Agilent 33330B/8472B Coaxial Detectors DC to 18 GHz

Technical Overview

Key Features

- Excellent broadband flatness
- Low broadband SWR
- High burnout protection
- Environmentally rugged

The Agilent Technologies 33330B/8472B broadband coaxial detectors are widely used in applications such as the detecting element in leveling loops, power monitoring, and as wideband video detectors.

These detectors use a Low-Barrier Schottky Diode (LBSD), specially fabricated with low origin resistance and low junction capacitance. This results in improved broadband flatness and SWR over point-contact diode detectors, thus yielding more accurate measurements. These detectors also offer very good ruggedness and burnout protection.

As with all Agilent detectors, these models integrate the diode with the other circuit elements thus minimizing stray reactance's and optimizing broadband performance.

In addition to superior RF characteristics, the LBS detector offers significant advantages over other types of detectors. For example, a typical Schottky requires bias for proper operation; a tunnel diode detector has a limited power range because of its negative resistance region; and the point contact diode, because of its fragile construction, is unsuitable for many field applications.

Specifications[1]

Specifications describe the product's warranted performance. Supplemental and typical characteristics are intended to provide typical but non-warranted performance parameters. These are denoted as "typical", "nominal" or "approximate".

Model number	33330B	8472B
Frequency range	0.01 to 18 GHz	0.01 to 18 GHz
Frequency response[2] Octave band flatness Broadband flatness	 ±0.2 dB over any octave to 8 GHz ±0.3 dB to 12.4 GHz ±0.6 dB to 18 GHz	 ±0.2 dB over any octave to 8 GHz ±0.3 dB to 12.4 GHz ±0.5 dB to 15 GHz ±0.6 dB to 18 GHz
SWR	1.20[3] to 4 GHz 1.50[3] to 18 GHz	1.20 to 4.5 GHz 1.35 to 7 GHz 1.50 to 12.4 GHz 1.70 to 18 GHz
Sensitivity	> 0.5 mV/µW	> 0.5 mV/µW
Maximum operating input	200 mW	200 mW
Typical short-term maximum input (less than 1 minute)	*1 W*	*1 W*
Noise (µV peak to peak with CW power applied to produce 100 mV output)	< 50 µV	< 50 µV
Output polarity	Negative (default Option 301) Positive (Option 003)	Negative (default Option 301) Positive (Option 003)
Video impedance	1.3 kΩ	1.3 kΩ
RF bypass capacitor	30 pF	50 pF
Input connector	3.5 mm (m)	SMA (m)
Output connector	SMC (m)	BNC (f) (default Option 101) OSSM (f) (Option 100)
Option 001: Matched response[4]	±0.2 dB to 12.4 GHz ±0.3 dB to 18 GHz	±0.2 dB to 12.4 GHz ±0.3 dB to 18 GHz

1. *Measured at 25 °C and < –20 dBm unless otherwise specified.*
2. *Below 1 GHz RF may leak through the video connector. If objectionable, this may be eliminated with a low pass filter.*
3. *Measured at 2 dBm*
4. *Option 001 must be ordered for each matched pair. Default is Option 101 (33330B)/Option 401 (8472B), no matched pair.*

Environmental Specifications

Agilent 33330B/8472B is designed to fully comply with Agilent's product operating environment specifications. The following are the summarized environmental specifications for this product.

Model number	33330B/8472B
Operating temperature	–20 °C to +85 °C
Vibration	20 G, 80 – 2000 Hz
Shock	100 g, 11 ms

Ordering Information

33330B coaxial detector	
Option 101	(default) No matched pair
Option 001	Matched response
Option 301	(default) Negative polarity
Option 003	Positive polarity

8472B coaxial detector	
Option 401	(default) No matched pair
Option 001	Matched response
Option 002	Optimal square law load
Option 301	(default) Negative polarity
Option 003	Positive polarity
Option 101	(default) BNC (f) output connector
Option 100	OSSM (f) output connector

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