

# Biased Schottky Limiter Detectors with Removable Connectors

## 7715D Series

### Description

The 7715D series provides the convenience and durability of a connector housing plus user-option to easily convert into a circuit-ready, drop-in module. Test and evaluation can be made via connectors and subsequent screwdriver removal produces solder-in detectors with consistent performance. Packages are hermetically sealable and are minimum possible size and weight available with this option.

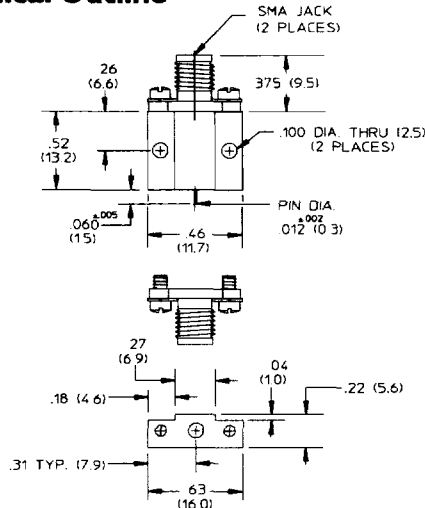
The usable RF input power range is from  $T_{SS}$  to +10 dBm, which includes both square law and linear regions for the biased Schottky detector. Power levels greater than +10 dBm up to +30 dBm, CW and +50 dBm pulsed (1.0 microsecond, .1% duty cycle) are reflected back to the source by the shunt limiter.

Below limiting, these detectors perform much the same as the 7709 series, with square law region from  $T_{SS}$  to approximately -15 dBm and linear region from -15 dBm through approximately +6 dBm. Some shift/extension of these ranges may be achieved with multiple diode circuits, available on special order.

The high sensitivity (K) and RF power handling of these detectors make them particularly useful in signal processing, RF power monitors, pulse detection, and AGC or leveling loops.



### Mechanical Outline



### 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	1800	±0.5	51	100	50	300	7715D-0020
2.0-8.0	2000	±0.6	51	20	15	300	7715D-0021
8.0-18.0	1800	±1.0	51	12	10	300	7715D-0022
2.0-18.0	1800	±1.5	51	20	15	300	7715D-0023

#### Notes:

- Detectors are normally supplied with negative (-) output voltage polarity, referenced to case ground. Positive (+) output polarity is available for most parts. To designate, add suffix "P" to end of part numbers.
  - 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, non-limiting is measured into an external load ( $R_L$ ) of 1.0K ohms with 12 picofarads in parallel and 100 microamps bias applied through 30K ohm resistor.
  - Video resistance is measured at -20dBm.
  - Video protection against ESD and transients is available. One or more shunt diodes clamp any reverse voltages present at video output port.
- \* Performance curves can be found at the end of the Detector section.

