

# **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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Category: K-Band Doppler Sensor Module  
 Type Name: NJR4262

Description:

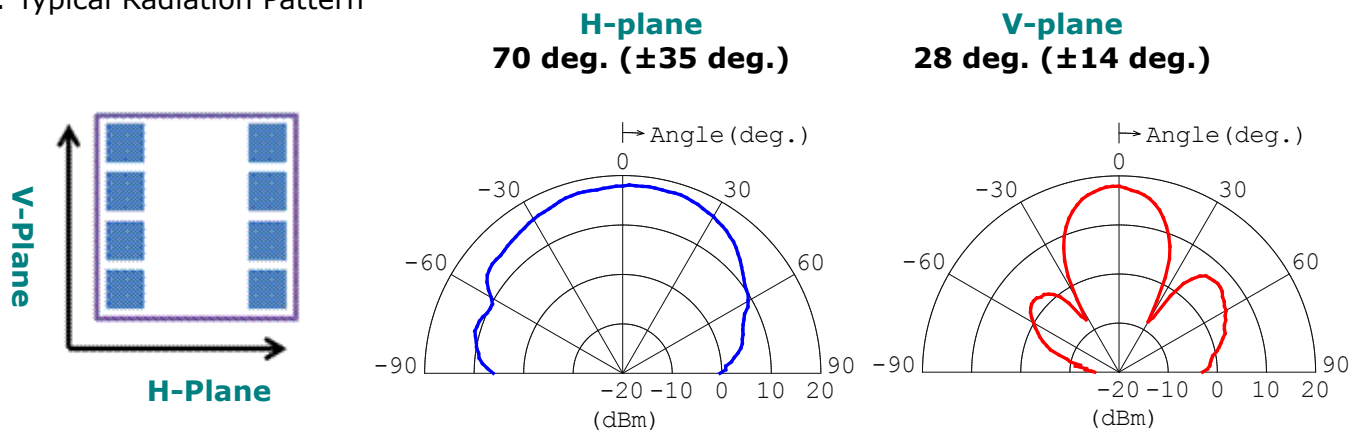
- Motion detector using microwave doppler effect
- Miniaturized RF circuit with MMIC technology
- High accurate I-Q mixer

Specification:

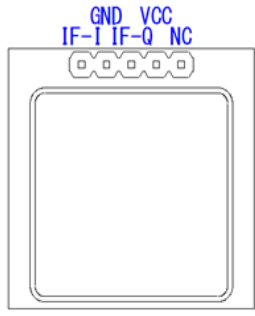
1. Electric Characteristics (Common measure condition Ta= +25 deg.C)

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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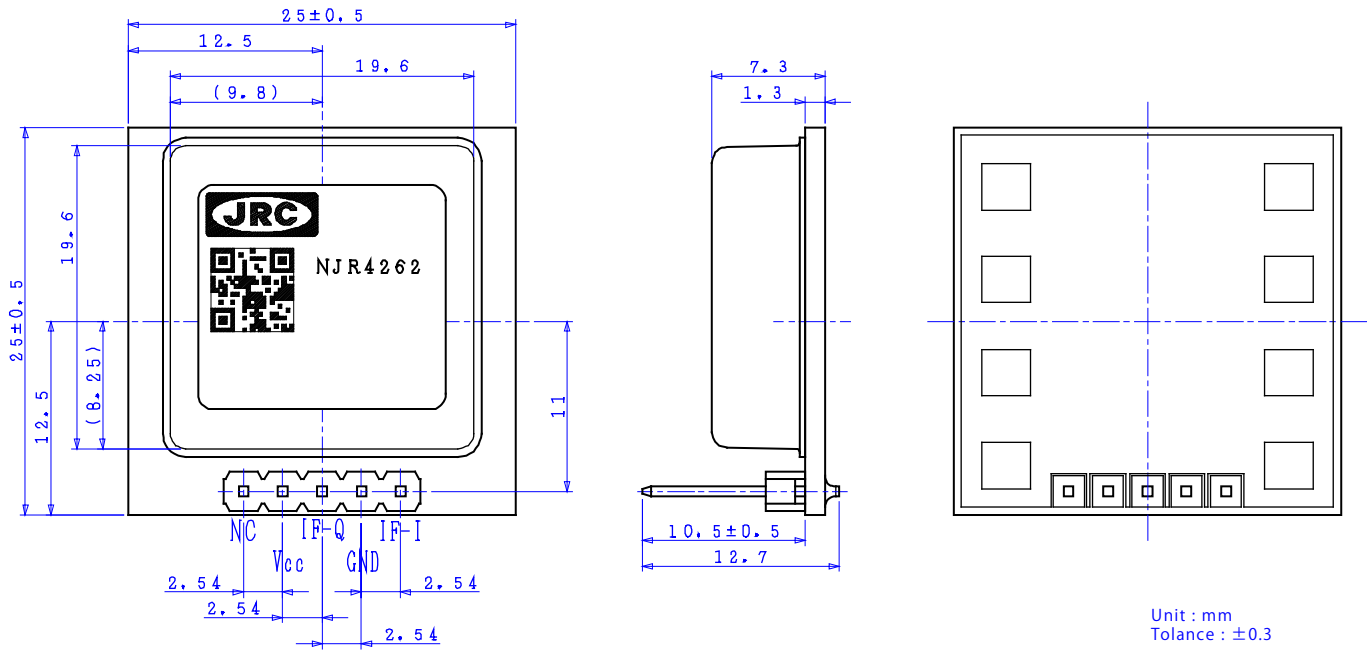
2. Mechanical characteristics													
Item	Specification												
2.1 Size	25(W) x 25(D) x 7.3(H) mm Tolerance: ±0.5 mm												
2.2 Weight	7 g max.												
2.3 Interface / Pin assignment	Pin Size: 0.64 mm square Pin Pitch: 2.54 mm  <table border="1" data-bbox="949 436 1436 683"> <thead> <tr> <th>Pin</th> <th>Description</th> </tr> </thead> <tbody> <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> </tbody> </table>	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.
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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.												
Recommended via hole diameter: 1.2 ± 0.05 mm													

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	

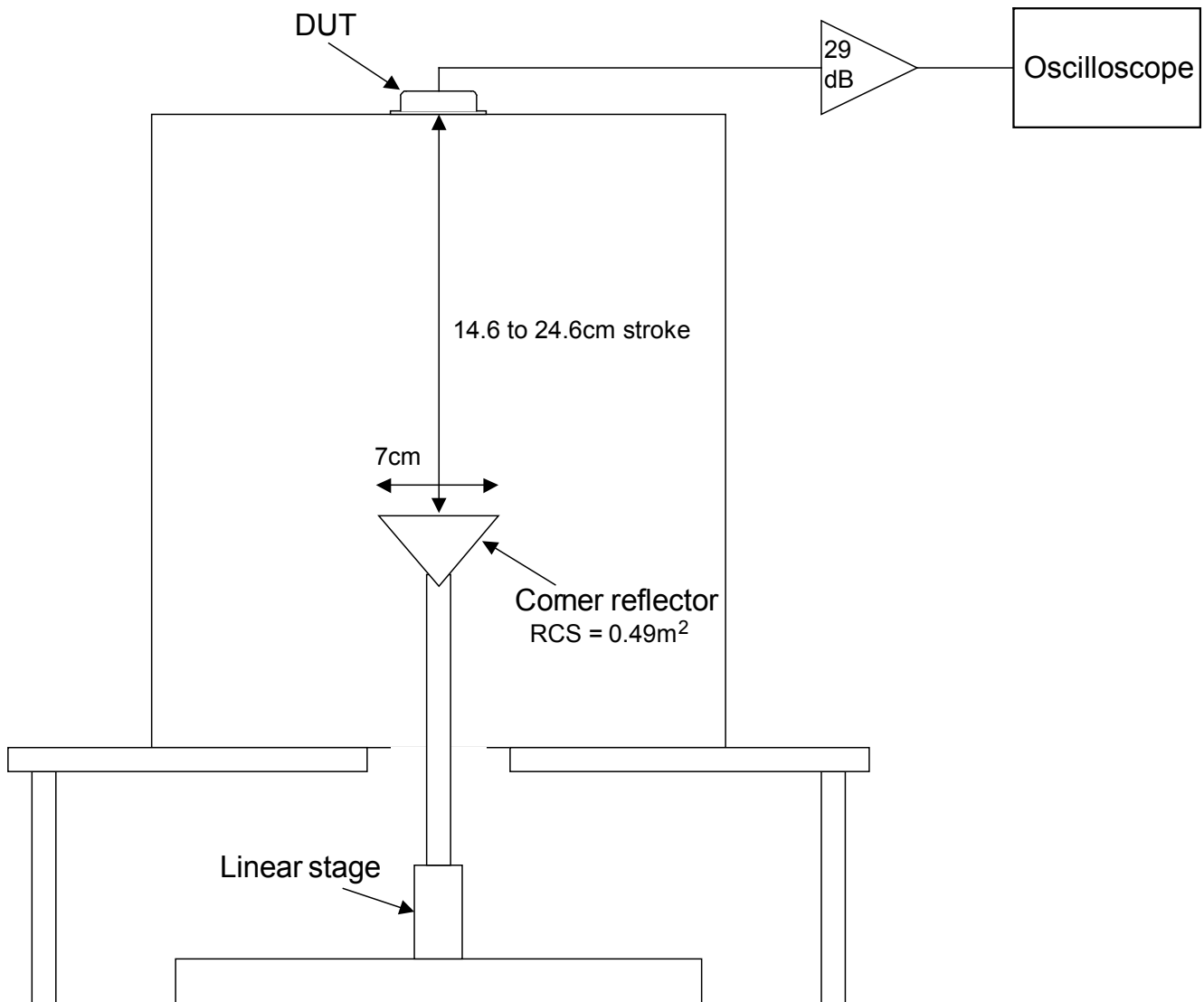
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## 5. Outline



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Fig2. Signal Test System



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