

DD112: Directional Detector for R-26 Waveguide

General description

DD112 is a miniature directional detector intended for sampling incident or reflected waves in high-power 2450 MHz industrial applications using R-26 (WR-340) rectangular waveguide. The directional detector combines three components:

- Directional coupler
- Attenuator
- Zero-bias Schottky diode detector

The detector delivers well-scaled DC voltage proportional to the power of the wave propagating in one direction in the parent waveguide.

The detector transfer curve is generally nonlinear and varies with temperature. Transfer curve of an “average detector” is presented in this datasheet. Optionally, each directional detector can be calibrated individually.

For nonlinearity and temperature correction as well as standard analog and digital outputs, use BPM – series bidirectional power meters instead.

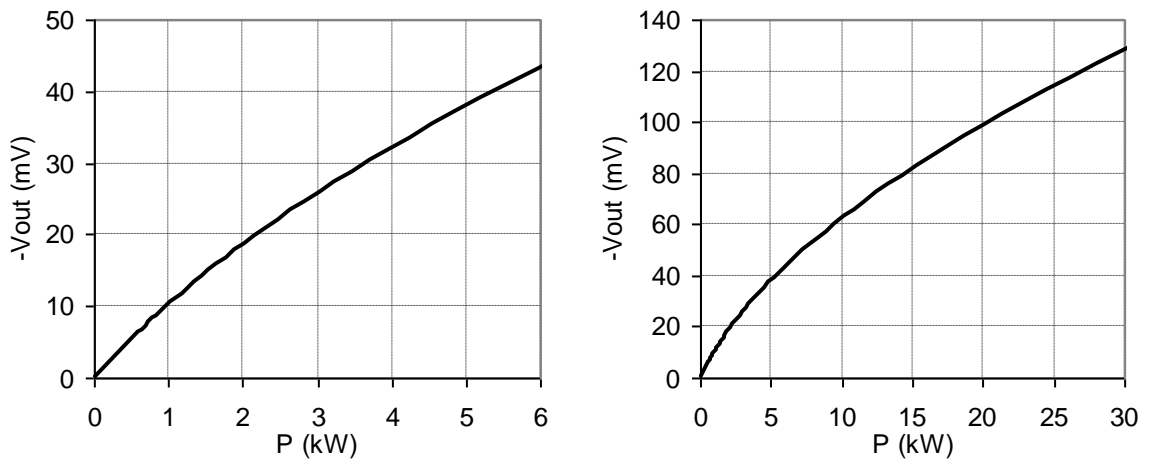
The device is attached to the parent waveguide using eight M3 or similar-diameter screws after machining of appropriate holes in the broad waveguide wall. The parent waveguide (standard or customized) can optionally be part of delivery. The standard length is 174 mm.



Specifications

Waveguide of destination	R-26, WR-340 (86.36 mm x 43.18 mm)
Waveguide wall thickness	2 mm
Frequency range	2425 – 2475 MHz
Directivity	25 dB min
Output voltage polarity	Negative
DC output connector	SMA-F
Statistical spread of output voltage	± 1 dB (3- σ deviation)
Output voltage temperature variation (+5 °C to +65 °C)	< 3 dB
Video resistance (typ)	9 k Ω
Output capacitance	1500 pF

Nominal Transfer Curve ($f = 2450 \text{ MHz}$, $R_{LOAD} = 33 \text{ k}\Omega$, $T_A = 25 \text{ }^\circ\text{C}$)



Dimensional Drawing (all dimensions in millimeters)

