

Commercial Attenuator Diode

PRODUCT PREVIEW

DESCRIPTION

The UM9301 PIN Diode utilizes special overall chip geometry with an extremely thick intrinsic "I" region, to offer unique capabilities in both RF switch and attenuator applications.

Volume production also makes the diode an economical choice suitable for many commercial low power equipments. The UM9301 has been designed for use in bridged TEE attenuator circuits commonly utilized for gain and slope control in CATV amplifiers.

SCRIPTION

Low distortion and high dynamic range are characteristic of the diodes' outstanding performance.

The UM9301 is also appropriate for switch applications, when little or no bias voltage is available. Frequent applications occur in portable 12 volt-powered communications equipments, operating at frequencies as low as 2 MHz.

IMPORTANT: Forthemost current data, consult MICROSEMI's website: http://www.microsemi.com

ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)								
Rating	Symbol	Value	Unit					
Reverse Voltage	V _R	75	Volts					
Reverse Current	IR	10	μA					
Average Power Dissipation (1, 2)	PA	1.0	Watts					
Storage Temperature	T stg	-65 to 175	°C					
Operating Temperature	Т ор	-65 to 175	°C					

UM9301



Mounted on 2" square by 0.06' thick FR4 board with a 1" x 1" square 2-ounce copper pattern..
Lead ½ inch. (12.7mm) Total to 25°C Contact.

KEY FEATURES

- Specified low distortion
- Low distortion properties at low reverse bias
- Resistance specified at 3 current points
- High reliability fused-in-glass construction

APPLICATIONS/BENEFITS

- Little or no Bias required.
- Operates as low as 2MH_z.
- Available in leaded or surface mount packages.

UM9301SM





Commercial Attenuator Diode

PRODUCT PREVIEW

Parameter	Symbol	Conditions	Min	Тур.	Max	Units		
▶ Off Characteristics								
	Rs	I = 100 mA; f = 100 MH _Z		1.7	3.0			
Diode Resistance		I = 1 mA; f = 100 MH _Z		80	150 Ω			
		I = 0.01 mA; f = 100 MH _Z	3000	5000				
Current for R_s = 75 Ω I _R	Rs	f = 100 MH _Z	0.5	1.1	2.0	mA		
Return Loss	Ι	Frequency Range: 10-300MHz						
		R _s = 75 Ω @ 100MH _z	25			dB		
		Diode Terminates 75 Ω line						
Second Order Distortion	V	f ₁ = 10 MH _z ; f ₂ = 13 MH _z		55	50	-dB		
		P = 50 dBmV; See Test Circuit		00	00	uD		
		$F_1 = 67 \text{ MH}_2$; $f_2 = 77 \text{ MH}_2$	70		-dB			
		P = 50 dBmV; See Test Circuit	10					
Third Order Distortion	v	$F_1 = 10 \text{ MH}_Z; F_2 = 13 \text{ MH}_Z$	75	65	-dB			
		P = 50 dBmV; See Test Circuit						
		Triple Beat; 205 +67 –77MHz	95			-dB		
		P = 50 dBmV; See Test Circuit						
Cross Modulation	V	12 Channel Test						
Distortion		P = 50 dBmV; See Test Circuit	75			-dB		
		Dix Hills Test Set			4.0			
Reverse Current	I _R	V = 75 V			10	μA		
Carrier Lifetime	τ	I = 10 mA	4.0			μs		
Dynamic characteristics								
Capacitance	CT	V = 0V; f = 100 MH ₂			0.8	pF		

FORWARD CURRENT VS FORWARD VOLTAGE (TYPICAL)







PRODUCT PRELIMINARY DATA – Information contained in this document is pre-production data, and is proprietary to Microsemi Corp. It may not be modified in any way without the express written consent of Microsemi Corp. Product referred to herein is not guaranteed to achieve preliminary or production status and product specifications, configurations, and availability may change at any time.



Commercial Attenuator Diode

PRODUCT PREVIEW

TYPICAL BRIDGED TEE ATTENUATOR PERFORMANCE







NORMALIZED RS VS TEMPERATURE





Commercial Attenuator Diode

PRODUCT PREVIEW

UM9301SM



NOTES:

- These dimensions will match the terminals and provide for additional solder filets at the outboard ends at least as wide as the terminals themselves, assuming accuracy of device placement within .005 inches.
- If the mounting method chosen requires use of an adhesive separate from the solder compound, a round (or square) spot of cement as shown should be sartorially located.

3. Dimensions shown are in inches.

STANDARD SM ALL SQUARE END CAP OUTLINE





1. BAND INDICATE CATHODE END.



Commercial Attenuator Diode

PRODUCT PREVIEW

Copyright © 2005 Rev. A, 2005-07-05