

Date

December 27, 2018

Released

Ku-band PLL LNB

External Reference Model

RF Frequency: 10.95 to 12.75 GHz

Model No. NJR2935E series

Model No.	RF Frequency	Local Frequency	IF Frequency
NJR2934E series	12.2 to 12.75 GHz	11.25 GHz	950 to 1,500 MHz
NJR2935E series	11.7 to 12.2 GHz	10.75 GHz	950 to 1,450 MHz
NJR2936E series	12.25 to 12.75 GHz	11.3 GHz	950 to 1,450 MHz
NJR2937E series	10.95 to 11.7 GHz	10.0 GHz	950 to 1,700 MHz
NJR2939E series	11.2 to 11.7 GHz	10.25 GHz	950 to 1,450 MHz

IF Interface Connector: F-type / N-type, Female Connector

Local Reference Type: External Reference

Input Interface: Waveguide, WR-75

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Microwave Division

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New Japan Radio Co., Ltd.
Microwave Division

Title:

Datasheet of NJR2935E

Reference No.:
DS-R2935E

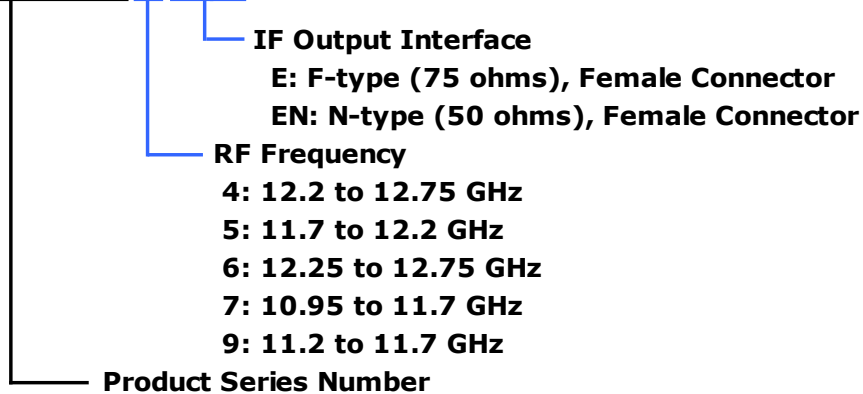
Rev.:
09E

Sheet:
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Model Number

- Numbering System

N J R 2 9 3 5 E N



- Line-up

Model No.	RF Frequency	Local Frequency	IF Frequency	Local Stability [-40 to +60 °C]	IF Connector
NJR2937E	10.95 to 11.70GHz	10.00 GHz	950 to 1,700 MHz	Depends on External Reference	F-type
NJR2937EN					N-type
NJR2939E	11.20 to 11.70 GHz	10.25 GHz	950 to 1,450 MHz		F-type
NJR2939EN					N-type
NJR2935E	11.70 to 12.20 GHz	10.75 GHz	950 to 1,500 MHz		F-type
NJR2935EN					N-type
NJR2934E	12.20 to 12.75 GHz	11.25 GHz	950 to 1,500 MHz		F-type
NJR2934EN					N-type
NJR2936E	12.25 to 12.75 GHz	11.30 GHz	950 to 1,450 MHz		F-type
NJR2936EN					N-type

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1. Scope

This specification details the requirements for the low noise and block downconverter intended for the satellite data communication downlink application in the Ku-Band.

This LNB has a combined 3-stage HEMT Amplifier and Block Down Converter with a Phase Locked Local, which is constituted with a S-Band VCO, Multiplier, Loop Filter and Crystal Oscillator providing high stability and low phase noise.

All specifications shall apply throughout the full range of the specified environmental conditions unless otherwise specified.

2. Electrical Specifications

#	Items	Specifications
2.1.	Absolute Maximum Rating	
	[RF Input Power]	-10 dBm (@ CW)
	[Supply Voltage]	+28 V DC
2.2.	Input RF Frequency Range	
	<Model No. NJR2934>	12.2 to 12.75 GHz
	<Model No. NJR2935>	11.7 to 12.2 GHz
	<Model No. NJR2936>	12.25 to 12.75 GHz
	<Model No. NJR2937>	10.95 to 11.7 GHz
<Model No. NJR2939>	11.2 to 11.7 GHz	
2.3.	Input V.S.W.R.	2.5 : 1 typ.
2.4.	Noise figure @ +25 °C	0.8 dB typ. 1 dB max.
2.5.	Output IF Frequency Range	
	<Model No. NJR2934>	950 to 1,500 MHz
	<Model No. NJR2935>	950 to 1,450 MHz
	<Model No. NJR2936>	950 to 1,450 MHz
	<Model No. NJR2937>	950 to 1,700 MHz
<Model No. NJR2939>	950 to 1,450 MHz	
2.6.	Conversion Gain @ +25 °C	55 dB min. 60 dB typ.
2.7.	Conversion Gain Variation @ +25 °C	2 dB max. in any 50 MHz segment over the frequency band.
2.8.	Output Power @ 1dB G.C.P. (P1dB)	0 dBm min.
2.9.	Intermodulation Products (3rd order Intermodulation rejection with two RF input carriers separated by 10 MHz, -10 dBm IF Output Power)	45 dBm min.
2.10.	Local Oscillator Leakage Levels	-25 dBm max. at the IF Output Connector. -60 dBm max. at the RF Input Flange.

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#	Items	Specifications
2.11.	Local Oscillator Frequency	
	<Model No. NJR2934>	11.25 GHz nom.
	<Model No. NJR2935>	10.75 GHz nom.
	<Model No. NJR2936>	11.3 GHz nom.
	<Model No. NJR2937>	10 GHz nom.
	<Model No. NJR2939>	10.25 GHz nom.
2.12.	L.O. Phase Noise (SSB)	-75 dBc/Hz at 100 Hz -80 dBc/Hz at 1 kHz -85 dBc/Hz at 10 kHz -95 dBc/Hz at 100 kHz *Depend on Phase Noise of the External Reference.
2.13.	Requirement for External Reference [Input Port] [Frequency] [Input Power] [Phase Noise]	IF Output Connector (Combine reference with IF Signal) 10 MHz nom. (Sine-wave) -10 to 0 dBm @ IF Output connector -135 dBc/Hz max. at 100 Hz -143 dBc/Hz max. at 1 kHz -145 dBc/Hz max. at 10 kHz (Input Condition)
2.14.	Spurious	a) -140 dBm max. at input, Fixed frequency spur, unrelated to test CW signal. (Measured at specified IF band: 950 to 1,450 MHz, 1,500 MHz to 1,700 MHz) b) -50 dBc max. with test CW signal -10 dBm IF output (Measured at specified IF band: 950 to 1,450 MHz, 1,500, or 1,700 MHz)
2.15.	Image Rejection	45 dB min.
2.16.	Output V.S.W.R.	2.3 : 1 max.
2.17.	Input Voltage	+12 to +24 VDC
2.18.	Current Drain	250 mA max.

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3. Mechanical Specifications

#	Items	Specifications
3.1.	Input Waveguide Flange	Waveguide, WR-75 (with Grooved)
3.2.	IF Interface Connector	
	<F-type Model>	F-type female connector, 75 ohms
	<N-type Model>	N-type female connector, 50 ohms
3.3.	Dimension & Housing	100.5 mm (L) x 40 mm (W) x 40 mm (H) [3.96" (L) x 1.57" (W) x 1.57" (H)]
3.4.	Weight	260 g [0.57 lbs]

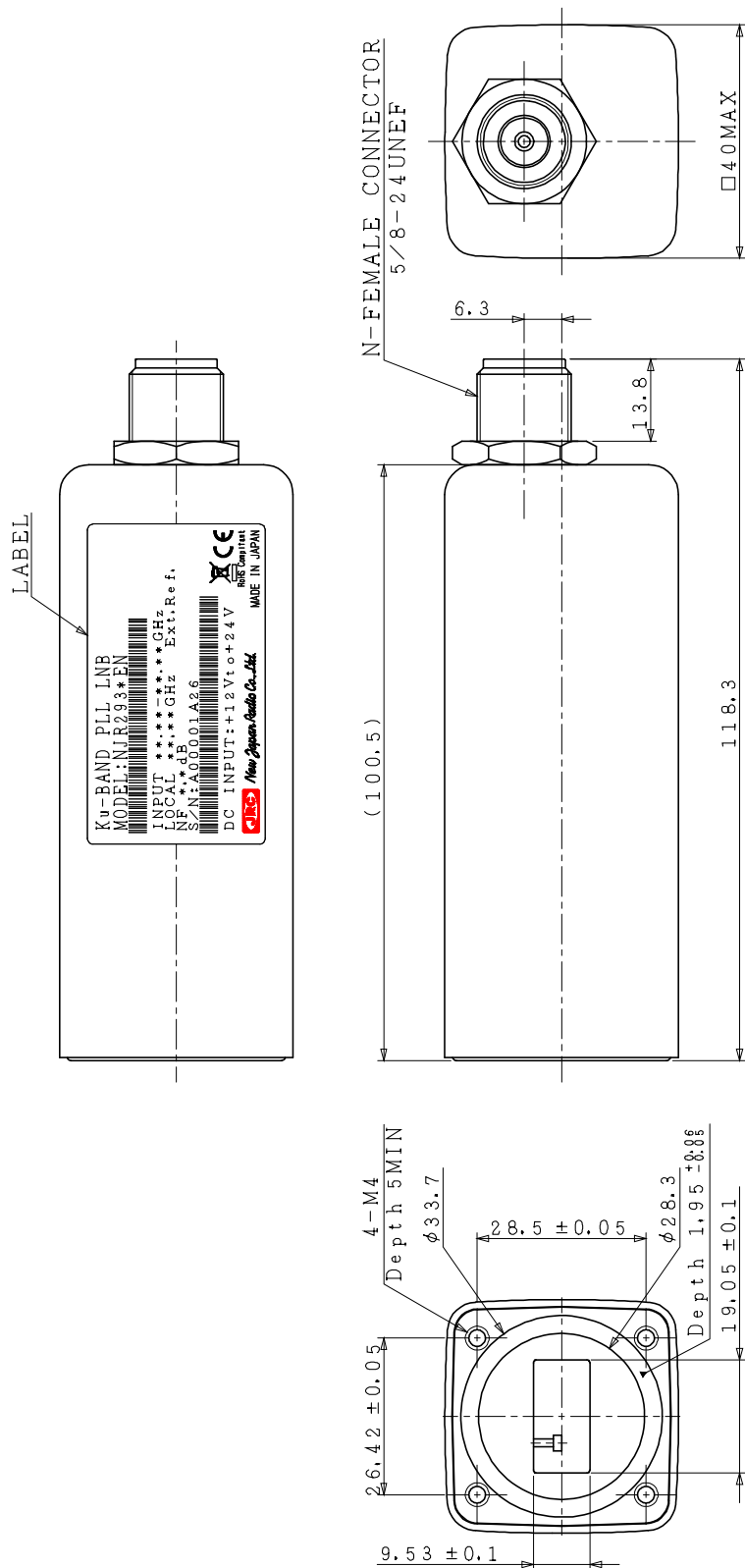
4. Environmental Specifications

#	Items	Specifications
4.1.	Temperature Range (ambient)	
	[Operating]	-40 to +60 °C
	[Storage]	-40 to +80 °C
4.2.	Humidity	0 to 100 % RH
4.3.	Altitude	10,000 feet (3,048m)
4.4.	Vibration	5 G [49.03 m/s ²] (3 axis, 50 Hz)
4.5.	Shock	15 G [147.1 m/s ²] (3 axis)
4.6.	Waterproof / Dustproof (IP Code)	IP 67
4.7.	Regulations	EU Directive (CE Marking) EMC (2014/30/EC) RoHS (2011/65/EU) Safety: EN60950-1
4.8.	Comply with RoHS (Restricting the use of Hazardous Substances) directives	

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5. Outline Drawing

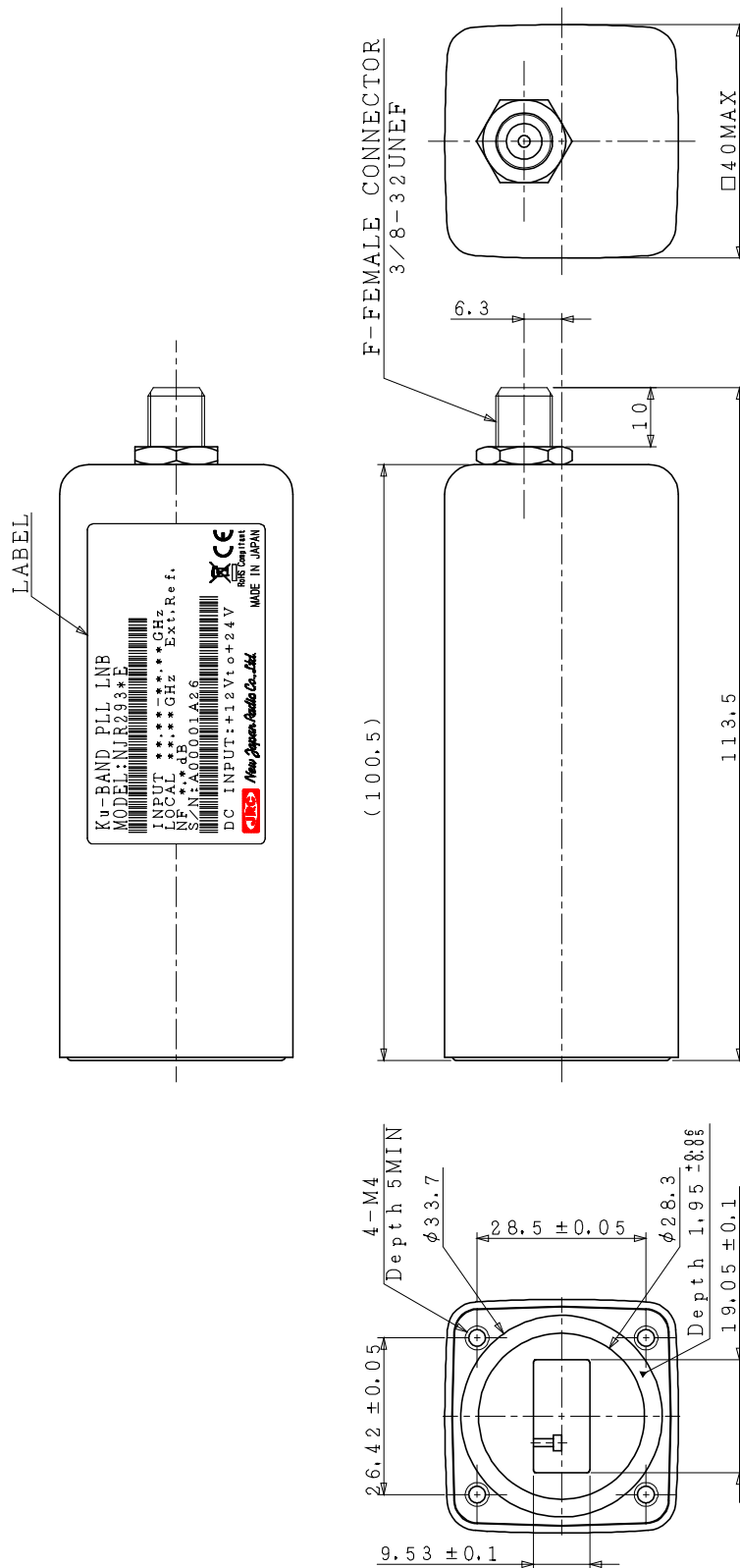
5.1. F-type Model



UNIT: mm
Tolerance ±0.5

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5.2. N-type Model

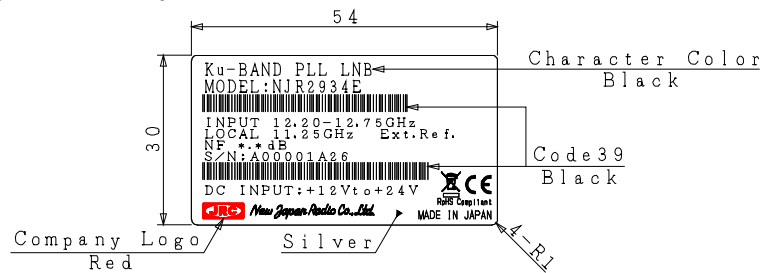


UNIT: mm
Tolerance ±0.5

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6. Label

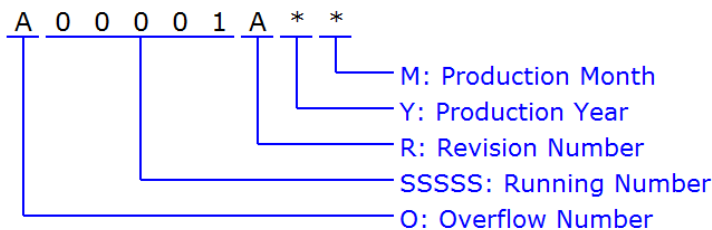
6.1. Label Outline (e.g. NJR2934E)



UNIT: mm

6.2. Definitions

Serial Number (OSSSSRYM) - ALPHANUMERIC (9 characters)



O: Overflow Number - ALPHABET (1 character)

"A" to "Z", e.g.: A99999 ⇒ B00001

SSSS: Running Number - NUMBER (5 digits)

"00001" to "99999"

R: Revision Number - ALPHABET (1 character)

"A" to "Z"

Y: Production Year - NUMBER (1 digit)

Calendar Number, e.g.: 2009: 9, 2010: 0, 2011: 1, 2012: 2 ····

M: Production Month - ALPHANUMERIC (1 character)

"1" to "9", "X" as October, "Y" as November, "Z" as December

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 - * Fire Alarm/Intruder Detector
 - * Vehicle Control Equipment (automobile, airplane, railroad, ship, etc.)
 - * Various Safety Equipment
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