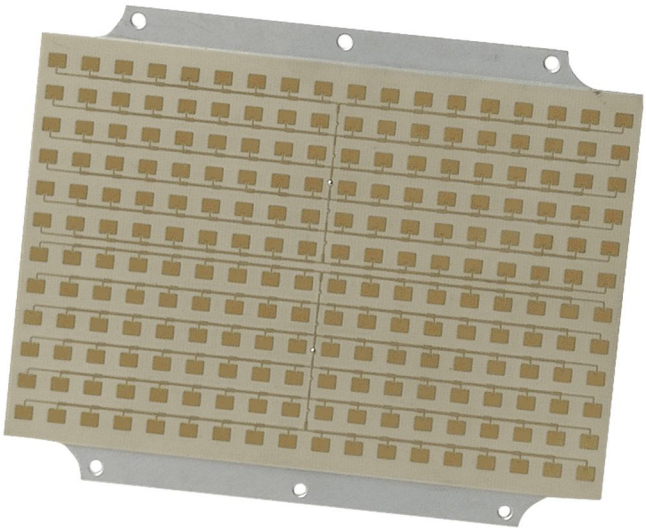
DF103

Narrow Beam K-band Microwave Sensor



Features:

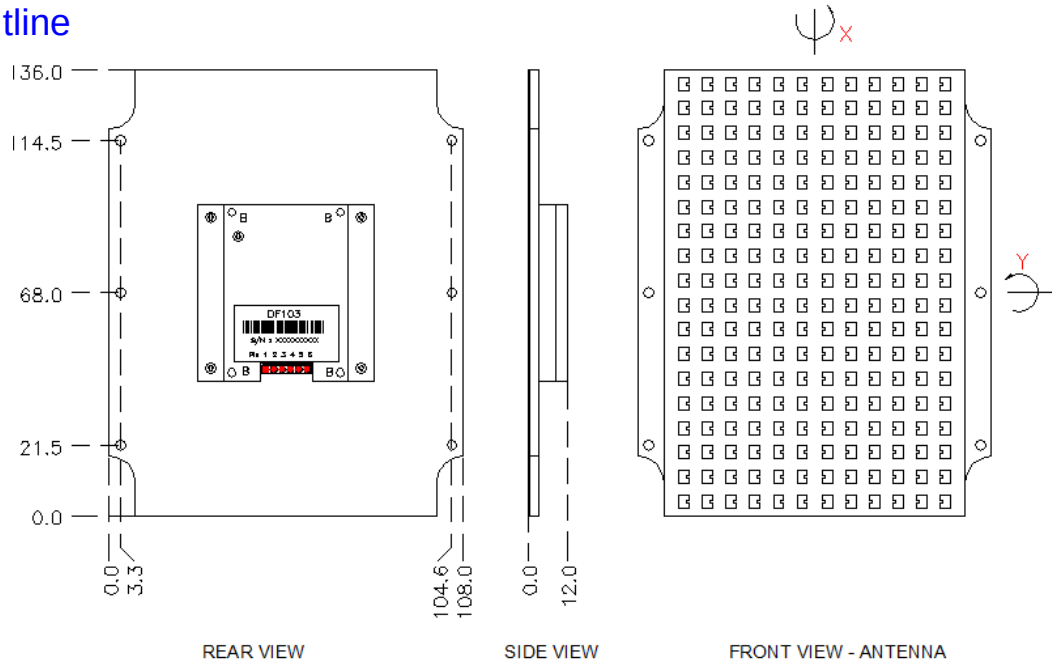
- Narrow detection angle
- Long detection range
- Flat profile
- I and Q channels

Applications:

- Motion detection
- Traffic counting
- Speed measurement

The DF103 microwave sensor is a K-band bi-static Doppler transceiver. It consists of a low noise amplifier (LNA) and IF amplifiers for increased sensitivity. With a narrow beam antenna and I-Q channels, it can be used for single lane traffic detection and direction discrimination.

Module Outline



REAR VIEW SIDE VIEW FRONT VIEW - ANTENNA

Pin	Name	Description
1	$\overline{EN}$	Active low enable pin
2	V_{IN}	+5 V_{DC}
3	GND	Ground
4	I	Channel I
5	Q	Channel Q
6	NC	Not connected

I. All dimensions are in mm.

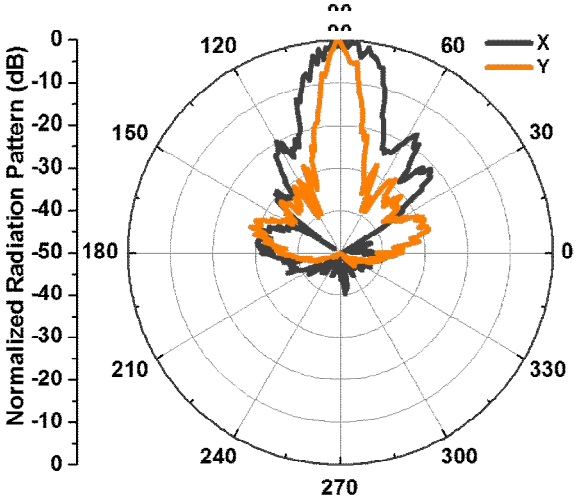
II. Mounting screw hole (B) is M2.5 with depth 3.5mm.

Note 1:The radiated emissions is designed to meet the requirements of EN 300 440.

Note 2: Built-in voltage regulator ensures the performance of the sensor is independent of voltage supply.

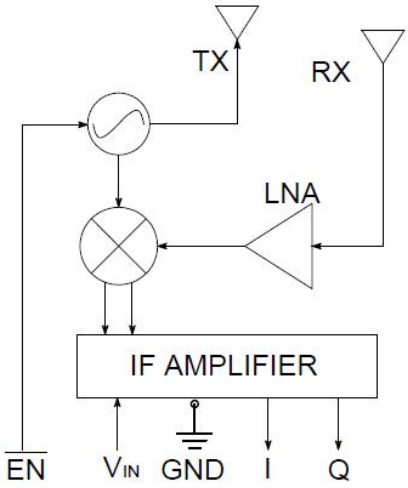
RoHS COMPLIANT

Antenna Beam Pattern



* Antenna beam pattern is based on simulations.

Block Diagram



Technical Specifications

Unless noted otherwise, the specifications are measured in CW mode, V_{IN} = +5 V_{DC} and 12k ohm load at +25°C.

Parameter	Remarks	Min	Typical	Max	Units
Operating Conditions					
Supply voltage, V_{IN}		3.6	5	9	V_{DC}
Current consumption	$\overline{EN}$ (on/off)		40/15	60/25	mA
Operating temperature		-40		80	°C
Transmitter					
Operating frequency		24.120	24.125	24.130	GHz
Radiated power (EIRP)		22	24	27	dBm
Spurious emission				-30	dBm
Receiver					
I&Q amplitude balance			0.5	3	dB
I&Q phase difference		70	90	110	°
IF amplifier gain			40		dB
IF amplifier bandwidth			180-16k		Hz
Antenna					
Antenna beam-width (3 dB) - X			16		°
Antenna beam-width (3 dB) - Y			6		°
Antenna sidelobe rejection			20		dB
Physical Properties					
Dimensions			136×108×12		mm
Weight			175		g

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