description
1 / 14 September 15	-	Initial Release