

### DESCRIPTION

The 1N5767 and the 1N5957 PIN diodes are based upon low capacitance PIN chips designed with long minority carrier lifetime, and thick intrinsic width. Thus operation as low as 1 MHz is possible with low distortion. Additionally, the low diode capacitance allows useful operation well into the microwave frequency range.

The 1N5767 (5082-3080) is a general purpose low power PIN diode designed for

Both switch and attenuator applications.

The 1N5957 is primarily used as an attenuator PIN diode and is particularly suitable wherever current controlled, wide dynamic range resistance elements are required. The 1N5957 has also been characterized for the 75Ω attenuator, commonly employed in CATV systems.

### KEY FEATURES

- Useful attenuation from 1 μA to 100 mA bias
- Capacitance below 0.4 pF
- Low distortion in switches and attenuators
- Metallurgical bond
- Sealed in glass
- Thermally matched construction

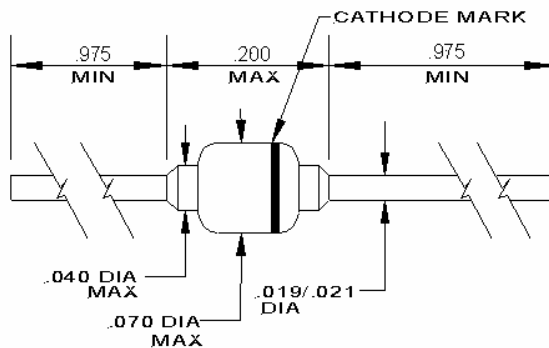
**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

### ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)

Reverse Voltage	
$V_R$ ( $I_R = 10 \mu A$ )	100 V
Average Power Dissipation: (25 °C)	
Free Air ( $P_A$ )	400 mW (Derate linearly to 175 °C)
Operating and Storage	
Temperature Range	-65 °C to +175 °C

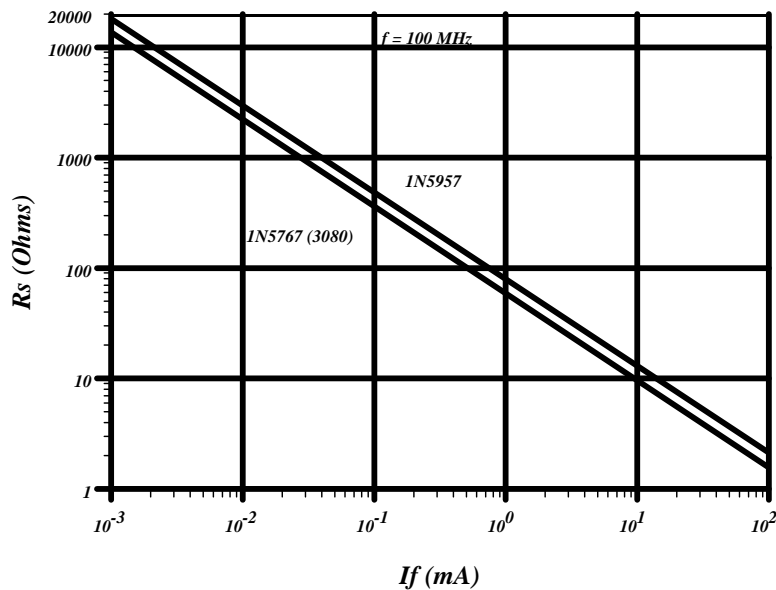
### APPLICATIONS/BENEFITS

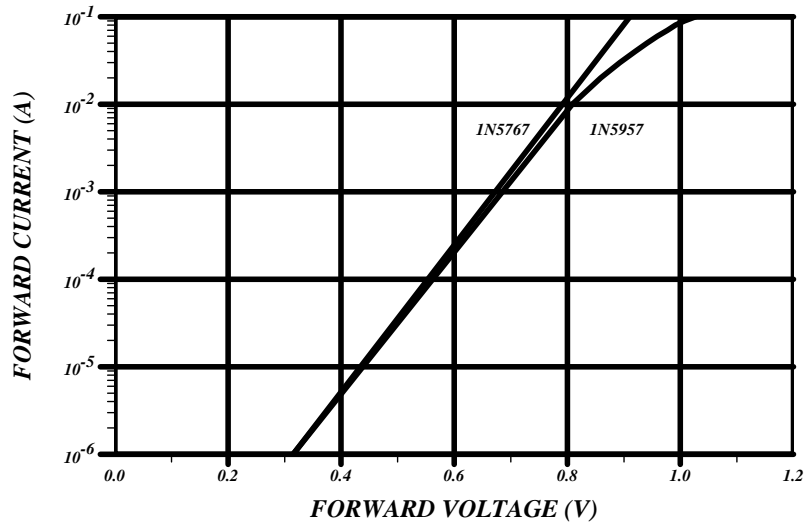
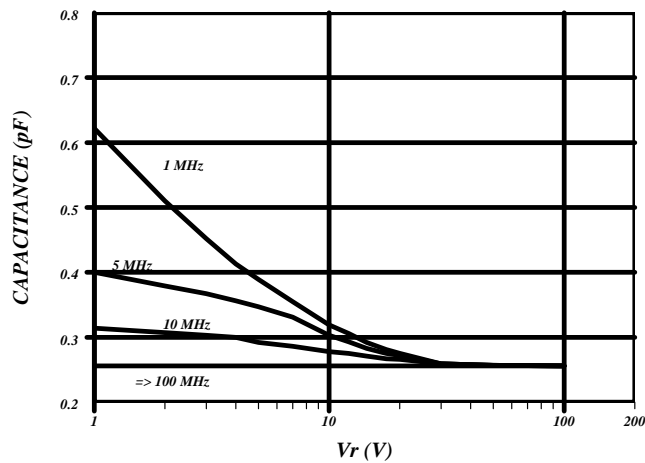
- Surface mount package available
- RoHS compliant packaging available



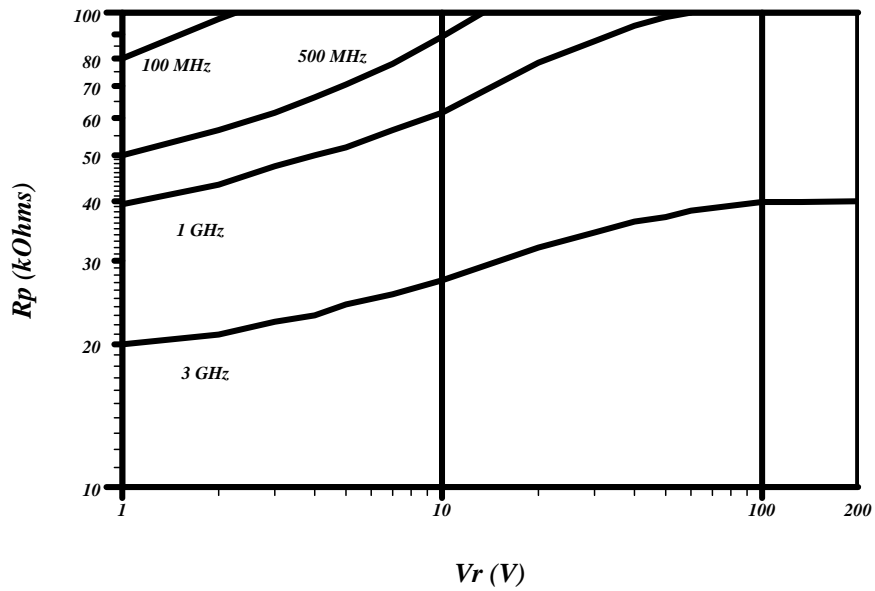
Parameter	Symbol	Conditions	1N5767	1N5957	Units
Total Capacitance (Max)	$C_T$	$V_R=100V, F=1\text{ MHz}$	0.4	0.4	pF
Series Resistance	$R_S$	$I_f = 10\ \mu A, F=100\text{ MHz}$	1000 $\Omega$ (min) 2000 $\Omega$ (typ)	1500 $\Omega$ (min) 3000 $\Omega$ (typ)	Ohms
Series Resistance	$R_S$	$I_f = 20\text{ mA}, F=100\text{ MHz}$	8 $\Omega$ (max) 4 $\Omega$ (typ)	8 $\Omega$ (max) 6 $\Omega$ (typ)	Ohms
Series Resistance	$R_S$	$I_f = 100\text{ mA}, f=100\text{ MHz}$	2.5 $\Omega$ (max) 1.5 $\Omega$ (typ)	3.5 $\Omega$ (max) 2.0 $\Omega$ (typ)	Ohms
Carrier Lifetime	$\tau$	$I_F = 10\text{ mA}$	1.0(min)	1.5(min) 2.0(typ)	$\mu s$
Reverse Current	$I_R$	$V_R = \text{Voltage rating}$	10(max)	10(max)	$\mu A$
Current for $R_s = 75\Omega$	$I_{75}$	$R_s = 75\Omega$	0.7	0.8 – 1.2	mA
Return Loss	-	Diode terminates 75 $\Omega$ line	30(typ)	30(typ)	dB
Second Order Distortion	-	Bridged tee attenuator Attenuation = 10 dB	-40(typ)	-50(typ)	dB
Third Order Distortion	-	$P_{in} = 50\text{ dBm}$ $F1 = 10\text{ MHz}$ $F2 = 13\text{ MHz}$	-60(typ)	-65(typ)	dB

***$R_s$  versus  $I_f$***   
**TYPICAL**



**FORWARD VOLTAGE versus CURRENT**

 **$C_t$  versus  $V_r$   
TYPICAL**


*PARALLEL RESISTANCE versus REVERSE VOLTAGE  
TYPICAL*





**1N5767 (5082-3080) SERIES**

**1N5957SERIES**

**NOTES:**