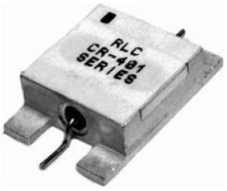
Miniature Surface Mount Schottky Detectors



RLC Electronics' miniature surface mount detectors utilize a zero-bias Schottky design. The microwave power is coupled directly to the extremely small components reducing package parasitics and transition mismatches. This design results in a low VSWR and a flat, smooth output over a wide bandwidth. Standard unit has frequency range of .01 to 4 GHz, with option of negative or positive output. A higher frequency option is available up to 12.4 GHz.

Specifications

CR^{-1-2}

Frequency Range	.01-4 GHz	.01-12.4 GHz (Option-12)
Frequency Response (Max) **.01-4 GHz** **.01-12.4 GHz**	+/-0.3 dB -----	+/-0.3 dB +/-0.5 dB
VSWR (Max) **.01-4 GHz** **4-12.4 GHz**	1.30 -----	1.30 1.70
Typical Sensitivity **(Pin< - 30 dBm)**	0.5 mV/uW	0.5 mV/uW

Input Power: 100 mW maximum (peak or average)
Video resistance: 5000 ohms nominal
Input/Output Connections: .018 diameter pins

Temperature Range: -55 C to +100 C
Bias: None

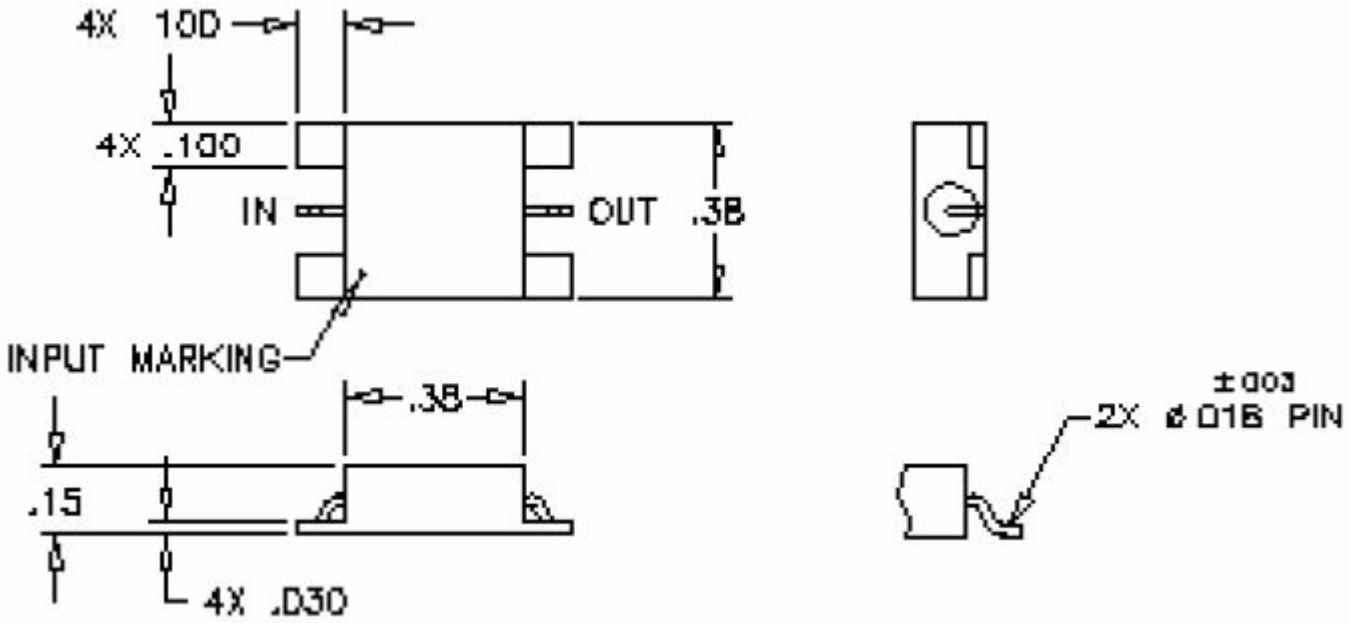
To designate the detector desired use:

1: 401 for negative output, 402 for positive output

2: -12 for 12.4 GHz option

Example: CR-401-12 is a .01-12.4 GHz, negative output detector.

Outline Drawing



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Broadband Schottky and Tunnel Diode Detectors

RLC Electronics' Zero Bias Detectors are designed for use in coaxial systems in the measurement of relative microwave power up to 100 mW over the frequency range of 10 MHz to 18.0 GHz. The design assures flat frequency response combined with high sensitivity. Options available include negative output polarity, positive output polarity, matched pairs, and Square Law response.

Schottly Diode Specifications

Model No.	CR133	CR183
Frequency Range: (MHz)	10 12,400	10 18,000
Frequency Response: *	±0.2 dB/octave to 8 GHz ±0.5 dB/full range	±0.2dB/octave to 8 GHz ±0.5dB to 12.4 GHz ±1.0dB to 18 GHz
Sensitivity: (Typ.) High Low	100 mV output at 0.35 mW 0.4 mV output/uW	
Power: (Max.)	100 mW (peak or average)	
Output Impedance	15k ohms max. shunted to 10 pf	
VSWR: 10 MHz to 4.5 GHz 4.5 GHz to 7.0 GHz 7.0 GHz to 12.4 GHz 12.4 GHz to 18 GHz	1.20 max. 1.35 max. 1.50 max. 1.70 max.	
Polarity:	Negative	

Options

Model No.	Feature
CR133M CR183M	**Matched pair of CR-133's or CR183's** Tracking (Max.): ±0.2 dB to 8 GHz ±0.3 dB from 8 to 12.4 GHz ±0.5 dB from 12.4 to 18 GHz
CR134 CR184	**CR133 or CR183** With positive output polarity
CR135 CR185	**CR133 or CR183** With Square Law load ±0.5 dB max. variation from Square Law up to 50 mV output into 75k min. Sensitivity (Min.): 0.1 mV DC/uWcw

*Note: Frequency Response measured on Square Law measuring device.

Environment: MILE5400, Class 1A

Connectors: Input `SMA' male; or Type `N' for CR133 only. Output Type `BNC' female

To designate the detector desired use:

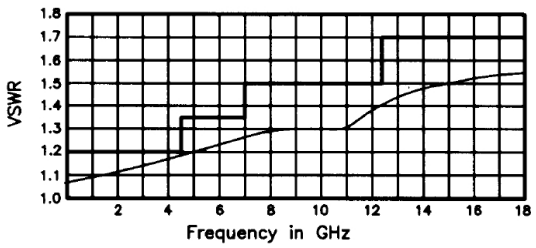
1: 133, 133m, 134, etc. for Model No.

2: N for type `N', R for `SMA' input connector

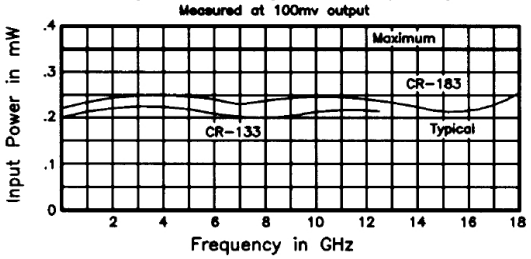
Example: CR-133-N is a CR-133 with a `N' male input connector

Typical Operating Curves

VSWR Vs. Frequency



High Sensitivity Vs. Frequency



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Tunnel Diode Specifications

CRT^{-1-2}

Model No.	Frequency Range (GHz)	Frequency Response (dB Max.)	VSWR (Max.)	Output (mV Min.)	DC blocks	Power (Max.)	Polarity
CRT218	2 18	±1.0	3.5:1	1.8	Not Available	100 mW	Negative
CRT625	5.8 6.7	±.15	2.0:1	2.0	Optional		
CRT1425	13.7 14.8	±.20	2.0:1	2.0	Optional		
CRT1785	17.3 18.4	±.25	2.0:1	2.0	Optional		

Note: Specifications are for 20dBm input and 51 ohm video load.

Video Resistance: 80 ohms nominal
Temperature Sensitivity: .005 dB/C

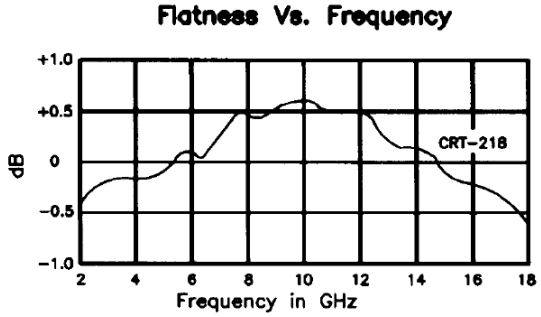
Connectors: Input `SMA' male
Output `SMA' female

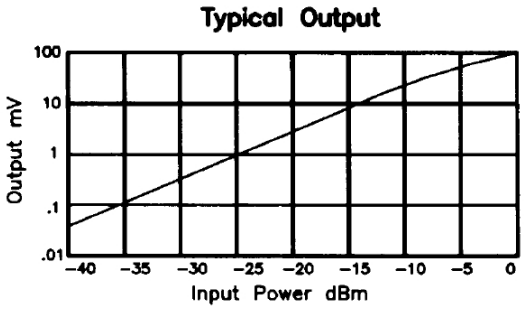
To designate the detector desired use:

1: 218, 625, 1425, 1785 for Model No. **2:** `I' for inner DC block, `IO' for optional inner & outer DC block

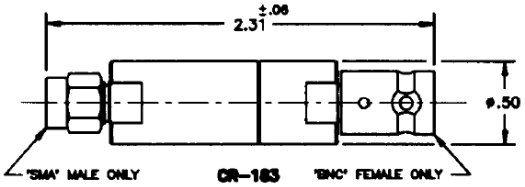
Example: CRT625IO is a 5.86.7 GHz detector with inner and outer DC blocks

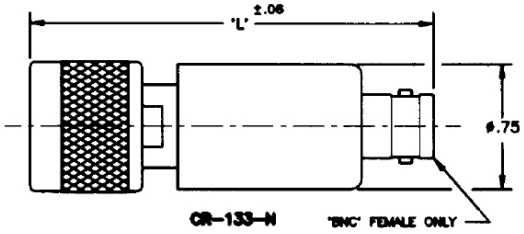
Typical Operating Curves
CRT Series



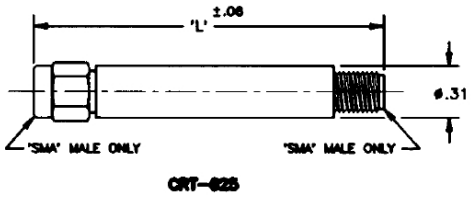


Outline Drawing





MODEL No.	'L'
CR−133−N	2.41
CR−133−R	2.21



MODEL No.	'L'
CRT−218	1.22
CRT−625, 1425, 1785	2.06

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Miniature Ultra-Flat Schottky Detectors

RLC Electronics' miniature ultra-flat detectors utilize a zero-bias Schottky design. The microwave power is coupled directly to the extremely small components reducing package parasitics and transition mismatches. This design results in a very low VSWR and a flat, smooth output over a wide bandwidth. Options available include negative or positive output, a choice of three output connectors and operation to 26.5, 40 GHz or 43.5-45.5 GHz.

Specifications

CR-1-2-3

Frequency Range	.01-18.5GHz CR-301, 302	.01-26.5 GHz (Option-26)	.01-40 GHz (Option-40)	43.5-45.5 GHz CR-455, CR-456
Frequency Response (Max) .01-18 GHz .01-26.5 GHz .01-40 GHz GHz	 +/-0.5 dB ----- ----- ----- -----	 +/-0.5 dB +/-1 dB ----- -----	 +/-0.5 dB +/-1.0 dB +/-1.5 dB	 +/-.5 dB +/-.5 dB +/-.5 dB
VSWR (Max) .01-12.4 GHz 12.4-18.5 GHz 18.5-26.5 GHz 26.5-40 GHz	 1.25 1.50 ----- ----- ----- -----	 1.25 1.5 2.0 -----	 1.25 1.5 2.00 2.00	 2.0 2.0 2.0 2.0
Typical Sensitivity (Pin< - 30 dBm)	0.5 mV/uW	0.5 mV/uW	0.5 mV/uW	0.4 mV/uW

Input Power: 100 mW maximum (peak or average)
Video Resistance: 5000 ohms nominal
Bias: None

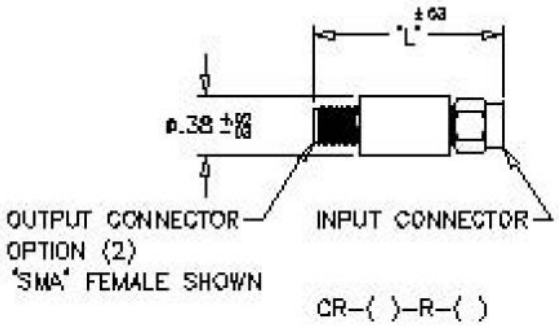
Input Connector Type: 'SMA' male, except 2.92mm for -40 option, and 2.4mm for CR-455,456
Temperature Range: -55 deg C to +100 deg C

To designate the detector desired use:

1: 301 or 455 for negative output 302 or 456 for positive output
2: Output connector: R for `SMA' female B for `BNC' female S for `SMC' jack
3: 26 for 26.5 GHz option, 40 for 40 GHz option (CR-301/302 only)

Example: CR-301-R-26 is a .01-26.5 GHz, negative output detector with a `SMA' female output connector.

Outline Drawing



OUTPUT CONNECTOR	OPTION (2)	'L'
'SMA' FEMALE	R	1.30
'BNC' FEMALE	B	1.56
'SMC' JACK	S	1.28

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