Released

Ku-band 4W BUC

RF Frequency:
13.75 to 14.5 GHz and 14.0 to 14.5 GHz

Model No. NJT8304 series

RF Frequency	:	14.0 to 14.5 GHz / 13.75 to 14.5 GHz
LO Frequency	:	13.05 GHz / 12.80 GHz
IF Frequency	:	950 to 1,450 MHz / 950 to 1,700 MHz
Output Power @ 1dB G.C.P.	:	+36.0 dBm (4W)
IF / Ref. (10MHz) Input	:	N-type / F-type, Female Connector
DC Power Input	:	IF Connector

Specifications
Rev.02 February 3, 2017

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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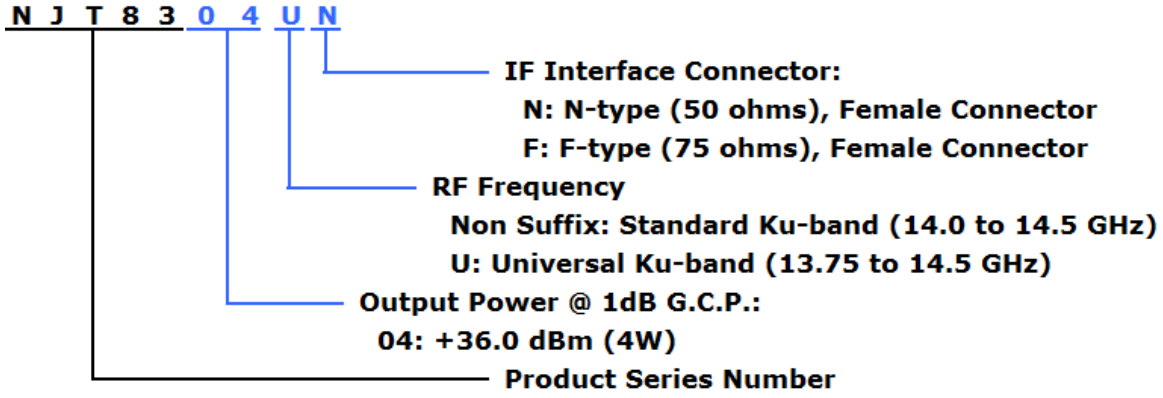
Model Number

- **Numbering System**



- **Line-up**

Model No.	RF Frequency	Local Frequency	IF Frequency	Output Power @ P1dB	IF Connector	Power Supply
NJT8304N	14.0 to 14.5GHz (Standard Ku-band)	13.05 GHz	950 to 1,450 MHz	4W Linear (+36dBm min.)	N-type	+12 to +30 V DC Power
NJT8304F					F-type	
NJT8304UN	13.75 to 14.5GHz (Universal Ku-band)	12.80 GHz	950 to 1,700 MHz		N-type	
NJT8304UF					F-type	

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1. Electrical Specifications

#	Items	Specifications
1-1.	Output Frequency Range	
	<Universal Ku-band>	13.75 to 14.5 GHz
	<Standard Ku-band>	14.0 to 14.5 GHz
1-2.	Input Frequency Range	
	<Universal Ku-band>	950 to 1,700 MHz
	<Standard Ku-band>	950 to 1,450 MHz
1-3.	Maximum IF Input Level (without damage)	+13 dBm max.
1-4.	Conversion Type	Single, fixed L.O.
1-5.	L.O. Frequency	
	<Universal Ku-band>	12.80 GHz
	<Standard Ku-band>	13.05 GHz
1-6.	Frequency Sense	Positive
1-7.	Output Power @ 1dB G.C.P. (P1dB)	+36.0 dBm min. over temperature
1-8.	Linear Gain	62 dB nom., 56 dB min.
1-9.	Gain Variation over frequency @ fixed temperature	
	<Universal Ku-band>	5 dBp-p max. over 750 MHz 2 dBp-p max. over 54 MHz
	<Standard Ku-band>	5 dBp-p max. over 500 MHz 2 dBp-p max. over 54 MHz
1-10.	Gain Stability over temperature @ fixed frequency	5 dBp-p max. 2 dBp-p typ.
1-11.	ACPR	-26 dBc min. @ Pout = +35.5 dBm
1-12.	Requirement for External Reference	
	[Frequency]	10 MHz (sine-wave)
	[Input Power]	-5 to +5 dBm @ Input port
	[Phase Noise]	-125 dBc/Hz max. @ 100 Hz -135 dBc/Hz max. @ 1 kHz -140 dBc/Hz max. @ 10 kHz
1-13.	L.O. Phase Noise	-60 dBc/Hz max. @ 100 Hz -70 dBc/Hz max. @ 1 kHz -80 dBc/Hz max. @ 10 kHz -90 dBc/Hz max. @ 100 kHz -100 dBc/Hz max. @ 1MHz
1-14.	Spurious @ Pout =+36.0 dBm	
	[in band]	-50 dBc max. @ RF Frequency
	[in receive band]	-70 dBm max. @ 10.95 to 12.75 GHz
	[Out-of-band]	-50 dBc max.
1-15.	Receive Band Noise Density	
	<Universal Ku-band>	* In case of RF Freq.: 14.0 to 14.5 GHz -156 dBm/Hz max. @10.95 to 12.75 GHz * In case of RF Freq.: 13.75 to 14.0 GHz -156 dBm/Hz max. @10.95 to 12.25 GHz -142 dBm/Hz max. @12.25 to 12.75 GHz
	<Standard Ku-band>	* In case of RF Freq.: 14.0 to 14.5GHz -156 dBm/Hz max. @ 10.95 to 12.75 GHz
1-16.	Noise Figure	18 dB nom., 23 dB max.
1-17.	Input Impedance	
	<N-type Model>	50 ohms nom.
	<F-type Model>	75 ohms nom.
1-18.	Input V.S.W.R.	2 : 1 max.

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#	Items	Specifications
1-19.	Output V.S.W.R.	2 : 1 max.
1-20.	Output Load VSWR for Non Damage	Infinite : 1
1-21.	DC Power Requirement [Voltage Range] [Power Consumption]	 +24 VDC (+12 to +30 VDC) 28 W typ., 32 W max. @ Pout = +36 dBm 20 W max. @ No IF, +25 C 2 W max. @ 10 MHz reference off (Mute on)
1-22.	Mute	Shut off the HPA in case of L.O. unlocked or no 10 MHz reference signal.

2. Mechanical Specifications

#	Items	Specifications
2-1.	Input Interface	IF / Ref. / DC Input:
	<N-type Model>	N-type female connector, 50 ohms
	<F-type Model>	F-type female connector, 75 ohms
2-2.	Output Interface	Waveguide, WR-75 (with Groove)
2-3.	Dimension & Housing	98 (L) × 98 (W) × 42.5 (H) mm [3.86" (L) x 3.86" (W) x 1.67" (H)] without interface connectors and screws
2-4.	Weight	500 g max. [1.1 lbs max.]

3. Environmental Specifications

#	Items	Specifications
3-1.	Temperature Range (ambient) [Operating] [Storage]	 -40 to +60 ºC *1 -40 to +75 ºC
3-2	Humidity	0 to 100 %
3-3.	Altitude	15,000 feet (4,572 m)
3-4.	Vibration	5 G [49.03 m/s^2] (3 axis, 50 Hz to 2 kHz) 1 mm p-p (3 axis, 5 to 50 Hz)
3-5.	Shock	30 G [294.20 m/s^2] (3 axis)
3-6	Waterproof / Dustproof (IP Code)	IP 67
3-7.	Regulations	EU Directive (CE Marking) EMC (2014/30/EU) RoHS (2011/65/EU) Safety: EN60950-1
3-8.	Comply with RoHS (Restricting the use of Hazardous Substances) directives	

*1: Conditioned on connection with waveguide.

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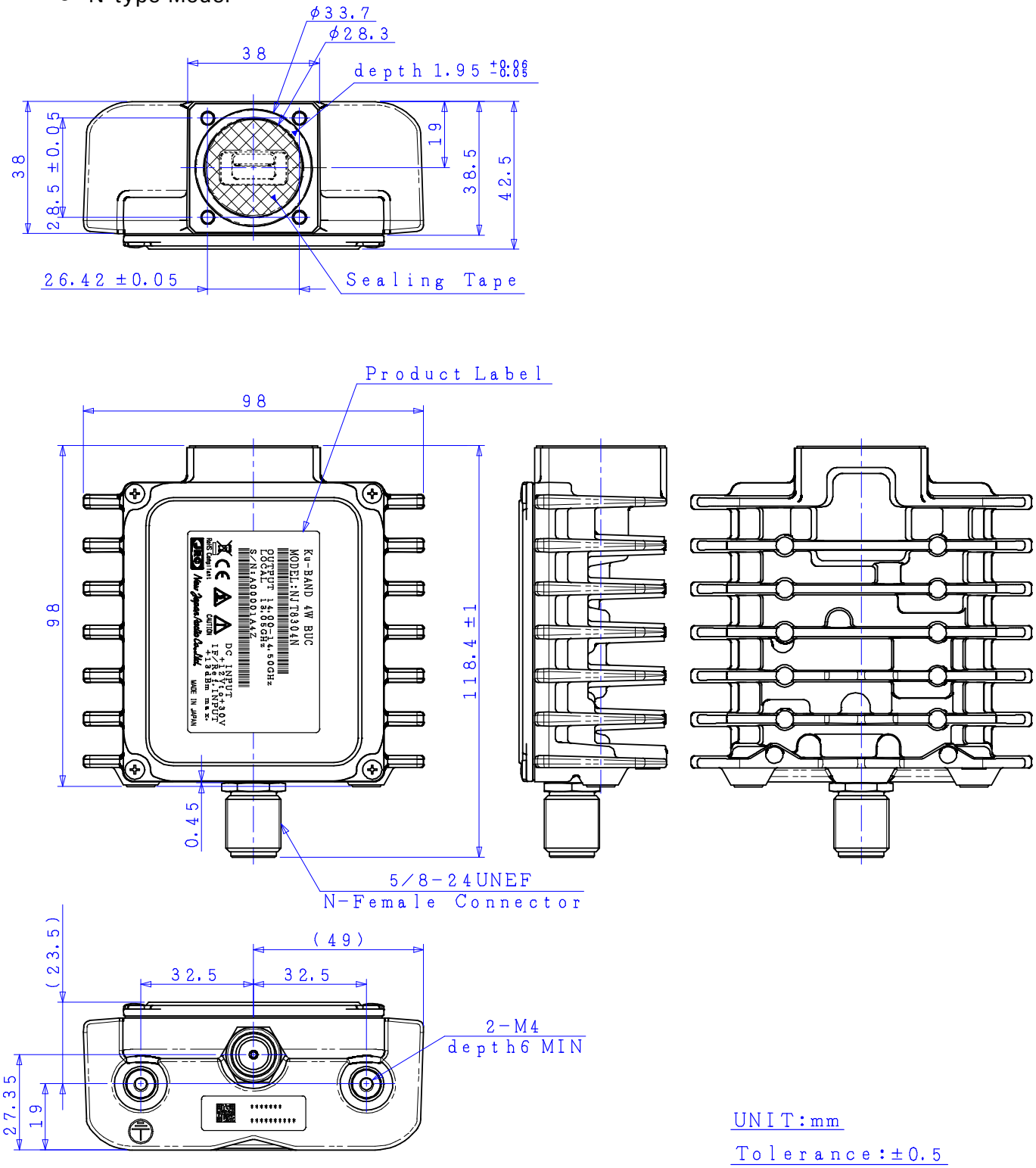
4. Outline Drawing

- N-type Model



Caution: *DO NOT remove the sealing tape on the waveguide. If the sealing tape is removed, it may lose the performance of waterproof.*

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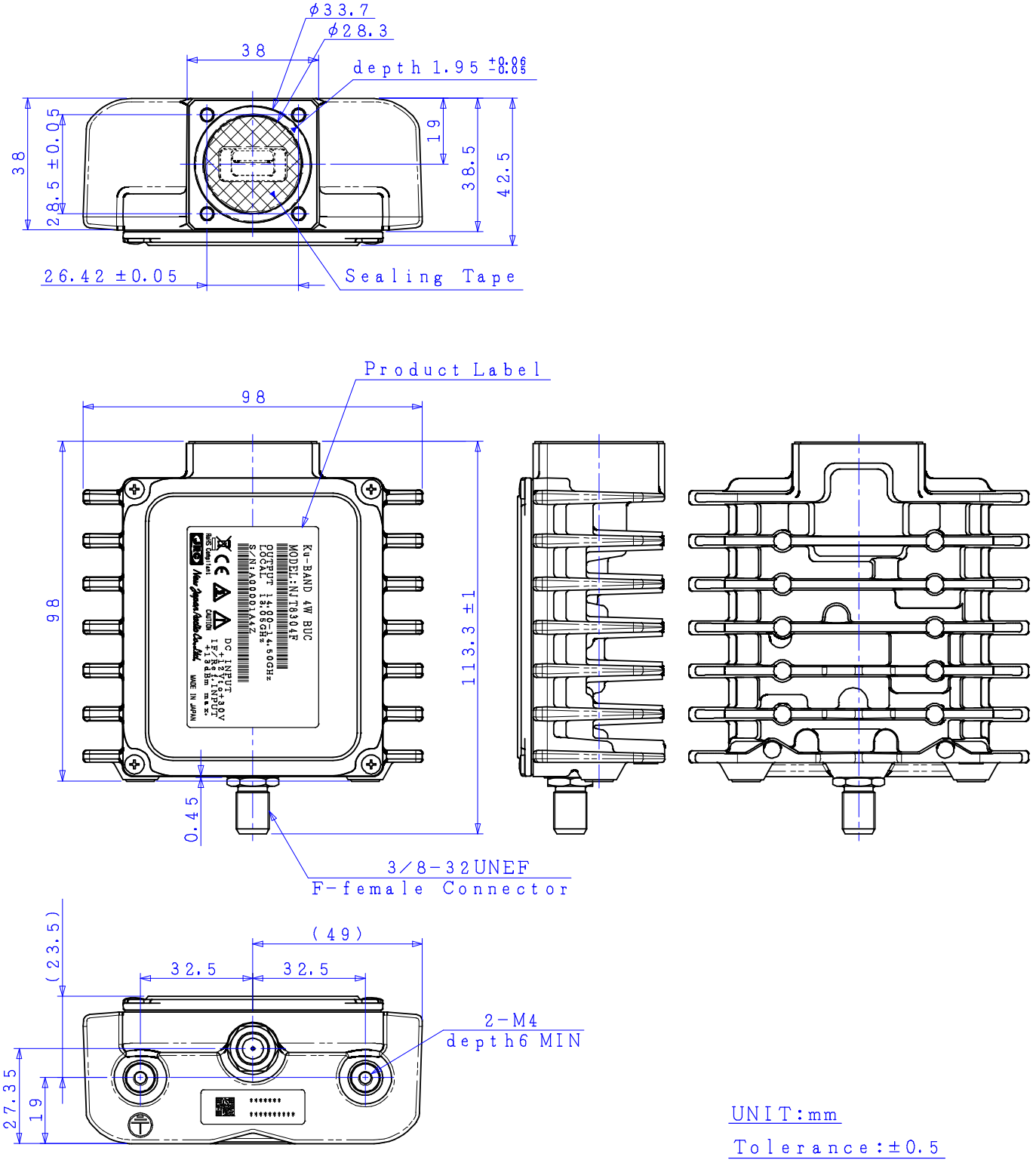
- F-type Model



Caution: *DO NOT remove the sealing tape on the waveguide. If the sealing tape is removed, it may lose the performance of waterproof.*

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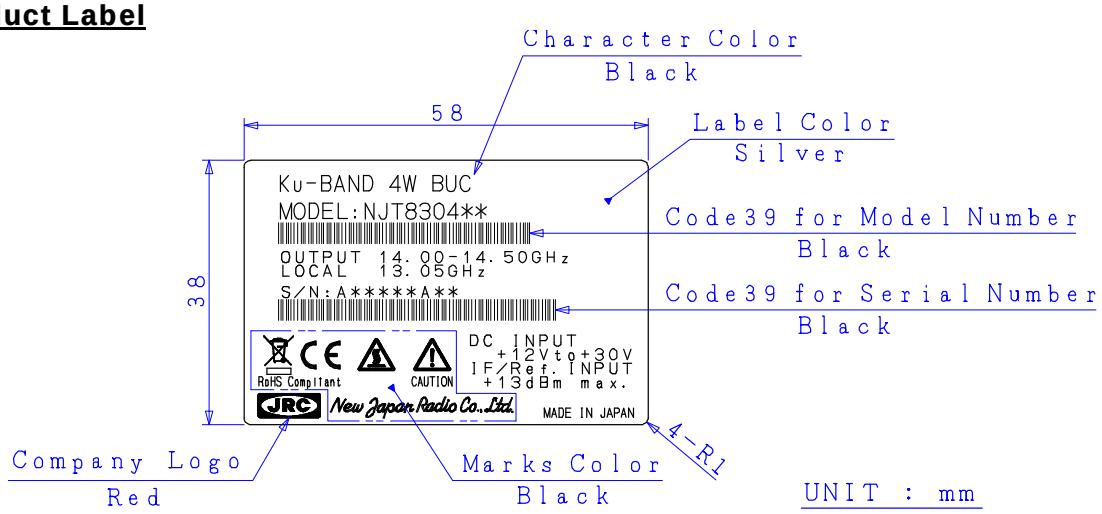
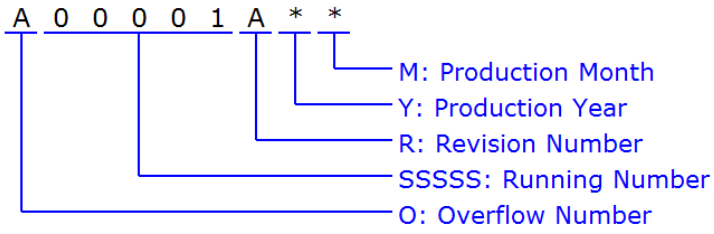
5. Label

Product Label



Definition of Serial Number

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

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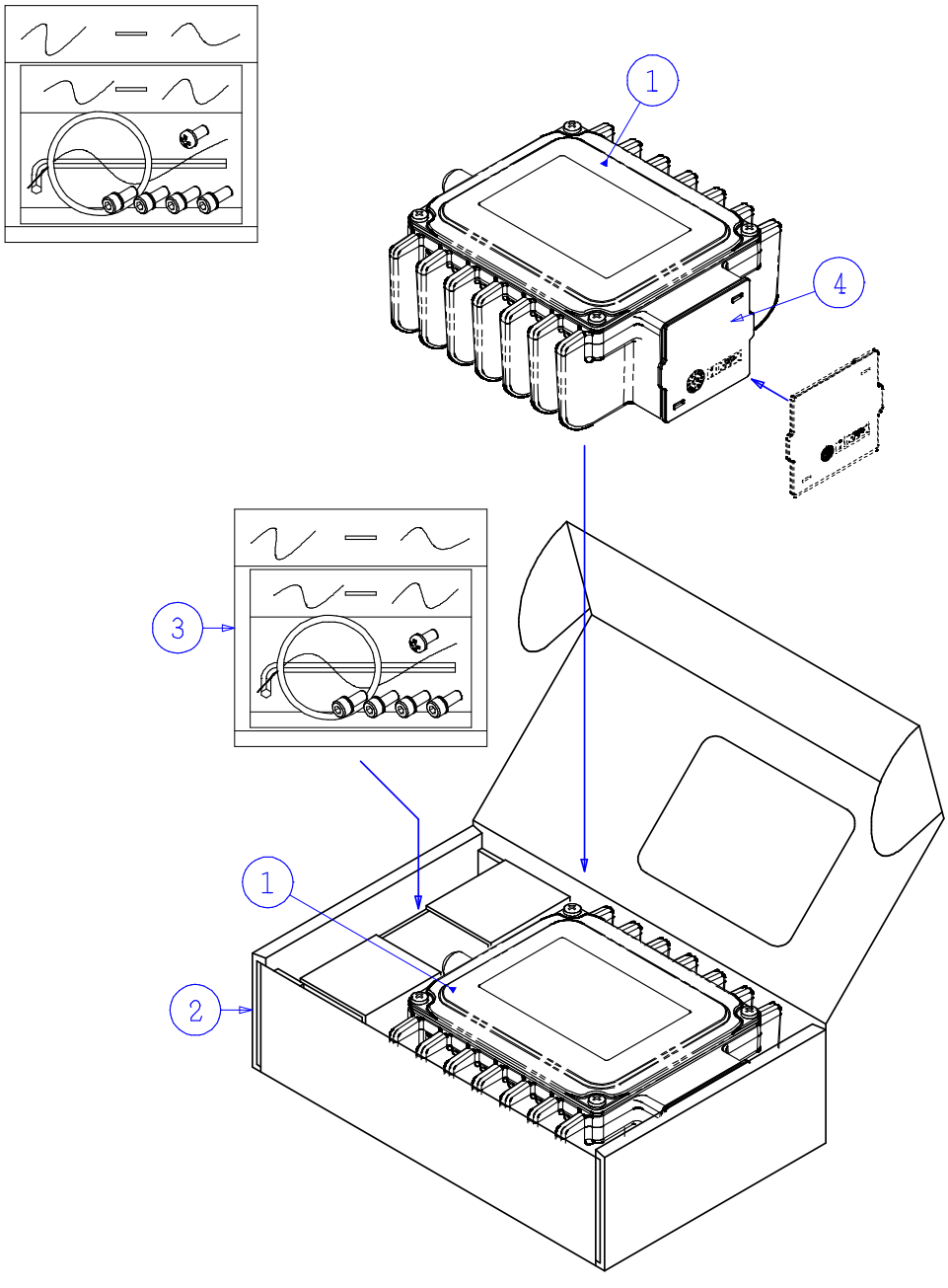
6. Package

Individual Package

Accessories

- O-ring
- Cross Recessed Head Screws
  M4×6 1 piece(SUS, SW) for Ground Hole
- Hexagon Socket Head Bolts
  M4×10 4Pieces(SUS, SW and W) for Waveguide Flange Holes
- Hexagon Wrench Keys(M4Type)



①:BUC
②:Single Wall Corrugated Fiberboard
③:Accessories
④:Polypropylene Flange Cover

UNIT:mm

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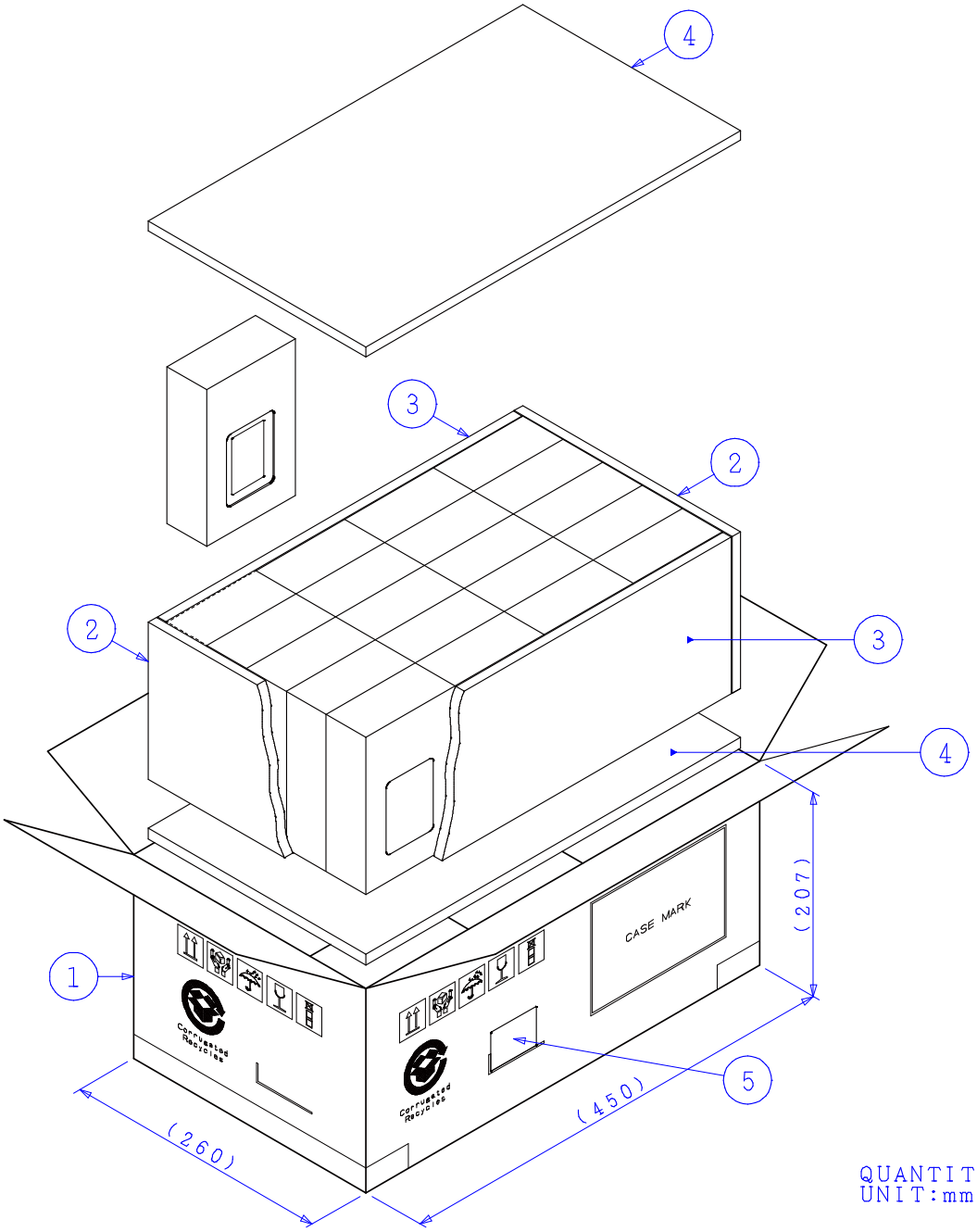
Shipping Package



QUANTITY:20
UNIT:mm

Pictorial Marking for Handling of Goods

THIS WAY UP

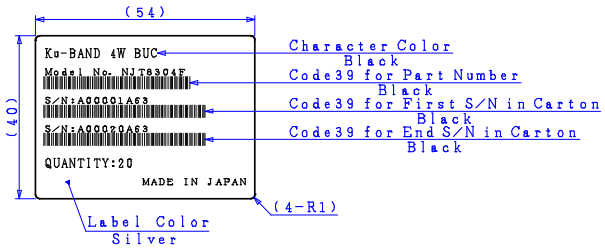
HANDLE WITH CARE

FRAGILE

LAYERS LIMIT:6

KEEP DRY

Package Label



①:Double Wall Corrugated Fiberboard
②:Polystyrene Foam for Package Cushioning
③:Polystyrene Foam for Package Cushioning
④:Polystyrene Foam for Package Cushioning
⑤:Package Label

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