Date
December 27, 2018

Released

Ku-band PLL LNB

Internal Reference Model

RF Frequency: 10.95 to 12.75 GHz

Model No. NJR2835 series

Model No.	RF Frequency	Local Frequency	IF Frequency
NJR2835 series	11.7 to 12.2 GHz	10.75 GHz	950 to 1,450 MHz
NJR2836 series	12.25 to 12.75 GHz	11.3 GHz	950 to 1,450 MHz
NJR2837 series	10.95 to 11.7 GHz	10.0 GHz	950 to 1,700 MHz
NJR2839 series	11.2 to 11.7 GHz	10.25 GHz	950 to 1,450 MHz

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

Local Reference Type: Internal Reference

Local Stability: H type, +/- 10 ppm (+/- 100 kHz typ.)

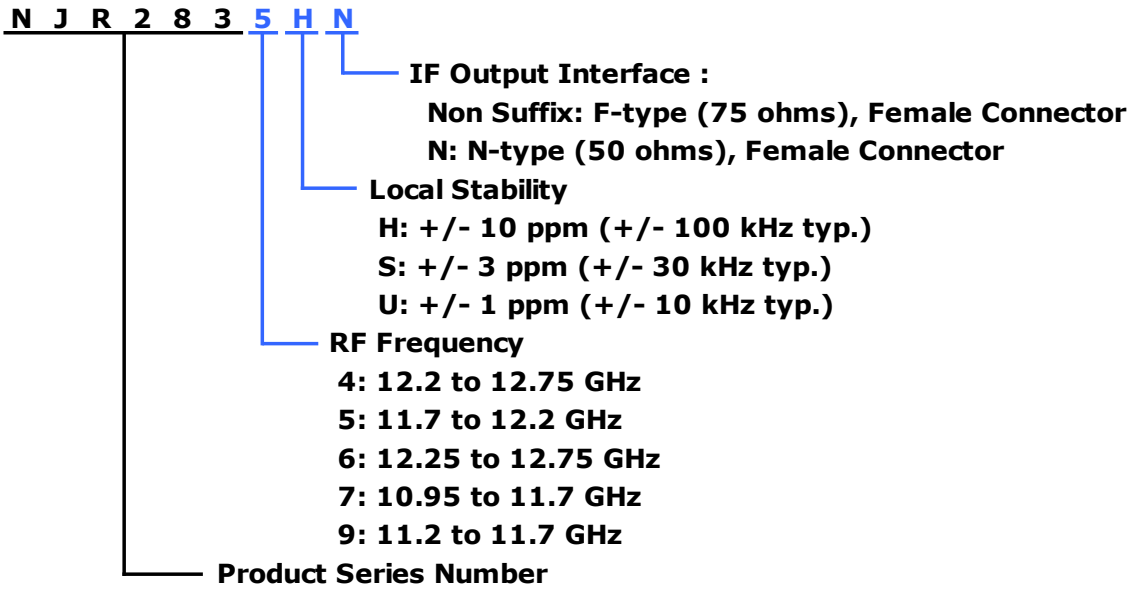
S type, +/- 3 ppm (+/- 30 kHz typ.)

U type, +/- 1 ppm (+/- 10 kHz typ.)

Input Interface: Waveguide, WR-75

Model Number

- **Numbering System**



Reference & Local Stability Line-up:

(H-type) Internal Reference, +/- 10 ppm Local Stability
(S-type) Internal Reference, +/- 3 ppm Local Stability
(U-type) Internal Reference, +/- 1 ppm Local Stability

- **Line-up**

Model No.	RF Frequency	Local Frequency	IF Frequency	Local Stability [-40 to +60 °C]	IF Connector
NJR2837H	10.95 to 11.70GHz	10.00 GHz	950 to 1,700 MHz	+/- 10 ppm (+/- 100kHz typ.)	F-type
NJR2837HN					N-type
NJR2837S				+/- 3 ppm (+/- 30kHz typ.)	F-type
NJR2837SN					N-type
NJR2837U				+/- 1 ppm (+/- 10kHz typ.)	F-type
NJR2837UN					N-type
NJR2839H	11.20 to 11.70 GHz	10.25 GHz	950 to 1,450 MHz	+/- 10 ppm (+/- 100kHz typ.)	F-type
NJR2839HN					N-type
NJR2839S				+/- 3 ppm (+/- 30kHz typ.)	F-type
NJR2839SN					N-type
NJR2839U				+/- 1 ppm (+/- 10kHz typ.)	F-type
NJR2839UN					N-type
NJR2835H	11.70 to 12.20 GHz	10.75 GHz	950 to 1,450 MHz	+/- 10 ppm (+/- 100kHz typ.)	F-type
NJR2835HN					N-type
NJR2835S				+/- 3 ppm (+/- 30kHz typ.)	F-type
NJR2835SN					N-type
NJR2835U				+/- 1 ppm (+/- 10kHztyp.)	F-type
NJR2835UN					N-type
NJR2836H	12.25 to 12.75 GHz	11.30 GHz	950 to 1,450 MHz	+/- 10 ppm (+/- 100kHz typ.)	F-type
NJR2836HN					N-type
NJR2836S				+/- 3 ppm (+/- 30kHz typ.)	F-type
NJR2836SN					N-type
NJR2836U				+/- 1 ppm (+/- 10kHz typ.)	F-type
NJR2836UN					N-type

＊Above Specifications are subject to change without notice.

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. NJR2835>	11.7 to 12.2 GHz
	<Model No. NJR2836>	12.25 to 12.75 GHz
	<Model No. NJR2837>	10.95 to 11.7 GHz
	<Model No. NJR2839>	11.2 to 11.7 GHz
2.3.	Input V.S.W.R.	2.5 : 1 typ.
2.4.	Noise figure @ +25 ºC	0.8 dB typ., 1.0 dB max.
2.5.	Output IF Frequency Range	
	<Model No. NJR2835>	950 to 1,450 MHz
	<Model No. NJR2836>	950 to 1,450 MHz
	<Model No. NJR2837>	950 to 1,700 MHz
	<Model No. NJR2839>	950 to 1,450 MHz
2.6.	Conversion Gain @ +25 ºC	55 dB min., 60 dB typ.
2.7.	Conversion Gain Variation @ +25 ºC	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. NJR2835 series>	10.75 GHz
	<Model No. NJR2836 series>	11.3 GHz
	<Model No. NJR2837 series>	10.0 GHz
	<Model No. NJR2839 series>	10.25 GHz
2.12.	Local Oscillator Stability (Initial set and Temp.: -40 to +60 ºC)	
	<H-type>	+/- 10 ppm max.
	<S-type>	+/- 3 ppm max.
	<U-type>	+/- 1 ppm max.
2.13.	L.O. Phase Noise (SSB)	-70 dBc/Hz at 100 Hz -80 dBc/Hz at 1 kHz
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 or 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 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] [Storage]	 -40 to +60 ºC -40 to +80 ºC
4.2.	Humidity	0 to 100 % RH
4.3.	Altitude	10,000 feet (3,048 m)
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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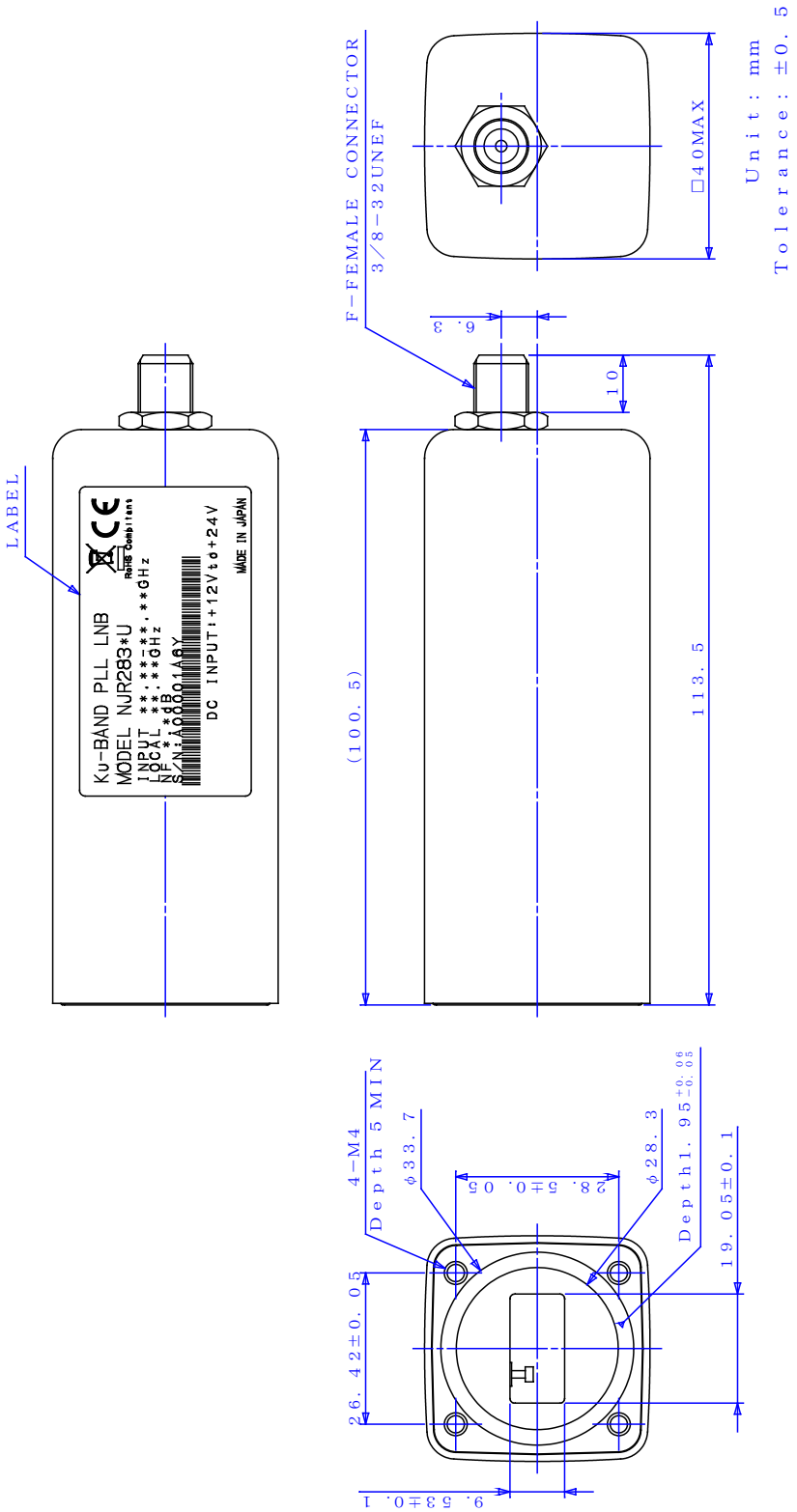
5. Outline Drawing

5.1. F-type Model



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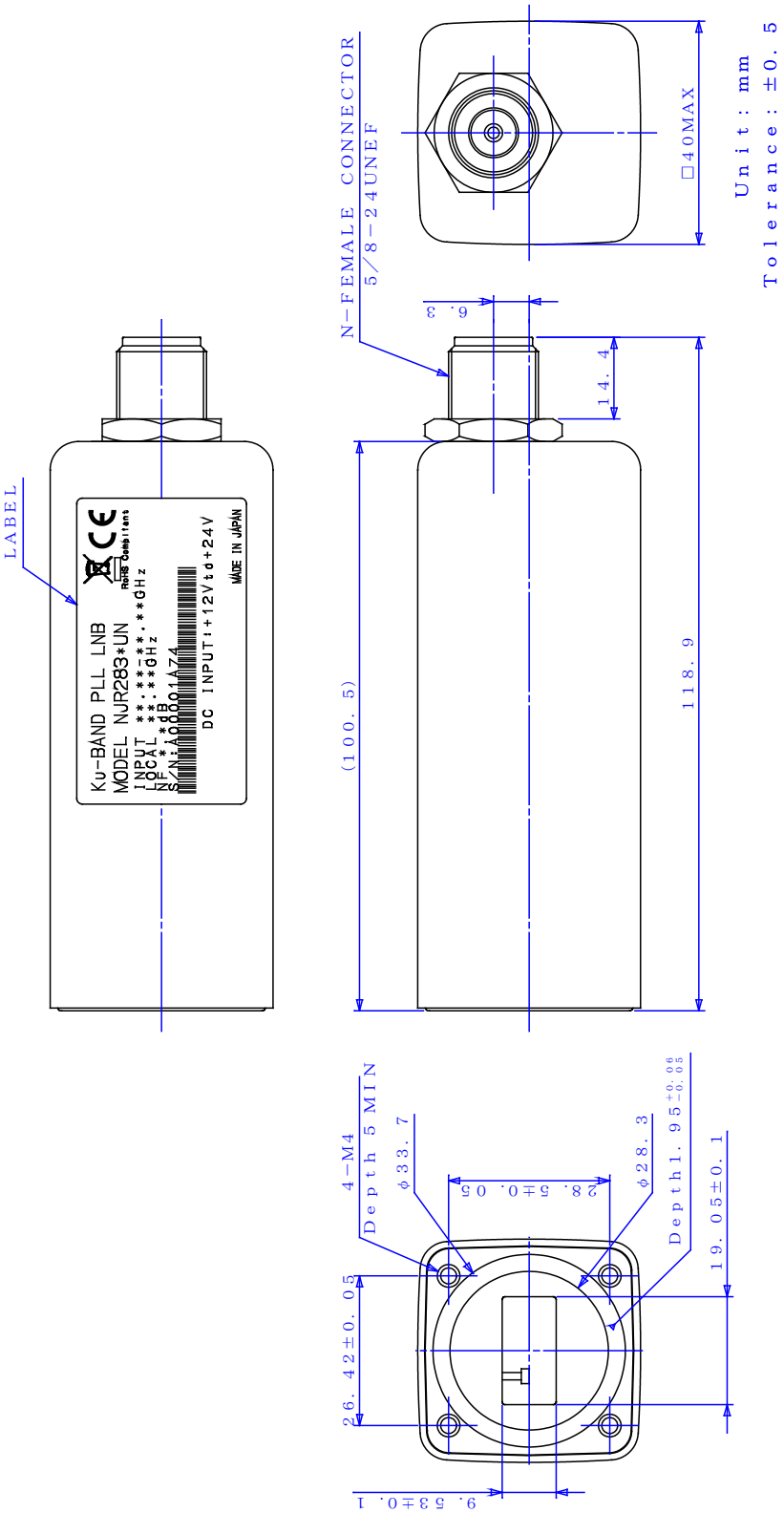
5.2. N-type Model



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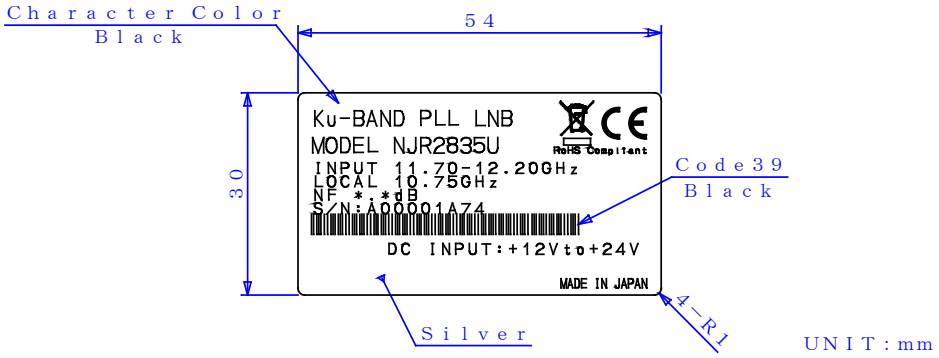
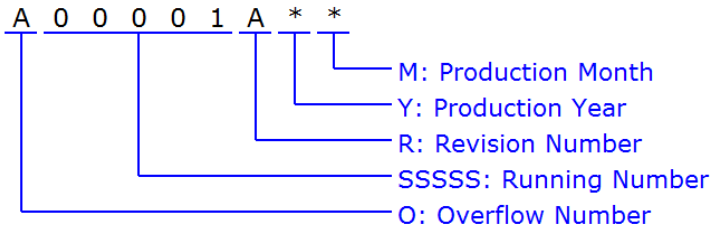
6. Label

6.1. Label Outline (e.g. NJR2835U)



6.2. Definitions

Serial Number (OSSSSSRYM) - ALPHANUMERIC (9 characters)



O: Overflow Number - ALPHABET (1 character)
"A" to "Z", e.g.: A99999 ⇒ B00001

SSSSS: 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 (1character)
"1" to "9", "X" as October, "Y" as November, "Z" as December

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.

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