

DD141: Fast Temperature-Stable Directional Detector for Coaxial Waveguide 23/47 mm

General description

DD141 is a directional detector intended for sampling pulse-modulated incident or reflected waves in high-power 2450 MHz industrial applications using coaxial waveguide 23/47 mm. The directional detector combines three components:

- directional coupler
- attenuator
- tunnel diode detector

The detector delivers well-scaled DC voltage proportional to the power of the wave propagating in one direction in the main waveguide. The coupler is fixed to the waveguide with six M3 or similar-diameter screws after machining of appropriate holes in the special waveguide part with platform. Simple reversing the DD141 causes it to sample the wave propagating in the opposite

direction. The tunnel diode detector module assures high temperature stability of the output voltage and low video resistance for fast pulse rise/fall times.



Specifications

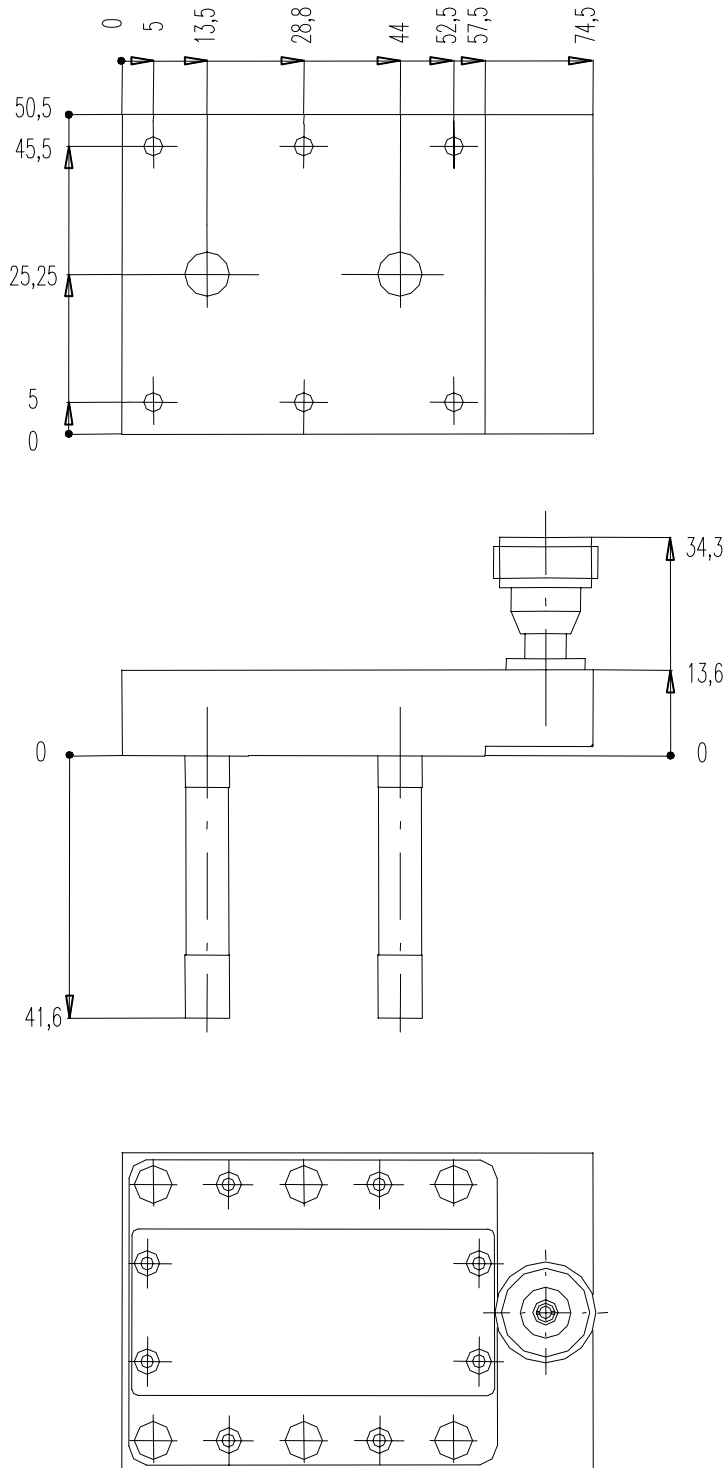
Frequency range	2425 – 2475 MHz
Directivity	25 dB min
Statistical spread of output voltage	±1 dB (3-σ deviation)
Polarity	Negative
Temperature variation of output voltage	< 0.5 dB in 5 to 65 ^o C range
Video resistance (typ)	120 Ω
DC output connector	N-F (SMA-F available upon request)
Waveguide of destination	Coaxial (inner diameter 23 mm / outer diameter 47 mm)

Typical transfer characteristic

P (W)	Vdc (mV)*
850	10
1400	20
2800	50
4300	80
5300	100
8000	130

*) Output voltage can be scaled according to customer's demands.

Dimensional drawing - N-F type connector (all units in millimeters)



Dimensional drawing – SMA-F type connector (all units in millimeters)

