

# PIN DIODE

1N5767 (5082 - 3080) SERIES  
1N5957 SERIES

## Features

- Useful attenuation from 1  $\mu\text{A}$  to 100 mA bias.
- Capacitance below 0.4 pF.
- Low distortion in switches and attenuators.
- Rugged Microsemi construction.

## Description

The 1N5767 and 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 75 $\Omega$  attenuator, commonly employed in CATV systems.

## MAXIMUM RATINGS

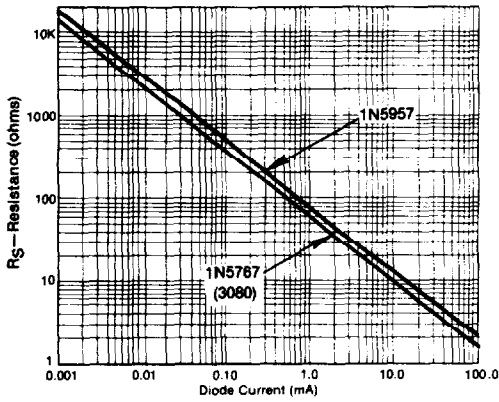
Reverse Voltage ( $V_R$ ) — Volts ( $I_R = 10 \mu\text{A}$ )	100V
Average Power Dissipation: (25 °C) Free Air ( $P_A$ )	400 mW (Derate linearly to 175 °C)
Operating and Storage Temperature Range	- 65 °C to + 175 °C

Electrical Specifications (25 °C)

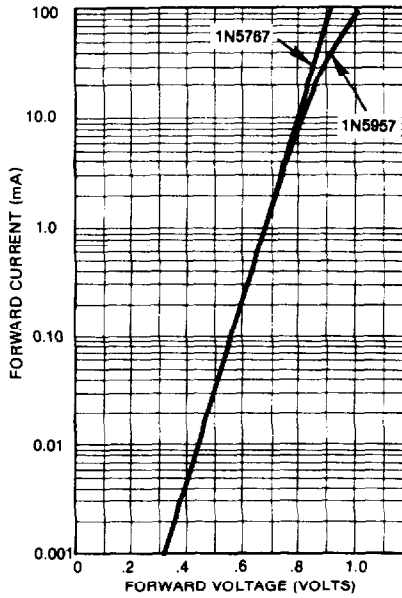
Test	Symbol	1N5767 (5082-3080)	1N5957	Conditions
Total Capacitance (Max)	$C_T$	0.4 pF	0.4 pF	50V, 1 MHz
Series Resistance	$R_S$	1000 $\Omega$ (min) 2000 $\Omega$ (typ)	1500 $\Omega$ (min) 3000 $\Omega$ (typ)	10 $\mu$ A, 100 MHz
Series Resistance	$R_S$	8 $\Omega$ (max) 4 $\Omega$ (typ)	8 $\Omega$ (max) 6 $\Omega$ (typ)	20 mA, 100 MHz
Series Resistance	$R_S$	2.5 $\Omega$ (max) 1.5 $\Omega$ (typ)	3.5 $\Omega$ (max) 2.0 $\Omega$ (typ)	100 mA, 100 MHz
Carrier Lifetime (Min)	$\tau$	1.0 $\mu$ S	1.5(min) 2(typ)	$I_F = 10$ mA
Reverse Current (Max)	$I_R$	10 $\mu$ A	10 $\mu$ A	$V_R =$ Rating
Current for $R_S = 75\Omega$ (typ)	$I_{75}$	0.7 mA	0.8 mA - 1.2 mA	$R_S = 75\Omega$
Return Loss (typ)	—	30 dB	30 dB	Diode terminates 75 $\Omega$ line
Second Order Distortion (typ)	—	-40 dB	-50 dB	Bridged tee attenuator atten. = 10 dB
Third Order Distortion (typ)	—	-60 dB	-65 dB	$P_{in} = 50$ dBmV $f_1 = 10$ MHz, $f_2 = 13$ MHz

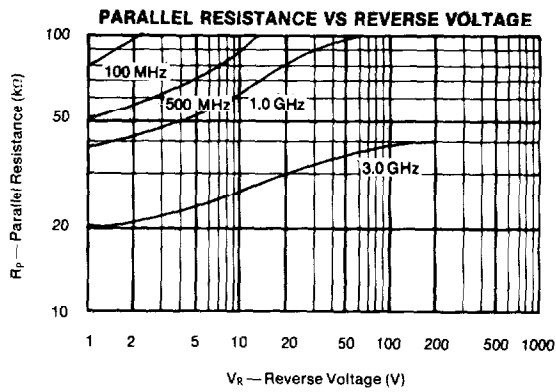
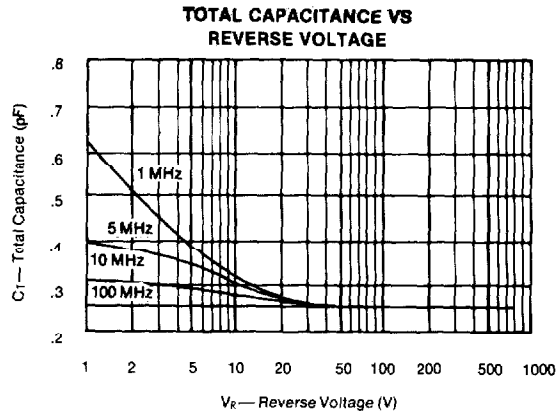
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RESISTANCE  
VS FORWARD CURRENT  
(TYPICAL)

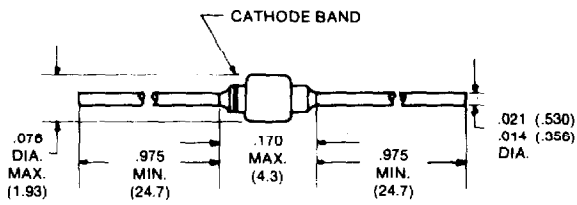


FORWARD VOLTAGE  
VS FORWARD CURRENT  
(TYPICAL)





**MECHANICAL SPECIFICATIONS**



**Dimensions: Inches (Millimeters)**