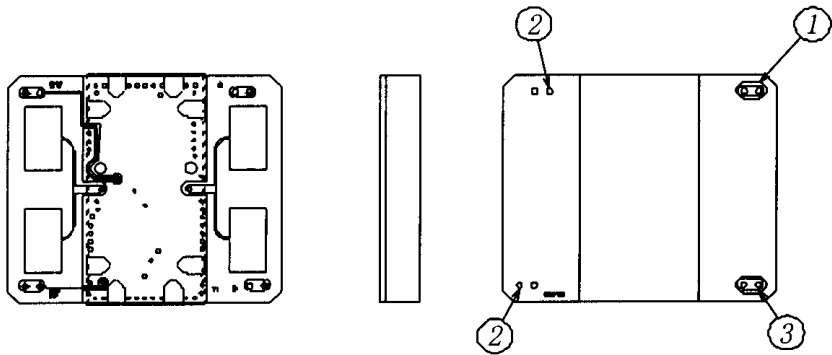




Operation Manual

Outline Drawing

NJR4175 (X-Band Doppler Module)



Pin Assignment : ① +5V  
 ② GND  
 ③ IF out

Pin Assignment  
 The 1<sup>st</sup> pin(①) is DC input, the 2<sup>nd</sup> pins(②) are GND, and the 3<sup>rd</sup> pin(③) is IF output.  
 The operating voltage is +5±0.2 volts.

Fig 1. Outline Drawing / Pin Assignment

Standard Test Set-up to Measure Performance

400Hz

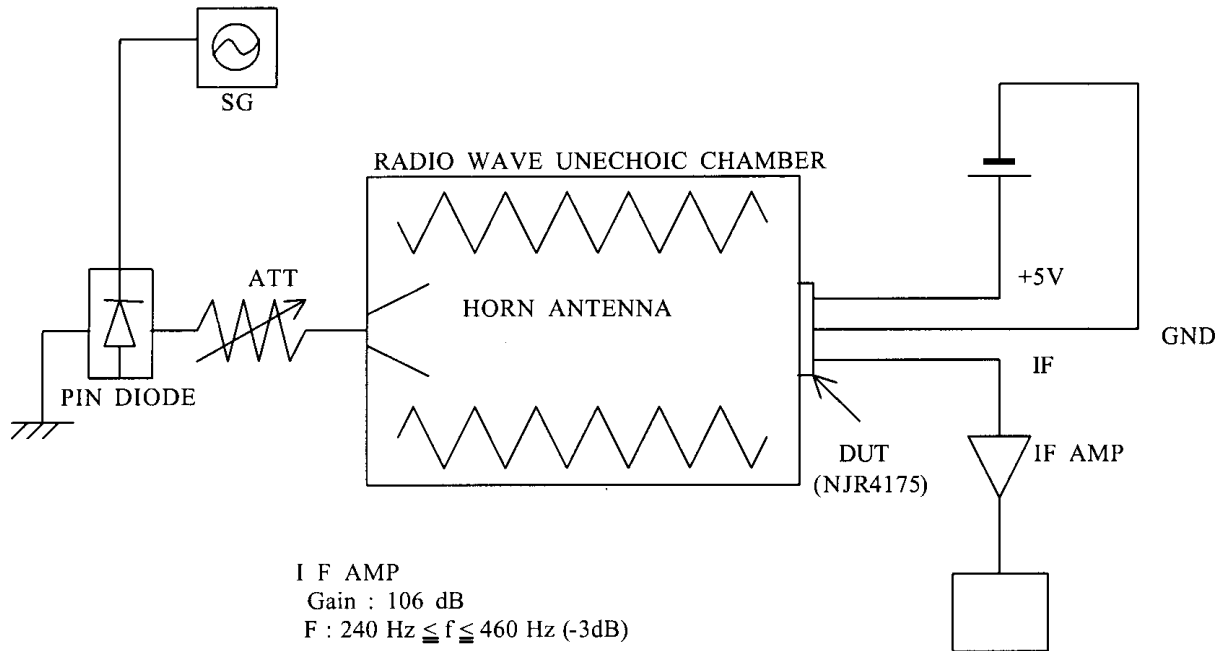


Fig 2. Standard Set-up to Measure Performance

## Electrical Specifications (at +25 °C, +5.0V DC)

Operating Voltage	5.0 V typ. 4.8 to 5.2 V
Operating Current	30 mA typ. (CW Operating)
Center Frequency (Ta=-30 to +70°C)	10.525 GHz typ. 10.520 to 10.530 GHz
Frequency Stability (Ta=-30 to +70°C)	+/- 5 MHz
Pulse Mode Operation	
Pulse Width	5 μ sec. min
Duty Cycle	0.01 min.
Output Power	13 dBm(E.I.R.P.) typ.
Second Harmonics Emission	25 mV/m(at.3m) max.
Return Loss Sensitivity	-90 dBc typ. (Remark 1)
Antenna Beamwidth	
	E-Plane 36 ° typ. (-3dB)
	H-Plane 72 ° typ. (-3dB)

## Absolute Maximum Ratings

Operating Temperature Range	-30 to +70 °C
Storage Temperature Range	-40 to +80 °C
Relative Humidity	95%Rh max. (Ta=35°C)
Vibration	10G max. f=30 to 50 Hz, t=10min. , Direction X,Y,Z
Shock	20G max. Half sine, t=10msec. , Direction X,Y,Z
DC Input Voltage	+8V DC max.

## FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Caution

There is a possibility of non-operation when mechanical shock is added to this module.

There is a possibility of bourn out when static electricity or surge is added to this module.

NEW JAPAN RADIO CO.,LTD.  
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Page 2



## Operation Description

NJR4175 is an XBand transceiver module which is designed for motion sensing applications, and which utilizes the doppler phenomenon.

The basic principle of operation consists of detecting the frequency shift between a transmitted and received signal reflected back from a moving object within the field of view of the unit.

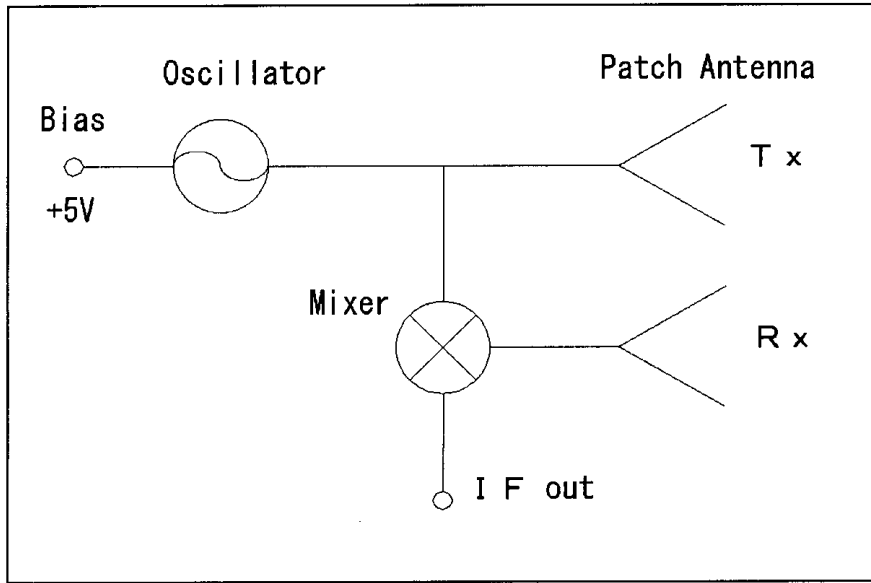
This module consists of DRO(Dielectric Resonator Oscillator), balanced Schotkey Barrier Diode mixer and Micro-strip Patch Antenna.

**New Japan Radio Co., Ltd.**

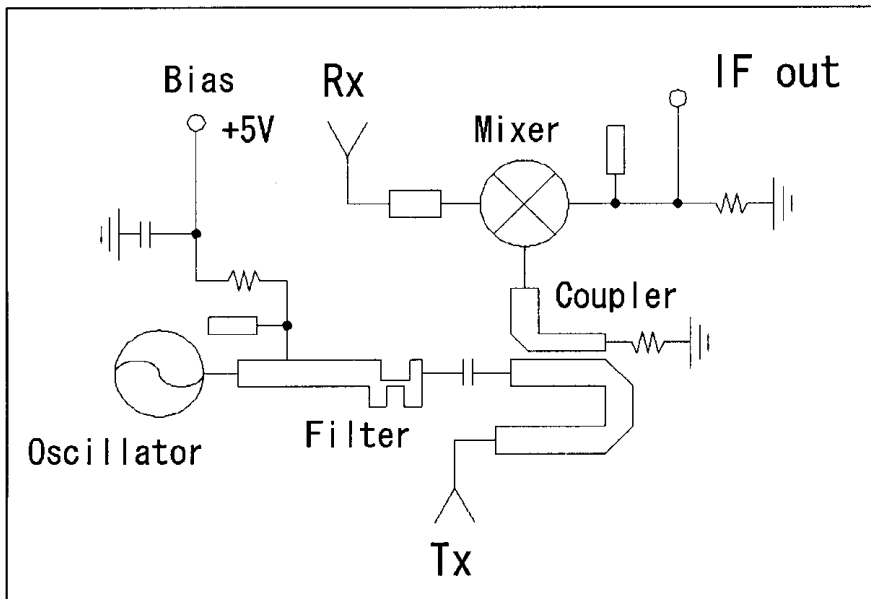


Block Diagram / Circuit Diagram

●NJR4175 Block Diagram



●NJR4175 Circuit Diagram





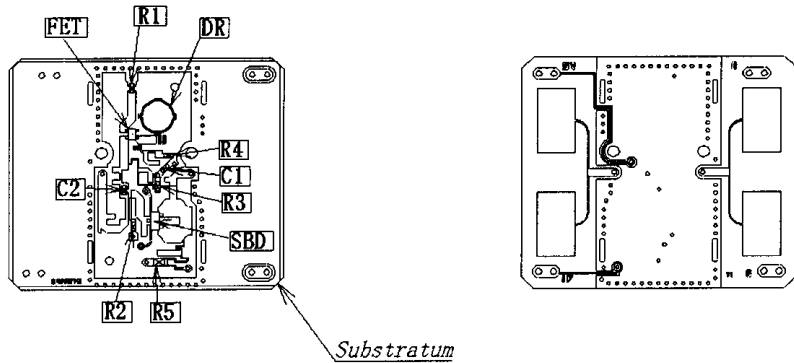
Pattern Layout Diagram / Component Diagram  
/ Parts List

NJR4175 Layout

Pattern Layouts

The Surface

The Reverse Side

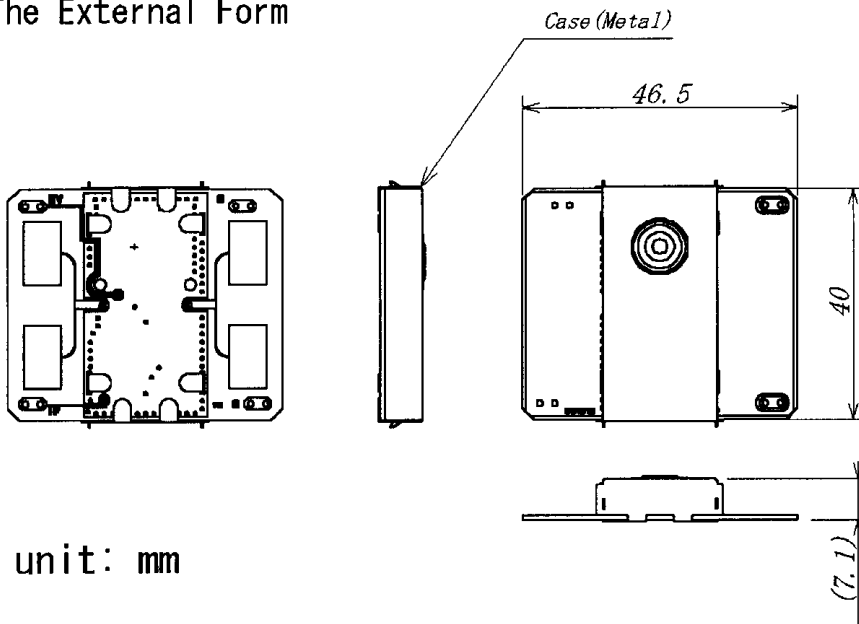


Parts List

Parts Name	QTY	TYPE	Value
R (Chip Resistors)	5	ERJ*****	R1: 82Ω, R2, R3: 51Ω, R4: 10Ω, R5: 12kΩ
C (Chip Capacitors)	2	GRM*****	C1: 1000pF, C2: 2pF
FET (Field Effect Transistor)	1	NE72218-T1	_____
SBD (Shotkey Barrier Diode)	1	HSM8202	_____
Substratum	1	_____	_____
Case	1	_____	_____
DR (Dielectric Resonator)	1	DRD0559*****	_____

Component Layouts

The External Form



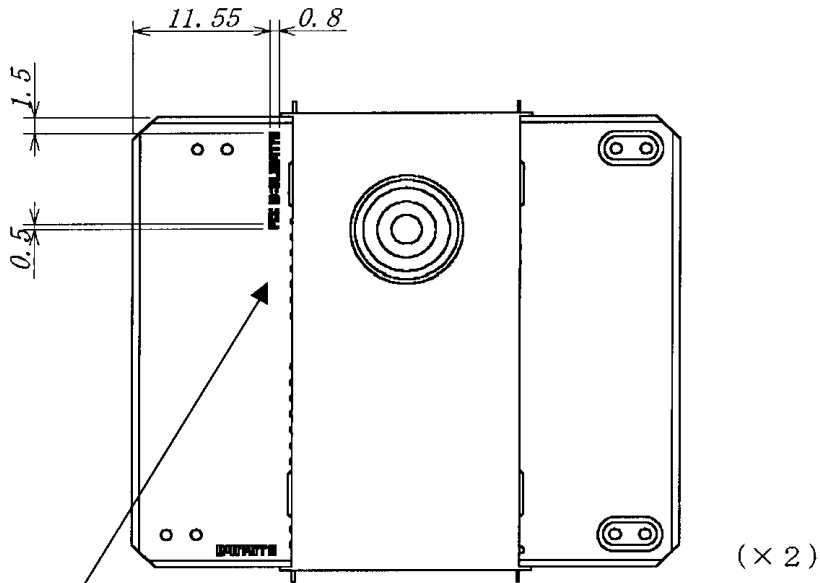
unit: mm



Location of the label on the module

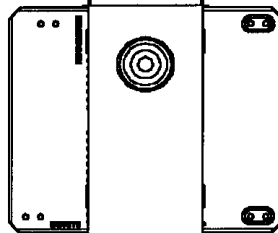
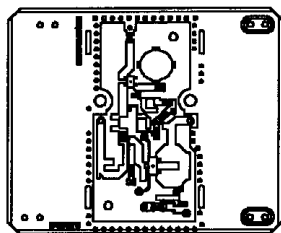
N J R 4 1 7 5

FCC ID Number



unit : mm

The FCC ID is illustrated with capital letters etched pattern on product.



(x 1)