

# **K-Band Doppler Sensor Module**

RF Frequency: 24.05 to 24.25 GHz

Model No. NJR4262

Specifications  
Rev.00-02 February 26, 2013

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New Japan Radio Co., Ltd.  
Microwave Components Division

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  - \* Life Maintenance Medical Equipment
  - \* Fire Alarm/Intruder Detector
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Category: K-Band Doppler Sensor Module  
Type Name: NJR4262

**Description:**

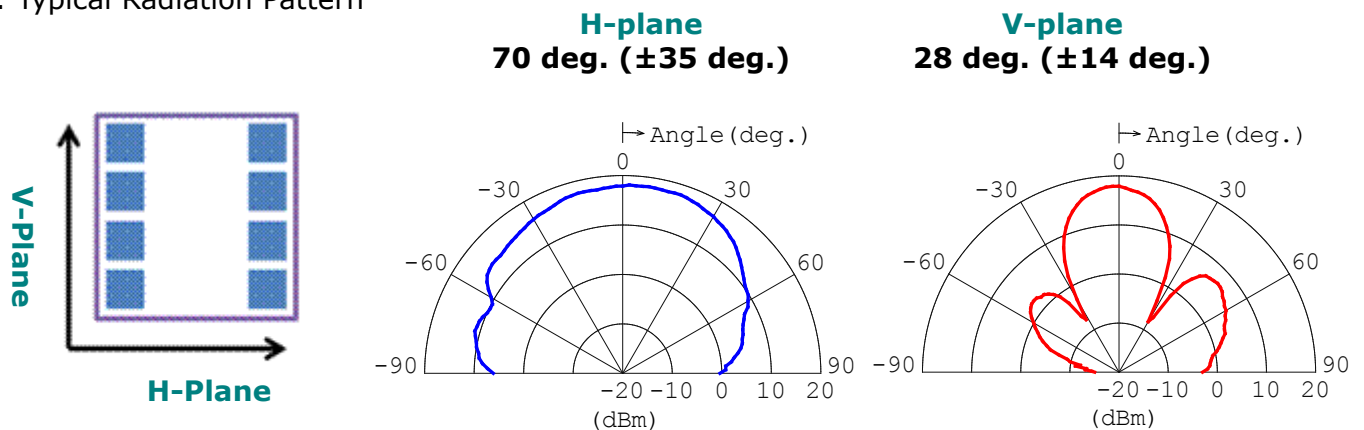
- Motion detector using microwave doppler effect
- Miniaturized RF circuit with MMIC technology
- High accurate I-Q mixer

**Specification:**

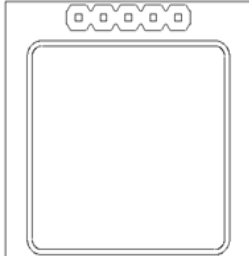
1. Electric Characteristics (Common measure condition Ta= +25 deg.C)

Item	Specification			Unit	Condition / Note
	Min.	Typ.	Max.		
1.1 Operation voltage	3.3	-	5.5	V	
1.2 Operation current	-	45	55	mA	
1.3 Operation frequency	24.05	-	24.25	GHz	
1.4 E.I.R.P.	-	+16 (40)	+20 (100)	dBm (mW)	
1.5 Frequency Stability	-1	-	0	MHz/deg.C	Ta= -20 to +60 deg.C
1.6 Start-up time	-	4	6	msec	
1.7 2nd Harmonics (E.I.R.P.)	-	-	-30	dBm	
1.8 Radiation pattern	-	-	-	-	See Fig.1: Typical Radiation Pattern.
1.8.1 -3dB beam width (H-plane)	-	70	-	deg.	
1.8.2 -3dB beam width (V-plane)	-	28	-	deg.	
1.8.3 Side lobe suppression (H-plane)	-	-	-	dB	No side lobe
1.8.4 Side lobe suppression (V-plane)	-	13	-	dB	
1.9 Noise Voltage	-	-	400	mV	Upon amplified with 85dB Gain amp. Band width: 10 to 300Hz
1.10 Signal level	0.5	0.8	-	Vp-p	Refer to Fig.2 : Signal Test System
1.11 Offset voltage	1.1	1.35	1.6	V	
1.12 I-Q Amplitude Balance	-3	-	+3	dB	
1.13 I-Q Phase Balance	85	-	95	deg.	

Fig.1: Typical Radiation Pattern

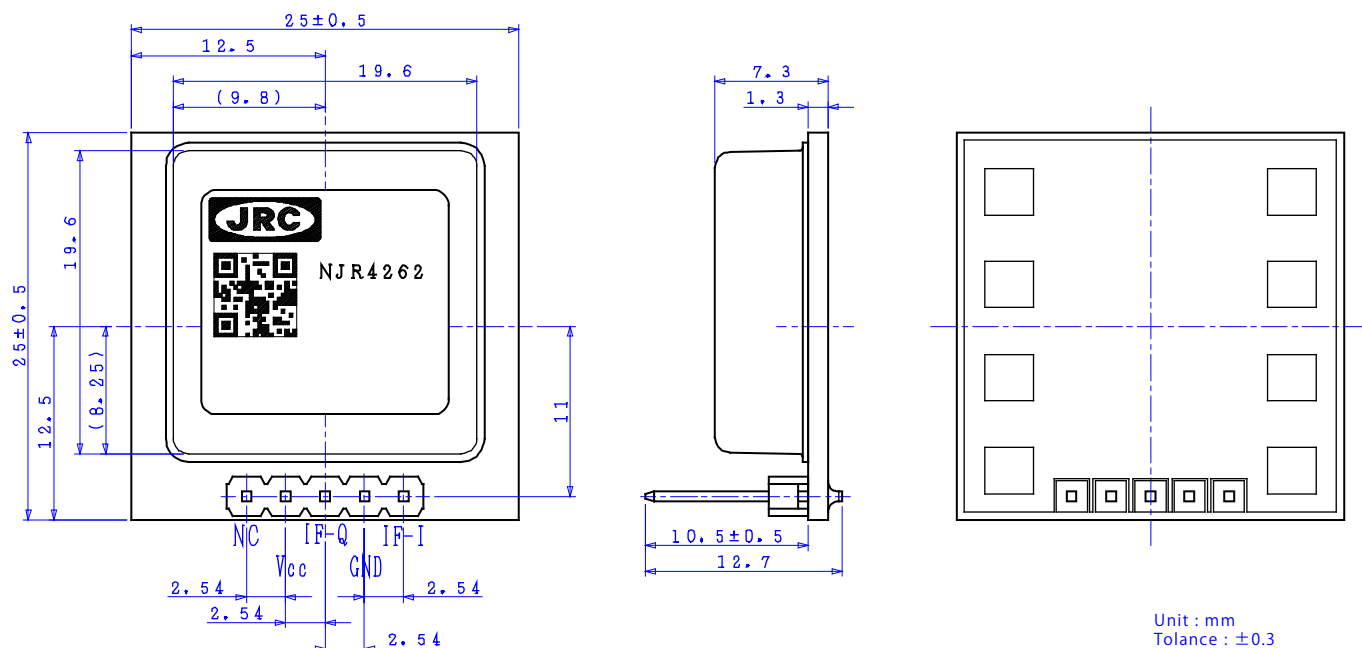


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2. Mechanical characteristics																	
Item		Specification															
2.1	Size	25(W) x 25(D) x 7.3(H) mm Tolerance: ±0.5 mm															
2.2	Weight	7 g max.															
2.3	Interface / Pin assignment	<div><div>Pin Size: 0.64 mm square Pin Pitch: 2.54 mm</div><div><div><div><div>GND</div><div>VCC</div><div>IF-I</div><div>IF-Q</div><div>NC</div></div><div></div></div></div><div><table><tr><th>Pin</th><th>Description</th></tr><tr><td>IF-I</td><td>Doppler signal output(I). Output impedance:1.5kohm</td></tr><tr><td>GND</td><td>GND</td></tr><tr><td>IF-Q</td><td>Doppler signal output(Q). Output impedance:1.5kohm</td></tr><tr><td>VCC</td><td>Voltage supply.</td></tr><tr><td>NC</td><td>No connection.</td></tr></table></div></div> <div>Recommended via hole diameter: 1.2 ± 0.05 mm</div>				Pin	Description	IF-I	Doppler signal output(I). Output impedance:1.5kohm	GND	GND	IF-Q	Doppler signal output(Q). Output impedance:1.5kohm	VCC	Voltage supply.	NC	No connection.
Pin	Description																
IF-I	Doppler signal output(I). Output impedance:1.5kohm																
GND	GND																
IF-Q	Doppler signal output(Q). Output impedance:1.5kohm																
VCC	Voltage supply.																
NC	No connection.																
3. Environmental characteristics																	
Item		Specification															
3.1	Operation Temperature	-20 to +60 deg.C															
3.2	Storage Temperature	-40 to +80 deg.C															
3.3	Humidity	0 to 95 % @ +30 deg.C															
3.4	Vibration	49.03 m/s <sup>2</sup> (5 G) 30 to 50 Hz, 10 minutes, XYZ direction															
3.5	Shock	196.13 m/s <sup>2</sup> (20 G) Half sine, 11 msec, XYZ direction, 3 times															
4. Absolute Maximum Rating																	
Item		Specification			Unit	Condition / Note											
		Min.	Typ.	Max.													
4.1	Supply voltage	0	-	7	V												
4.2	Operation Temperature	-40	-	+85	deg.C	No damage											
4.3	Storage Temperature	-40	-	+85	deg.C												

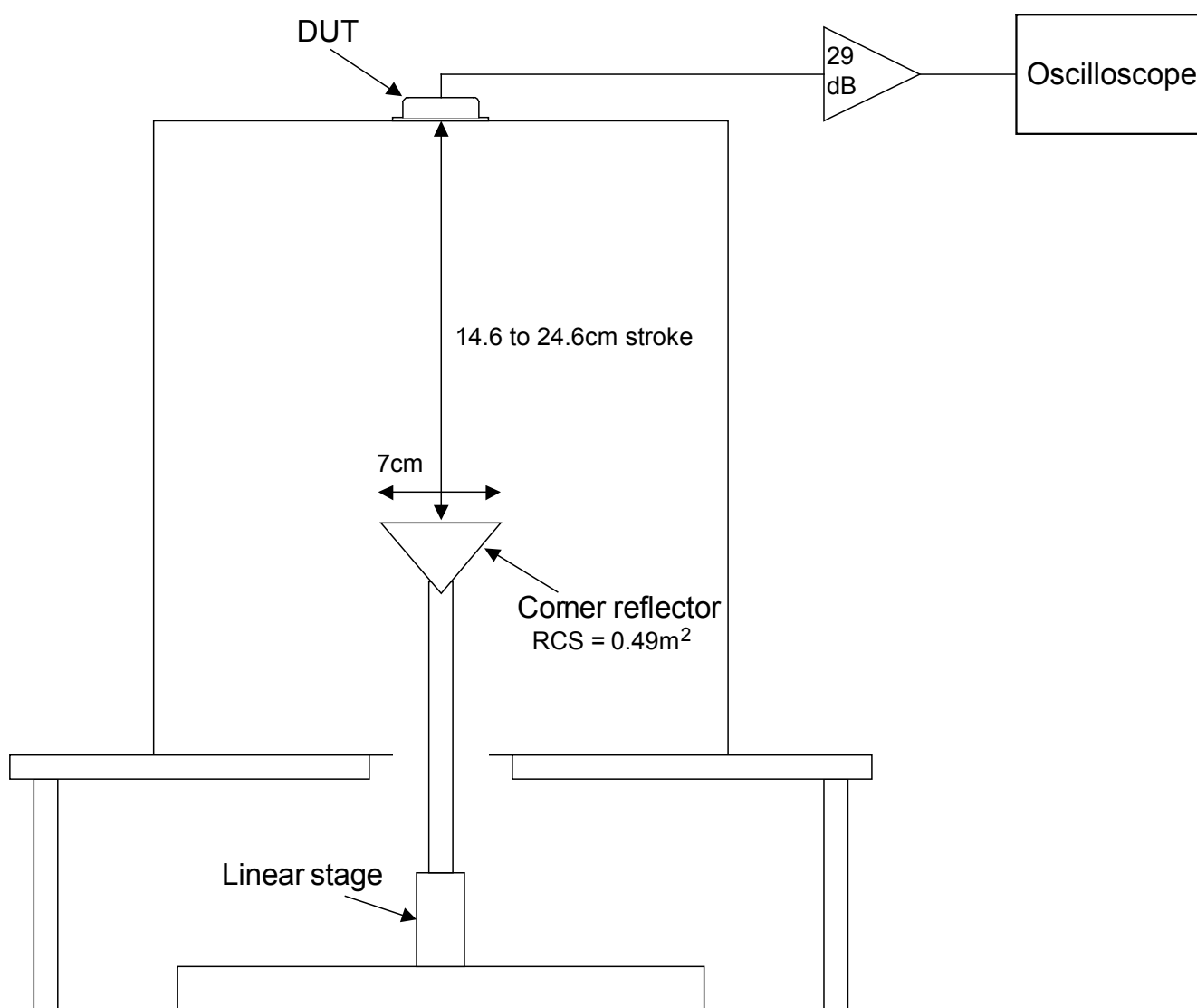
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## 5. Outline



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Fig2. Signal Test System



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