Released

X-Band
Doppler Sensor Module

RF Frequency: 10.525 GHz
Applicable Regions: Belgium, Netherlands

Model No. NJR4178

Specifications
Rev.06 February 19, 2016

Caution

1. NJRC strives to produce reliable and high quality microwave components. NJRC's microwave components are intended for specific applications and require proper maintenance and handling. To enhance the performance and service of NJRC's microwave components, the devices, machinery or equipment into which they are integrated should undergo preventative maintenance and inspection at regularly scheduled intervals. Failure to properly maintain equipment and machinery incorporating these products can result in catastrophic system failures.

2. To ensure the highest levels of reliability, NJRC products must always be properly handled. The introduction of external contaminants (e.g. dust, oil or cosmetics) can result in failures of microwave components.

3. NJRC offers a variety of microwave components intended for particular applications. It is important that you select the proper component for your intended application. You may contact NJRC's sales office or sales representatives, if you are uncertain about the products listed in the catalog and the specification sheets.

4. Special care is required in designing devices, machinery or equipment, which demand high levels of reliability. This is particularly important when designing critical components or systems whose foreseeable failure can result in situations that could adversely affect health or safety. In designing such critical devices, equipment or machinery, careful consideration should be given to, amongst other things, their safety design, fail-safe design, back-up and redundancy systems, and diffusion design.

5. The products listed in the catalog and specification sheets may not be appropriate for use in certain equipment where reliability is critical or where the products may be subjected to extreme conditions. You should consult our sales office or sales representatives before using the products in any of the following types of equipment.
   * Aerospace Equipment
   * Equipment Used in the Deep Sea
   * Power Generator Control Equipment (nuclear, steam, hydraulic)
   * Life Maintenance Medical Equipment
   * Fire Alarm/Intruder Detector
   * Vehicle Control Equipment (automobile, airplane, railroad, ship, etc.)
   * Various Safety Equipment

6. NJRC's products have been designed and tested to function within controlled environmental conditions. Do not use products under conditions that deviate from methods or applications specified in the catalog and specification sheets. Failure to employ NJRC's products in the proper applications can lead to deterioration, destruction or failure of the products. NJRC shall not be responsible for any bodily injury, fires or accidents, property damage or any consequential damages resulting from the misuse or misapplication of its products. PRODUCTS ARE SOLD WITHOUT WARRANTY OF ANY OF KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

7. The product specifications and descriptions listed in the catalog and specification sheets are subject to change at any time, without notice.

* Above Specifications are subject to change without notice.

Scope:

- This specification covers the general requirements for X-band microwave doppler module.
- This module is designed for motion sensing applications.
- It consists of DRO (Dielectric Resonator Oscillator), balanced Schottky Barrier Diode mixer and Micro- strip Patch Antennas.

Scope:

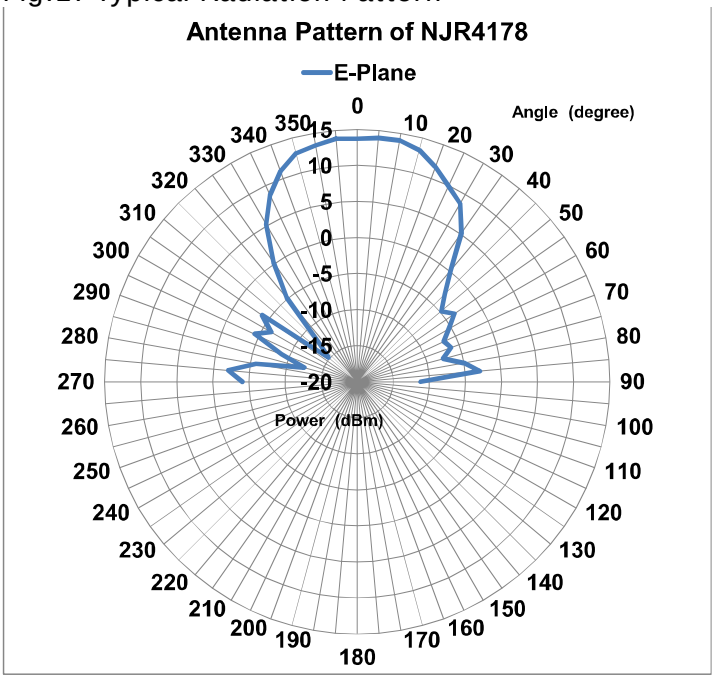
- Compact Size
- Low Operating Current : 30 mA
- Detection Target Range : 30 m

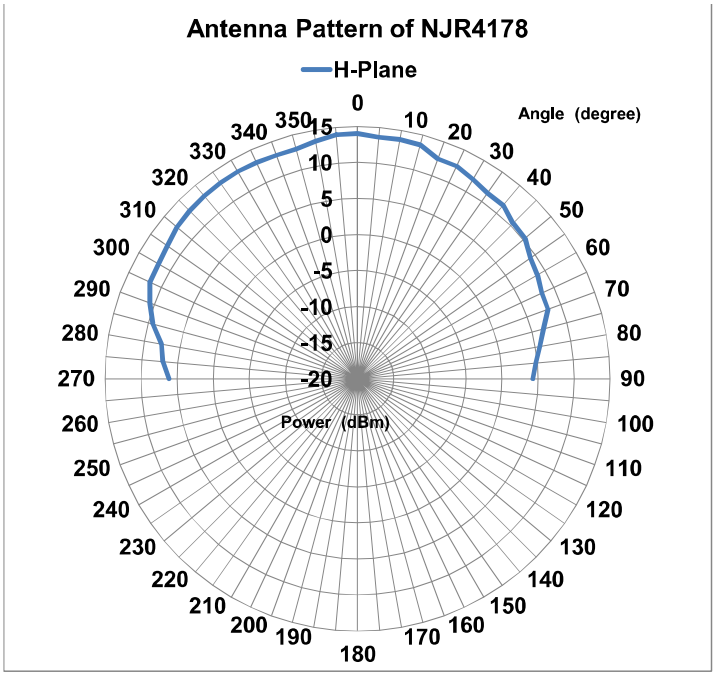
Specification:

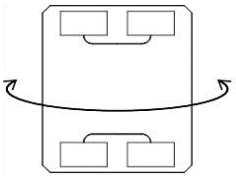
1. Electrical Characteristics (at +25 ºC / +5 VDC)

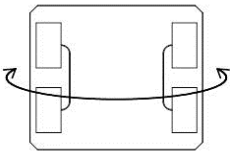
Item	Specification
1.1 Operating Voltage	5.0 ± 0.2 VDC
1.2 Operating Current	30 mA typ. (CW operation)
1.3 Center Frequency	10.525 GHz typ. 10.520 to 10.530 GHz
1.4 Frequency Stability	±5 MHz max. (-30 to +55 ºC)
1.5 Output Power	+14 dBm E.I.R.P. max.
1.6 Return Loss Sensitivity	-90 dBc typ.
1.7 Second Harmonic Emission	1 μW max.
1.8 Antenna Beamwidth (-3dB)	
1.8.1 –3dB beam width (E-plane)	36 deg. nom.
1.8.2 –3dB beam width (H-plane)	72 deg. nom.
1.9 Pulse Mode Operation	
1.9.1 Pulse Width	5 μsec. min.
1.9.2 Duty Cycle	1 % min.

Fig.1: Typical Radiation Pattern









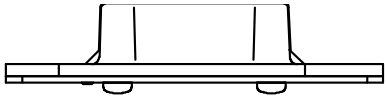
* Above Specifications are subject to change without notice.

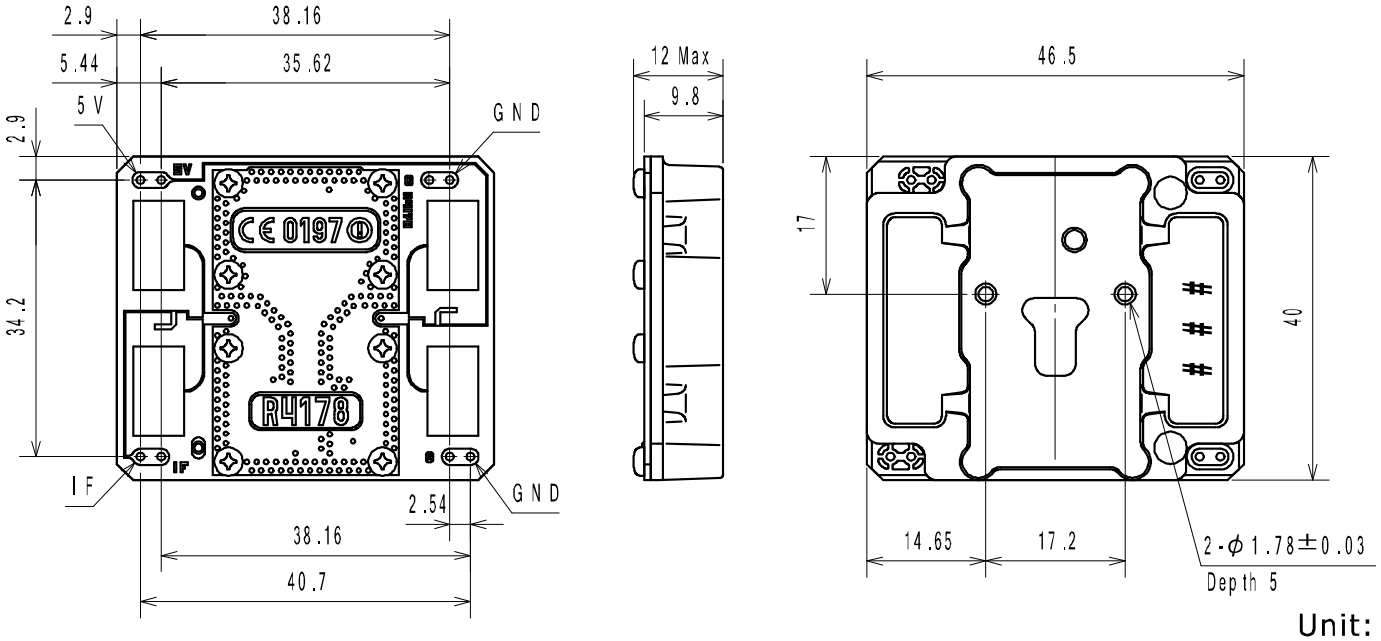
2. Absolute Maximum Rating	
Item	Specification
2.1 DC Input Voltage	+6 Vdc max.

3. Environmental characteristics	
Item	Specification
3.1 Operating Temperature Range	-30 to +55 ºC
3.2 Storage Temperature Range	-40 to +80 ºC
3.3 Relative Humidity	95 % at 35 ºC
3.4 Vibration	98.07 m/s^2 (G=10) max. (f=30,50 Hz, t=10min., Direction; X, Y, Z)
3.5 Shock	196.13 m/s^2 (G=20) max. (Half Sine, 10msec., Direction; X, Y, Z)

4. Regulations	
Item	Specification
4.1 Regulations for compliance	EU Certification R&TTE Directive 1999/5/EC RoHS Directive 2011/65/EU
4.2 Conformity Standard	ETSI EN300 440
4.3 Comply with RoHS (Restricting the use of Hazardous Substances) directives	

5. Outline



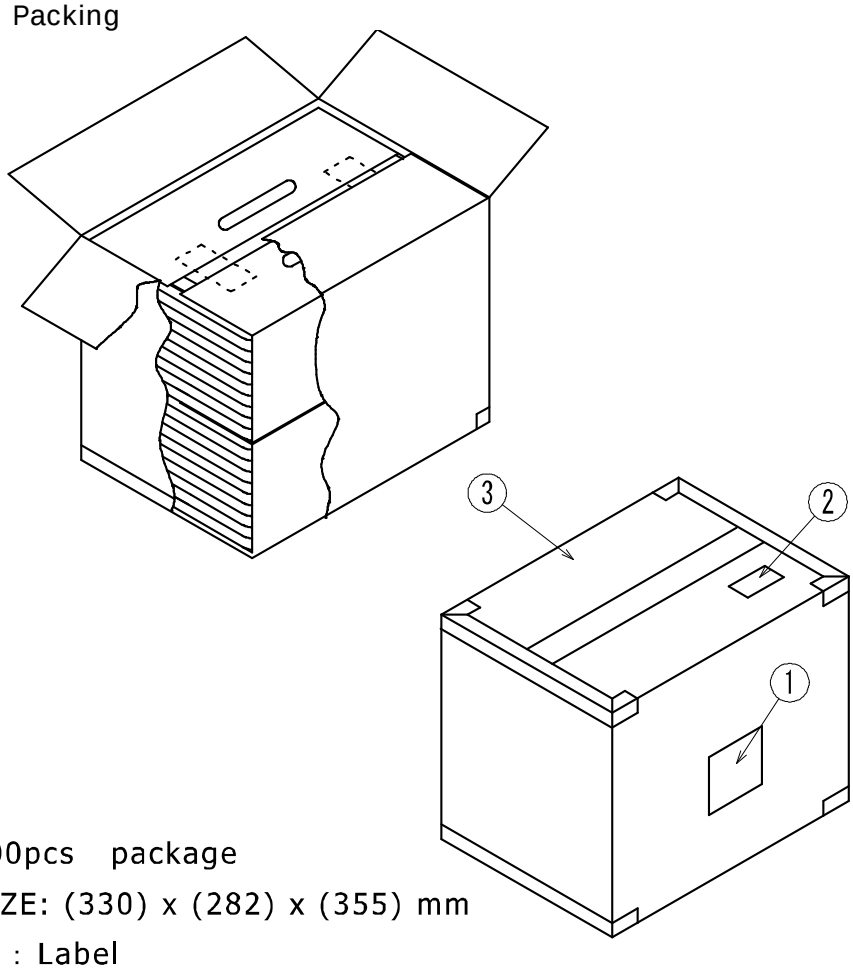


Unit: mm

Tolerance: +/-0.5mm

* Above Specifications are subject to change without notice.

6 Packing



500pcs package

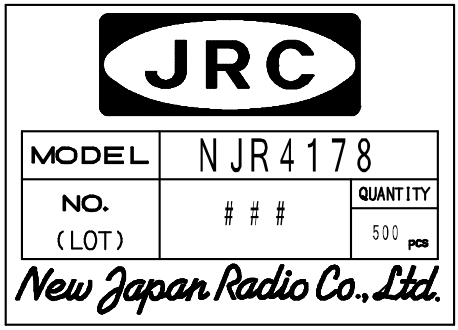
SIZE: (330) x (282) x (355) mm

① : Label

② : ESD Warning Label

③ : Double Wall Corrugated Fiberboard

①Label



* Above Specifications are subject to change without notice.

Reference Number: DOC-NJR4178xx-REV1

EU Declaration of Conformity

We, New Japan Radio Co.,Ltd. declares in sole responsibility, that the following product.

Product: X-band Doppler Sensor Module (Movement Sensor)
Model Number: NJR4178, NJR4178DA, NJR4178PX, NJR4178P, NJR4178DP, NJR4178DH, NJR4178L, NJR4178LDA, NJR4178LPX, NJR4178LP, NJR4178LDP, NJR4178LDH, NJR4178/T, NJR4178CP, NJR4178CP1
Trade Mark: JRC

referred to in this declaration conforms with the following directive and standard(s):

Radio Equipment Directive 2014/53/EU
EN 62479:2010
EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
EN 300 440 V2.1.1 (Receiver category 1)
EN 301 489-1 V2.2.0, EN 301 489-3 V2.1.1
EN 50130-4:2011+A1:2014

Note: This declaration becomes invalid if technical modification are introduced without the manufacture's consent.

This declaration is based upon the conformity assessment procedure, MODULE B (EU-type examination), by the following Notified Body:

Registration No.:RT 60119448 0001
(Name of Notified Body) **TÜV Rheinland LGA Products GmbH**
(Address) **Tillystraße 2 90431 Nürnberg Germany**

(Name of Manufacture) **New Japan Radio Co., Ltd.**
(Address) **1-1, Fukuoka 2-Chome, Fujimino City Saitama, 356-8510 Japan**

Fujimino City, Japan
June 1, 2017
(Place and date issued)

Yuji Kita
General Manager,
QA Department
(Name and signature as well as position of declarant)