

HP 8471D

Coaxial RF & Microwave Detectors

100 kHz – 2 GHz

Technical Data

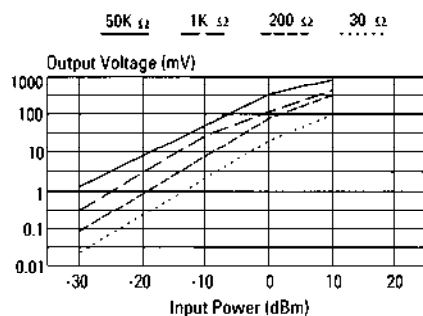


Figure 1. Typical transfer characteristics.

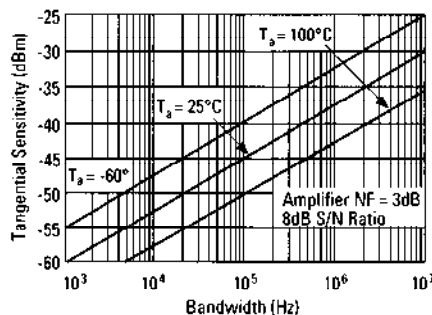


Figure 2. Typical tangential sensitivity.

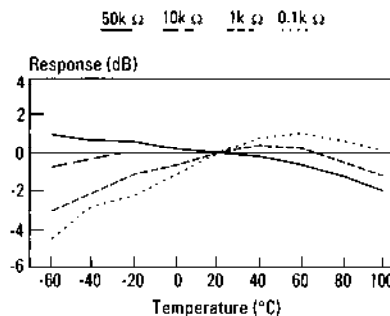


Figure 3. Typical output response with temperature ($P_{IN} \leq 20$ dBm).

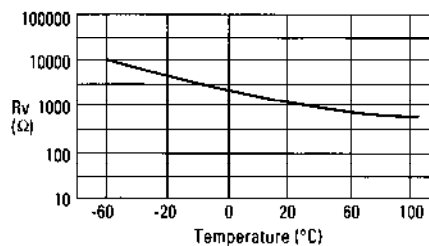


Figure 4. Typical video impedance variation with temperature.

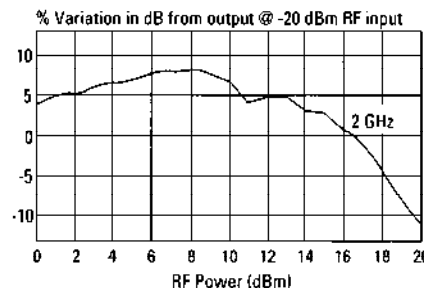


Figure 5. Typical square law deviation.

Features and Description

- Zero Bias
- Environmentally Rugged
- BNC Connector

The HP 8471D Detector is a Planar Doped Barrier detector offering the characteristics of the HP 8474 line of PDB detectors in an economical package. It is available with an BNC RF connector and and BNC video conector.

The detector is designed for use in RF and microwave instrumentation and systems applicaitons as the detecting element in leveling loops, for power monitoring and for wideband video detection.

Specifications



Frequency Range: 100 kHz - 2 GHz

Frequency Response: ± 0.2 dB 100 kHz - 1 GHz; ± 0.4 dB 1 - 2 GHz

SWR: <1.23 0.0001 - 1 GHz; <1.46 1 - 2 GHz

Low Level Sensitivity: 0.5 mV/ μ W

Max. Operating Input: 100 mW

Typical Short-term Max. Input: 0.7 Watt

Noise: <50 μ V

(μ V peak-to-peak with CW power applied to produce 100 mV output, 400 kHz BW)

Output Polarity (STD): Negative

(103): Positive

Option (102): Optimal square law load option

Note: Above specifications are at 25° C and ≤ 20 dBm unless otherwise specified.

Environmental

Operating Temperature: -20° to +85° C

Non-Operating Temperature: MIL-STD 883, Method 1010: (-55° to +85°)

Vibration: MIL-STD 883, Method 2007: (0.6" D.A. 20 to 80 Hz and 20g, 80 to 2000 Hz)

Shock: MIL-STD 883, Method 2002.1: (500g, 0.5 ms)

Altitude: MIL-STD 883, Method 1001: (50,000 ft, 15,240 m)

Moisture Resistance: MIL-STD 883, Method 1004.1: (25° to 40° C, 95% RH)

RFI: MIL-STD 461C (meets Part 7, degraded by 10 dB)

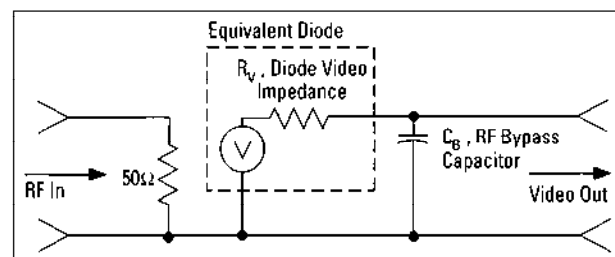


Figure 6. Equivalent circuit for HP 8471D with typical parameter values.

Typical Values:

R_v (diode video impedance) ≈ 1.5 k Ω *

C_b (RF bypass capacitor) ≈ 6800 pF nominal

$$T_R \text{ (10 to 90\% risetime)} \approx 2.2 \frac{(R_{LOAD})(R_v)}{R_{LOAD} + R_v} (C_b + C_{LOAD}) = \frac{0.35}{BW}$$

*@ 25° C and $P_{IN} \leq 20$ dBm (see Figure 3)

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A: 13.72 (0.54)

B: 63.4 (2.50)

C: 15.64 (0.62)

Connector: BNC (m) input;
BNC (f) output

Net Weight: 38.8 grams (1.37 oz.)



Figure 7. HP 8471D

For more information, call your local HP sales office listed in the telephone directory white pages. Ask for the Test and Measurement Department, or write to Hewlett-Packard:

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