Zero Biased Waveguide Detectors
18-110 GHz

4 (WG) 720 Series

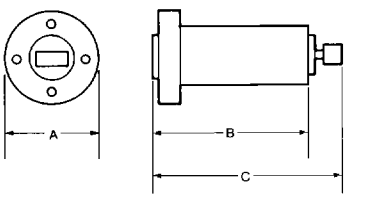
Features

- High Output Sensitivity
- Full Bandwidth Coverage
- Beam Lead Diodes
- High Reliability
- Compact Package

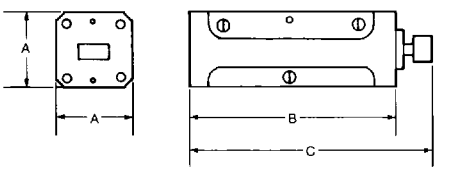
Description

These zero biased detectors are low cost units available in seven bands from 18 to 110 GHz. The high sensitivity of these full waveguide bandwidth detectors makes them ideally suited for signal monitoring and detecting of broad band receiving systems, missile guidance systems, communications systems and radar equipment. In addition, these detectors are used extensively in millimeter wave test set-ups to detect, monitor and measure CW or modulated signals.

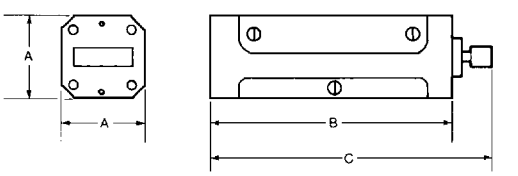
The rugged beam lead diode developed by M/A-COM for use in the millimeter frequency bands is employed as the detecting element. Options include narrow band and hermetically sealed units.



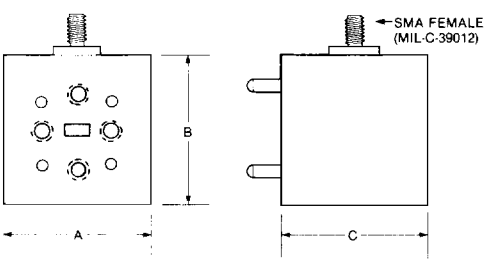
MODEL WR-19 & MODEL WR-22



MODEL WR-28



MODEL WR-42



MODEL WR-15 & MODEL WR-10

Mechanical Specifications

Waveguide		WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
RF Mating Flange MIL-F-3922/		54-001-M	68-001	67B-006	67B-007	67B-008	67B-009	67B-010
UG Reference		595/U	599/U	383/U	383/U-M	385/U	387/U	387/U-M
Dim. Inches (mm)	A	0.87 (22.2)	0.75 (19.1)	1.12 (28.6)	1.12 (28.6)	0.75 (19.1)	0.75 (19.1)	0.75 (19.1)
	B	2.25 (57.2)	2.03 (51.6)	1.50 (39.8)	1.50 (39.8)	0.75 (19.1)	0.75 (19.1)	0.75 (19.1)
	C	2.62 (66.5)	2.41 (61.2)	1.88 (47.8)	1.88 (47.8)	1.10 (27.9)	1.10 (27.9)	1.10 (27.9)
Output Connector		SMA Female						
Operating Temp.		0°C to + 60°C						

Specifications Subject to Change Without Notice.

Specifications 25°C

Waveguide	Frequency (GHz)	Voltage Sensitivity[3] (mV/mW Min.)	Flatness (dB Max.)	VSWR (Max.)	Input Power (mW Max.)	Model No.[1]
WR-42	18-26.5	600	±2.0	3.0	50	4-42-720-XX
WR-28	26.5-40	400	±2.0	3.0	50	4-28-720-XX
WR-22	33-50	300	±2.0	3.0	50	4-22-720-XX
WR-19	40-60	250	±2.0	3.0	50	4-19-720-XX
WR-15	50-75	200	±2.0	3.0	50	4-15-720-XX
WR-12	60-90	150	±2.5	3.0	50	4-12-720-XX
WR-10	75-95	125[2]	±2.5	3.0	50	4-10-720-XX

Notes:

1. Replace "XX" in the model number with 01 for positive output and 02 for negative output
2. 80 mV/mW min. from 95-110 GHz.
3. Into a 1 megohm video load.

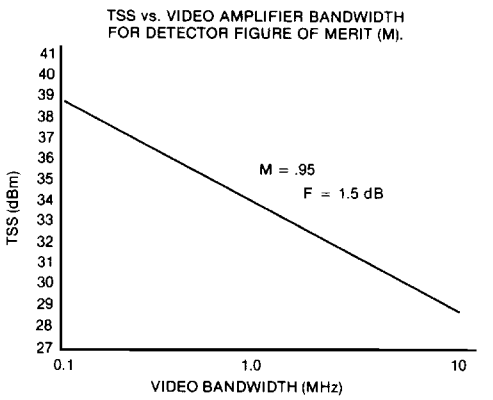
   The voltage sensitivity (γ) of a detector is the ratio of the open circuit video signal voltage to the RF input power.

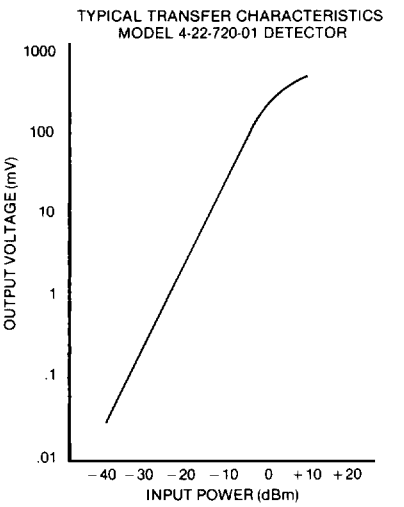
$$\gamma = \frac{Vocv}{Pin}$$

Where: Vocv = open circuit video voltage (1 megohm load)
Pin = RF power incident on the detector

Voltage sensitivity is usually expressed in units of millivolts per milliwatt. To assure that the detector diode is in the square law range, voltage sensitivity is usually measured at -20 to -30 dBm .

Typical Performance





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