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.

Schottky Diode Specifications

Model No.	CR–133	CR–183
Frequency Range: (MHz)	10 – 12,400	10 – 18,000
Frequency Response: *	±0.2 dB/octave to 8 GHz ±0.5 dB/full range	±0.2/octave to 8 GHz ±0.5 to 12.4 GHz ±1.0 to 18 GHz
Sensitivity: (Typ.) High	100 mV output at 0.35 mW	
Low	0.4 mV output/uW	
Power: (Max.)	100 mV (peak or average)	
Output Impedance	15k ohms max. shunted to 10 pf	
VSWR: 10 MHz to 4.5 GHz	1.20 max.	
4.5 GHz to 7.0 GHz	1.35 max.	
7.0 GHz to 12.4 GHz	1.50 max.	
12.4 GHz to 18 GHz	1.70 max.	
Polarity:	Negative	

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

Options

Model No.	Feature
CR–133M **CR–183M**	**Matched pair of CR–133's or CR–183'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
CR–134 **CR–184**	**CR–133 or CR–183** With positive output polarity
CR–135 **CR–185**	**CR–133 or CR–183** 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

Environment: MIL–E–5400, Class 1A

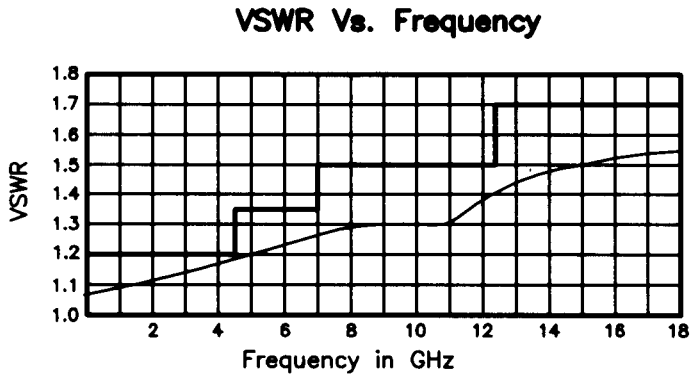
Connectors: Input – 'SMA' male; or Type 'N' for CR–133 only. Output – Type 'BNC' female

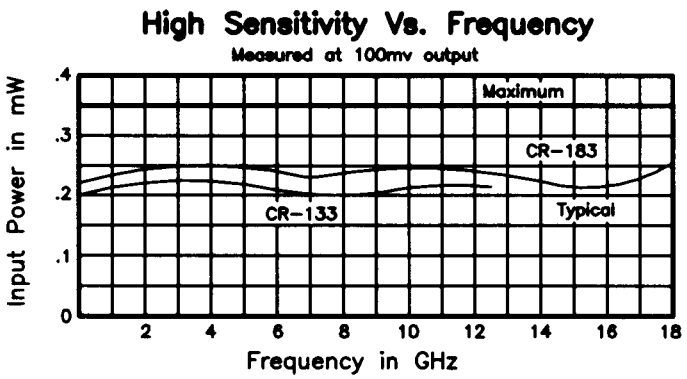
To designate the detector desired use:

(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' mate input connector

Typical Operating Curves





RLC ELECTRONICS, INC.

83 Radio Circle, Mount Kisco, New York 10549 • Telephone: 914-241-1334 • Fax: 914-241-1753
e-mail: sales@rlcelectronics.com • www.rlcelectronics.com

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
CRT–218	2 – 18	±1.0	3.5:1	1.8	Not Available	100 mW	Negative
CRT–625	5.8 – 6.7	±.15	2.0:1	2.0	Optional		
CRT–1425	13.7 – 14.8	±.20	2.0:1	2.0	Optional		
CRT–1785	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

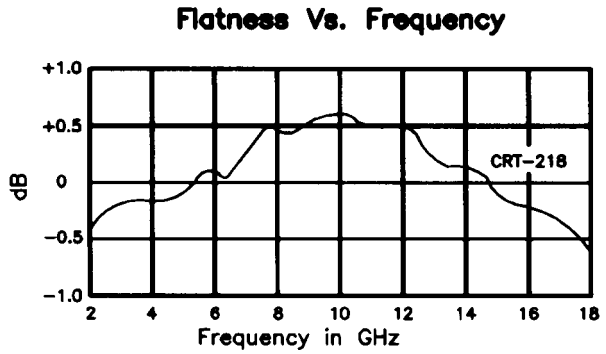
To designate the detector desired use:

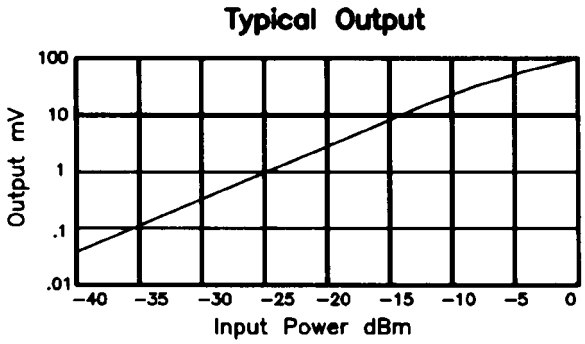
(1) 218, 625, 1425, 1785 for Model No.

(2) 'I' for inner DC block
'IO' for optional inner & outer DC block

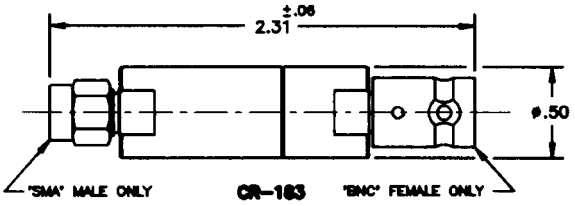
Example: CRT–625–IO is a 5.8–6.7 GHz detector with inner and outer DC blocks

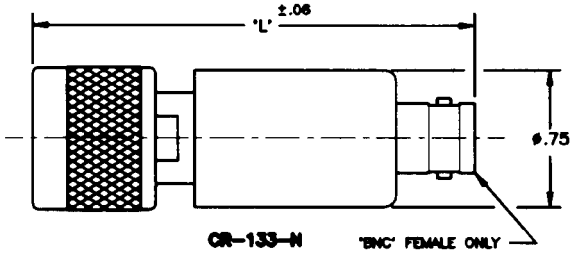
Typical Operating Curves



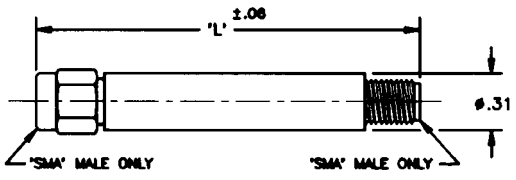


Outline Drawing





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

Tolerances unless otherwise specified are .xx ±.02, .xxx ±.005

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