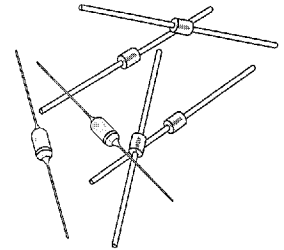


# Low Thermal Resistance, High Power Double Slug PIN Diodes

LTR1701, LTR1702, LTR1704 Series

## Features

- Hermetically Sealed
- 0.6 nH Inductance
- 500 Volt Breakdown
- 1.0 to 2.0 pF Capacitance
- 0.25 Ohm Series Resistance
- 2.5 Watt Power Dissipation
- Low Reverse Loss



## Maximum Ratings

Operating Temperature:	125 °C
Storage Temperature:	-55 to 150 °C
Power Dissipation (Axial Leads 0.125" long):	Derate Linearly to 0 @ 150 °C

## Description

This series of PIN diodes features passivated PIN chips compression bonded between two Tungsten slugs for improved heat transfer. The assembly is sealed with a sleeve of high temperature glass for hermeticity and mechanical strength. The full area bonding eliminates the parasitic inductance of a bonding strap, and produces maximum heat transfer through the chip to the high thermal conductivity Tungsten slugs. The axial leads are 88% copper for maximum heat transfer to the circuit boards.

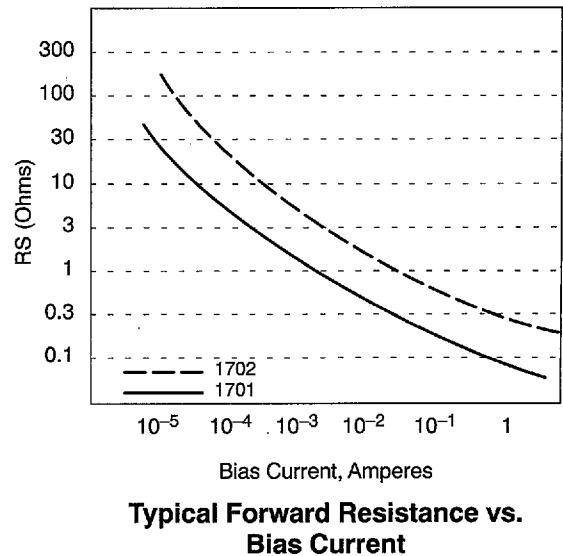
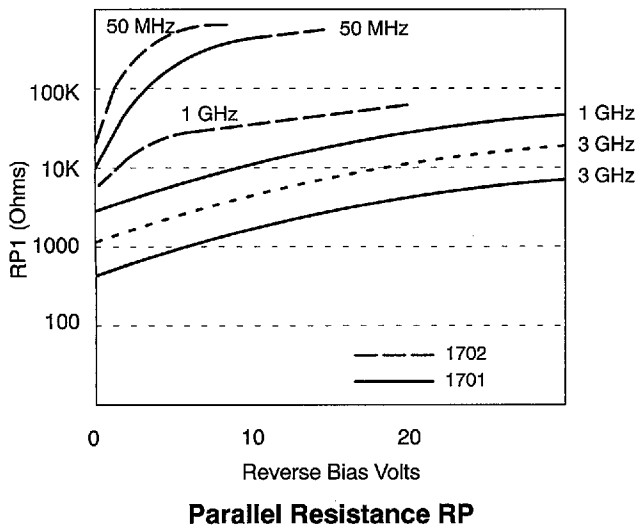
These diodes have a wide application in switches, especially antenna TR switches, phase shifters and attenuators or gain control sockets. Their relatively thick I region and long lifetime provide low harmonic and intermodulation performance in the HF band. The high breakdown voltage permits operation at high peak power, and the low thermal resistance and low series resistance allow high peak and an average power operation. Insertion loss is excellent at high temperatures. Typical values at 100 °C are 5K  $\Omega$  at zero bias, 14K  $\Omega$  at -10 volts, all at 0 dBm input power.

### Electrical Specifications

Part Number	$V_B$ @ $I_R = 10 \mu A$ (min)	$C_T$ @ 50V, 1 MHz (max)	$R_S$ @ 100 mA, 100 MHz (max)	$R_S$ (typ) @ 1 mA	$T_L$ @10 mA forward, 6 mA reverse 50% recovery $\mu sec$	Outline Drawing Number
LTR1701-01	100	2.0	0.25	2.0	3.0	502-001
LTR1701-02	300	2.0	0.25	2.0	3.0	502-001
LTR1701-03	500	2.0	0.25	2.0	3.0	502-001
LTR1702-01	100	2.0	0.35	4.0	2.5	502-001
LTR1702-02	300	2.0	0.35	4.0	2.5	502-001
LTR1702-03	500	2.0	0.35	4.0	2.5	502-001
LTR1704-01	100	0.75	0.50	9-11	3.0	502-001
LTR1704-02	300	0.75	0.50	9-11	3.0	502-001
LTR1704-03	500	0.75	0.50	9-11	3.0	502-001

### Performance Data

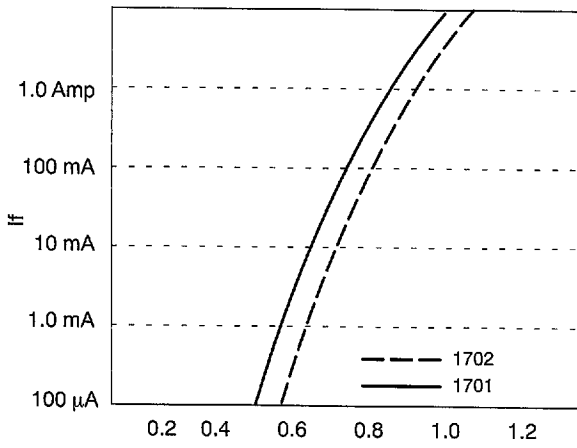
#### LTR1701 and LTR1702 Series



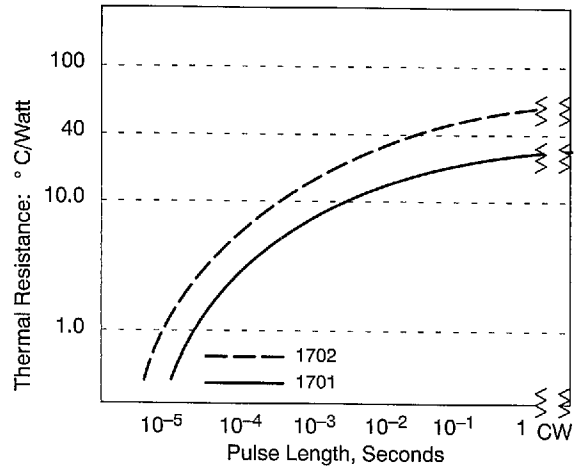
0585443 0002733 092

### Performance Data (continued)

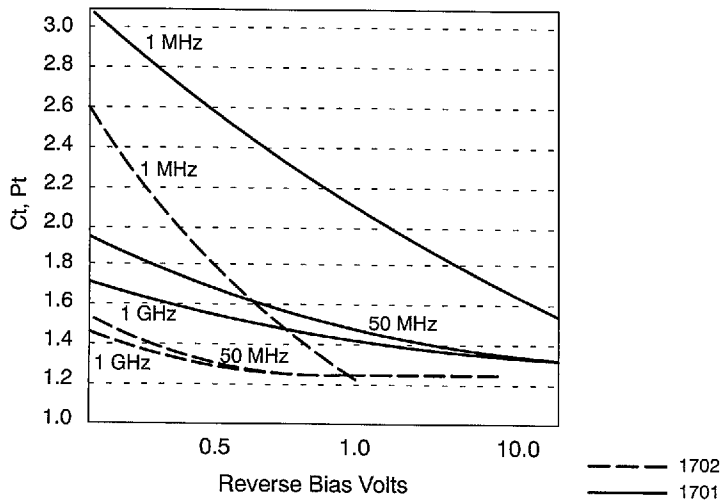
#### LTR1701 and LTR1702 Series



Typical DC Characteristics



Thermal Resistance



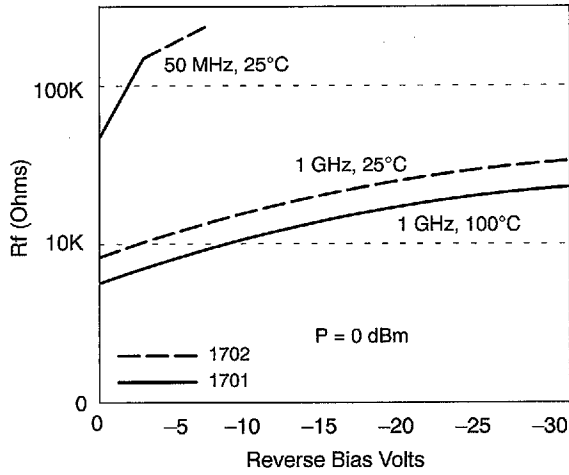
Typical Capacitance Voltage Variation

6

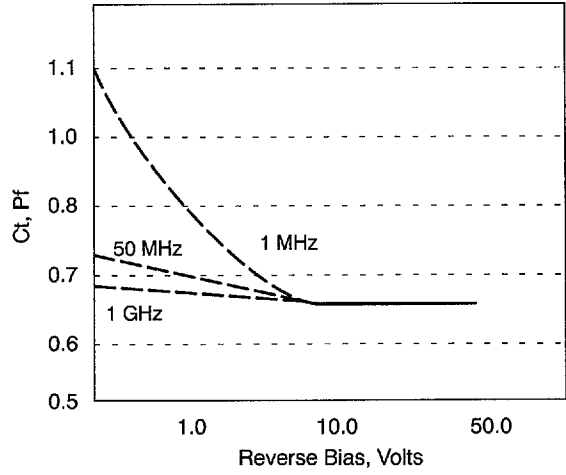
0585443 0002734 T29

**Performance Data (continued)**

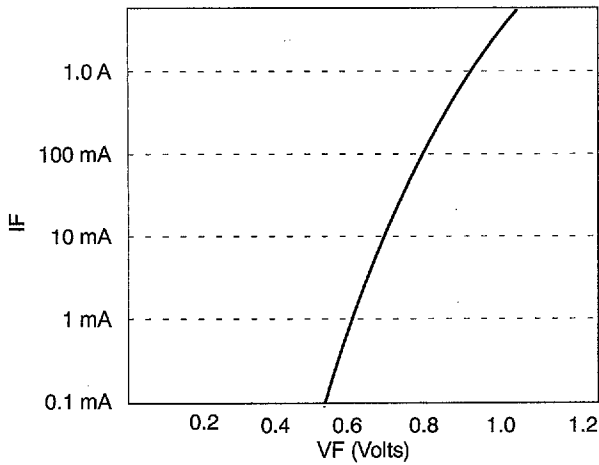
**LTR1704 Series**



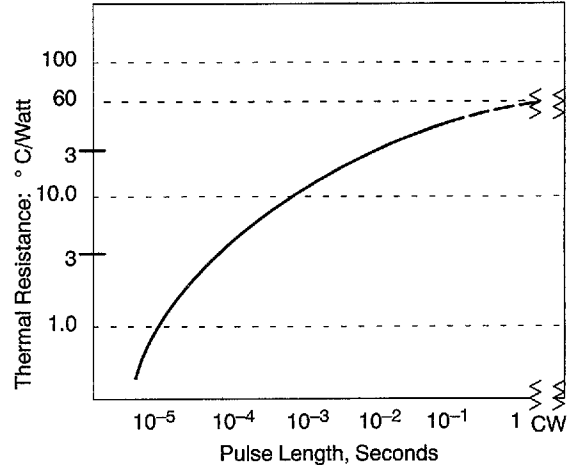
**Parallel Resistance RP**



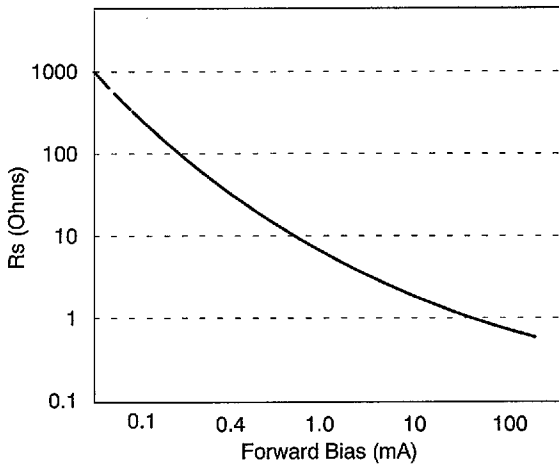
**Typical Capacitance**



**DC Characteristics**



**Thermal Resistance  
Axial Leads 1/8" Long**



**Series Resistance (100 MHz)**

Harmonic Data 90 MHz Input			
Circuit Mode	Bias	Power Input	2 f <sup>01</sup>
Series	20 mA	15W	-85 dBc
Shunt	-40 Volts	30W	-70 dBc
Shunt	0	100 mW	-75 dBc

1. Second harmonic tabulated; all others lower.  
Typically, second order IHM is 6 dB above second harmonic

# RF GaAs MMIC Products in Metal Packages

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