

# Modular Biased Schottky Detectors

## 7709J Series

V2.00

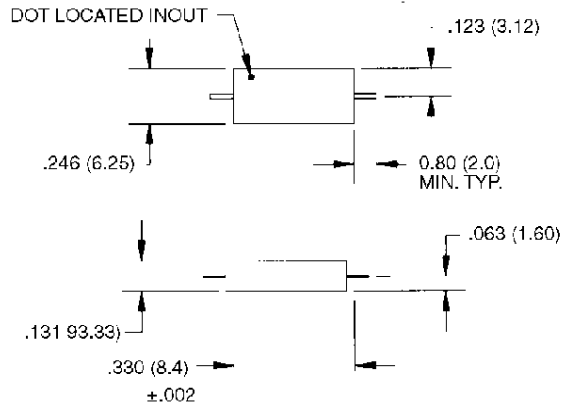
### Description

The 7709J series provides a minimized, hermetically sealable, 50 ohm module designed especially for TEM stripline and microstrip media. These detectors are ideal components for dense packaging requirements.

The usable input power range is from  $T_{SS}$  to +20 dBm. Square law response is from  $T_{SS}$  to approximately -15 dBm, linear range is between -15 dBm and approximately +6 dBm with saturation through +20 dBm and burnout occurring beyond +23 dBm. Extension/shift of the square law and linear regions is accomplished with multiple diode circuits, available on special order.

The high sensitivity (K) and RF power handling of these detectors makes them particularly useful in signal processing and RF power monitors in receivers, exciters, radar, guidance and broadband countermeasure equipment.

### Mechanical Outline (Top View)



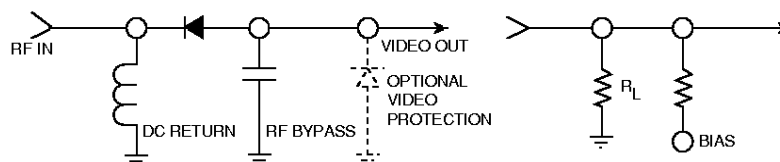
Leads are .012 (.31) diameter (std.)  
 ±.010 ±.002  
 May be supplied as tabs: .025 (.64) Wide, .006 (.15) Thick (opt.)  
 Contact factory.

### Specifications\*

Frequency Range (GHz)	Voltage <sup>2</sup> Sensitivity (K) Min. (mV/mW)	Flatness Max. (dB)	$T_{SS}$ <sup>3</sup> Typ. (-dBm)	RF Bypass Capacitance Typ. (pF)	Rise <sup>4</sup> Time Typ. (ns)	Video <sup>5</sup> Resistance Typ. (Ohms)	Part Number <sup>1</sup>
0.1-2.0	1700	±0.7	51	100	50	300	7709J-0020
2.0-8.0	1900	±0.6	51	20	15	300	7709J-0021
8.0-18.0	2000	±1.0	51	12	10	300	7709J-0022
2.0-18.0	1800	±1.5	51	20	15	300	7709J-0023

#### Notes:

- Detectors are normally supplied with negative (-) output voltage polarity, referenced to case ground. Positive (+) output polarity is available for most parts.
  - Minimum open circuit voltage sensitivity (K) in mV/mW is measured with 100 microamps forward bias applied via video port, with -20 dBm RF input power into 30K ohm, external video load resistance ( $R_L$ ).
  - Tangential signal sensitivity ( $T_{SS}$ ) is measured using a video amplifier restricted to 2 MHz bandwidth and having a noise contribution of 3 dB maximum.
  - Pulse rise time ( $t_r$ ) in nanoseconds, is measured into an external load ( $R_L$ ) of 1.0 K ohms with 12 picofarads in parallel, and 100 microamps bias applied.
  - Video resistance is measured at -20 dBm with 100,  $\mu$ A bias.
  - Video protection against ESD and transients is available. One or more shunt diodes clamp any reverse voltages present at video output port. RF input is generally protected via dc return.
- \* Performance curves can be found at the end of the Detector section.



Manufactured in USA. European manufactured version also available. Contact your local M/A-COM Sales Representative.

Specifications Subject to Change Without Notice.

M/A-COM, Inc.

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