

# - Specification -

## Ku-band 3W BUC

### Model No. NJT8302 series

RF Frequency	Local Frequency	IF Frequency
13.75 to 14.5 GHz	12.8 GHz	950 to 1,700 MHz
14 to 14.5 GHz	13.05 GHz	950 to 1,450 MHz

Output Power @ 1dB G.C.P.: +31 dBm (3W)

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

DC Power / Ref. (10MHz) Input: IF Connector

Output Interface: Waveguide, WR-75

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**Microwave Business Headquarters**

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## Caution

1. While Nisshinbo Micro Devices Inc. (NISD) continually strives to improve the quality and reliability of our products, failures will occur in microwave products over time. For this reason, it is important that customers fulfill their responsibilities to ensure designed-in safety – including failsafe functions, redundancy, and measures to prevent malfunctions and the spread of fire – in order to avoid injuries, accidents, or social repercussions resulting from the failure of any products related to satellite communications on this website (hereinafter, “the product”). Customers must pay careful attention to ensuring the safety of their equipment.
2. The product is designed and tested to function in accordance with its specifications. Do not use under conditions that deviate from the product specifications included in the delivery specifications. NISD assume no responsibility and shall not be liable for any injuries, accidents, or social repercussions resulting from the product being in a poor or damaged state because it was used under conditions that depart from the specifications.
3. The product is covered by a warranty for one year following delivery unless otherwise stipulated in the contract or delivery conditions. In the event of a failure for which NISD are responsible occurring during the warranty period, NISD undertake to repair or replace the product free of charge. Note, however, that the warranty does not cover failures such as those listed here (see bullets below), even if they occur within the warranty period. In addition, in the case of a product being repaired or replaced by us, the starting date for the warranty period is still the original delivery date of the product.
  - Failure due to the product being used in conditions other than those stipulated in the data sheet, specification sheet, etc.
  - Failure due to modifications or repairs carried out by some entity other than our company
  - Failure determined to be the result of unsuitable maintenance or replacement of a consumable item that requires due maintenance
  - Failure due to circumstances that were unforeseeable given the scientific/technological standards at the time of shipment
  - Other failures due to external factors such as fire, earthquake, flood and power supply anomalies for which NISD are not responsible

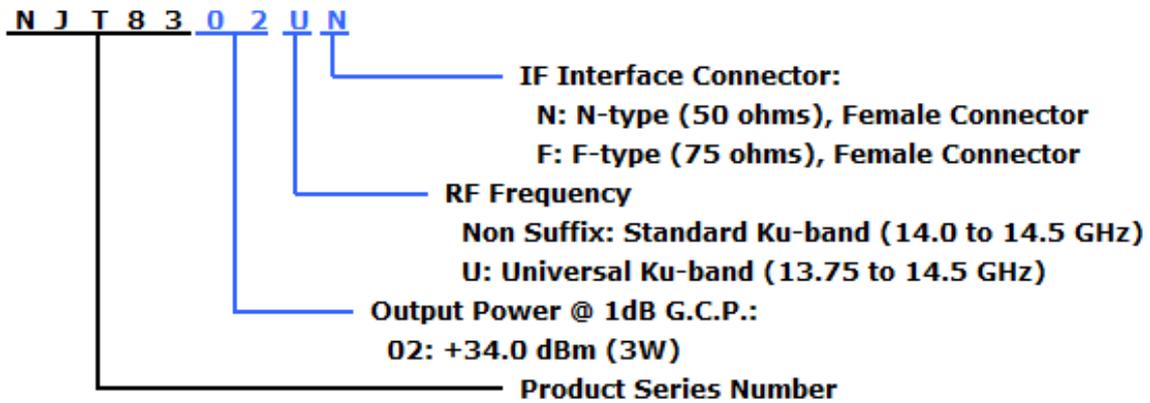
In addition, the product warranty is limited to the provision of repair services or replacement at no cost. It does not cover secondary damage (to equipment, business opportunities, profits, etc.) or any other damage that may have resulted from failure of the product.

4. The product must be handled appropriately to ensure its continued reliability. Since it can be damaged by the intrusion of water, dust, oil, chemicals, etc., it must be given appropriate protection. Even in the case of a product with an airtight construction, avoid using it in an environment that exceeds the stated levels of waterproofing/dustproofing. Also, be sure to use connectors and waveguides properly.  
If replacement parts such as fans are included, proper maintenance is necessary. To maintain product performance and functionality, it is necessary to conduct inspections and maintenance at appropriate intervals and exchange replacement parts when necessary. Improper inspections or maintenance may result in failure.  
In addition, the warranty does not cover the use of the product in areas where salt damage can be expected or where there is a substantial presence of corrosive gases such as Cl<sub>2</sub>, H<sub>2</sub>S, SO<sub>2</sub>, and NO<sub>2</sub>. If the product is to be used in such areas, at the time of installation you must take appropriate steps to protect the product.
5. If the product is to be used with equipment/systems that must meet special quality and reliability standards (aerospace equipment, medical equipment, power generation control equipment, automotive/railway transportation equipment, safety equipment, disaster prevention and security equipment, etc.), please consult with our sales staff in advance.
6. Some products contain gallium arsenide (GaAs), classified as a harmful substance. To avoid danger, do not incinerate, crush, or chemically treat the product in such a way that gases or dust are released. When disposing of the product, comply with all applicable laws and regulations and do not treat it as general industrial waste or household waste.
7. When exporting a product or technology, observe export laws and regulations such as those governing foreign exchange and foreign trade, and obtain any necessary licenses for export, service transactions, etc.  
NISD request that you do not use our products or the technical data published on this website for developing weapons of mass destruction or for any other military purposes or applications.
8. The product specifications in this document are subject to change without notice. If you are considering using a product, delivery specifications must first be settled.

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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
<b>NJT8302N</b>	14.0 to 14.5GHz (Standard Ku-band)	13.05 GHz	950 to	3W Linear (+34dBm min.)	N-type	+12 to +30 V DC Power
<b>NJT8302F</b>			1,450 MHz		F-type	
<b>NJT8302UN</b>	13.75 to 14.5GHz (Universal Ku-band)	12.80 GHz	950 to		N-type	
<b>NJT8302UF</b>			1,700 MHz		F-type	

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## 1. Electrical Specifications

#	Items	Specifications
1.1.	Output RF Frequency Range	
	<Universal Ku-band>	13.75 to 14.5 GHz
	<Standard Ku-band>	14 to 14.5 GHz
1.2.	Input IF 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>	12.8 GHz
	<Standard Ku-band>	13.05 GHz
1.6.	Frequency Sense	Positive
1.7.	Output Power @ 1dB G.C.P. (P1dB)	+34.0 dBm min. over temperature
1.8.	Linear Gain	55 dB typ. 51 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 any 36 MHz
	<Standard Ku-band>	5 dBp-p max. over 500 MHz 2 dBp-p max. over any 36 MHz
1.10.	Gain Stability over temperature @ fixed frequency	5 dBp-p max. 2 dBp-p typ.
1.11.	ACPR	-26 dBc typ. @ Pout = +34 dBm
1.12.	Requirement for External Reference	
	[Frequency]	10 MHz (sine-wave)
	[Input Power]	-5 to +5 dBm @ Input port
	[Phase Noise]	-120 dBc/Hz max. @ 100 Hz -130 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

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#	Items	Specifications
1.14.	Spurious @ Pout = +34 dBm <div style="text-align: right; padding-right: 20px;">                     [In-band]                      [Receive band]                      [Out-of-band]                 </div>	-50 dBc max. @ RF Frequency -70 dBm max. @ 10.95 to 12.75 GHz -50 dBc max.
1.15.	Receive Band Noise Density <div style="text-align: center; padding: 5px 0;">                     &lt;Universal Ku-band&gt;                 </div> <hr style="border-top: 1px dotted black;"/> <div style="text-align: center; padding: 5px 0;">                     &lt;Standard Ku-band&gt;                 </div>	* In case of RF Freq.:14 to 14.5 GHz -156 dBm/Hz max. @10.95 to 12.25 GHz * In case of RF Freq.:13.75 to 14 GHz -156 dBm/Hz max. @10.95 to 12.25 GHz -142 dBm/Hz max. @12.25 to 12.75 GHz * In case of RF Freq.:14 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 <div style="text-align: center; padding: 5px 0;">                     &lt;N-type Model&gt;                 </div> <hr style="border-top: 1px dotted black;"/> <div style="text-align: center; padding: 5px 0;">                     &lt;F-type Model&gt;                 </div>	50 ohms nom 75 ohms nom.
1.18.	Input V.S.W.R.	2 : 1 max.
1.19.	Output V.S.W.R.	2 : 1 max.
1.20.	Output Load V.S.W.R. <div style="text-align: right; padding-right: 20px;">                     [Recommendation]                      [Non Damage]                 </div>	1.3 : 1 max. Infinite : 1
1.21.	DC Power Requirement <div style="text-align: right; padding-right: 20px;">                     [Voltage Range]                      [Power Consumption]                 </div>	+24 VDC (+12 to +30 VDC) 18 W typ., 23 W max. @ Pout = +34 dBm 15 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.

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## 2. Mechanical Specifications

#	Items	Specifications
2.1.	Input Interface	IF / Ref. / DC Power 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 Grooved)
2.3.	Dimension & Housing	91.55 (L) x 68 (W) x 42.5 (H) mm [3.60" (L) x 2.68" (W) x 1.67" (H)] without interface connectors
2.4.	Weight	350 g [0.77 lbs]

## 3. Environmental Specifications

#	Items	Specifications
3.1.	Temperature Range (ambient)	
	[Operating]	-40 to +55 °C * <sup>1</sup>
	[Storage]	-40 to +75 °C
3.2.	Humidity	0 to 100 % RH * <sup>2</sup>
3.3.	Altitude	15,000 feet (4,572 m)
3.4.	Vibration	5 G [49.03 m/s <sup>2</sup> ] (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 <sup>2</sup> ] (3 axis)
3.6.	Waterproof / Dustproof (IP Code)	IP 67
3.7.	Regulations	EU Directive (CE Marking) EMC (2014/30/EC) RoHS (2011/65/EU) Safety: EN60950-1
3.8.	Comply with RoHS (Restricting the use of Hazardous Substances) directives	

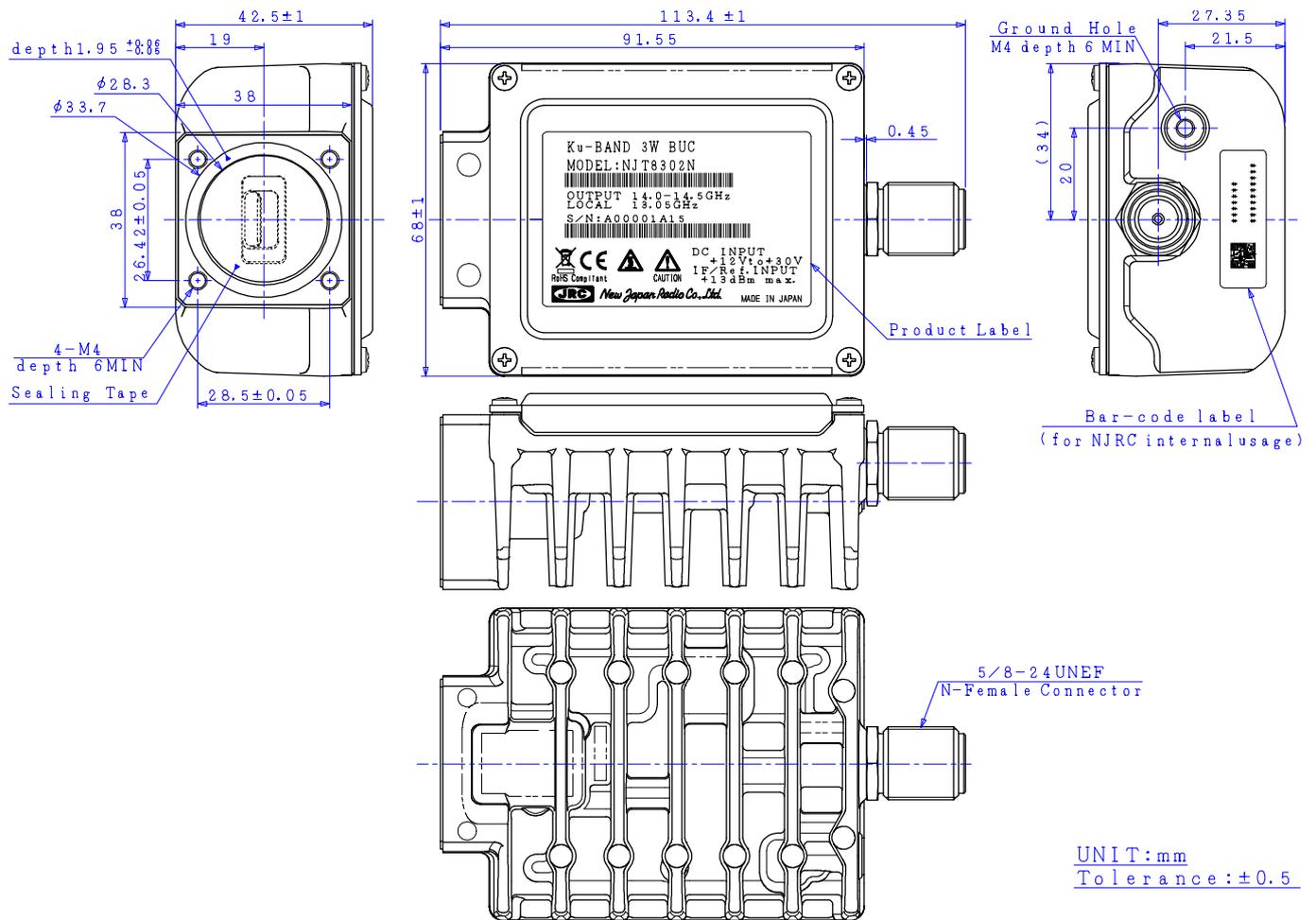
\*1: Conditioned on connection with OMT and TRF.

\*2: Premised on connection with the hermetically-sealed OMT and Feed horn.

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## 4. Outline Drawing

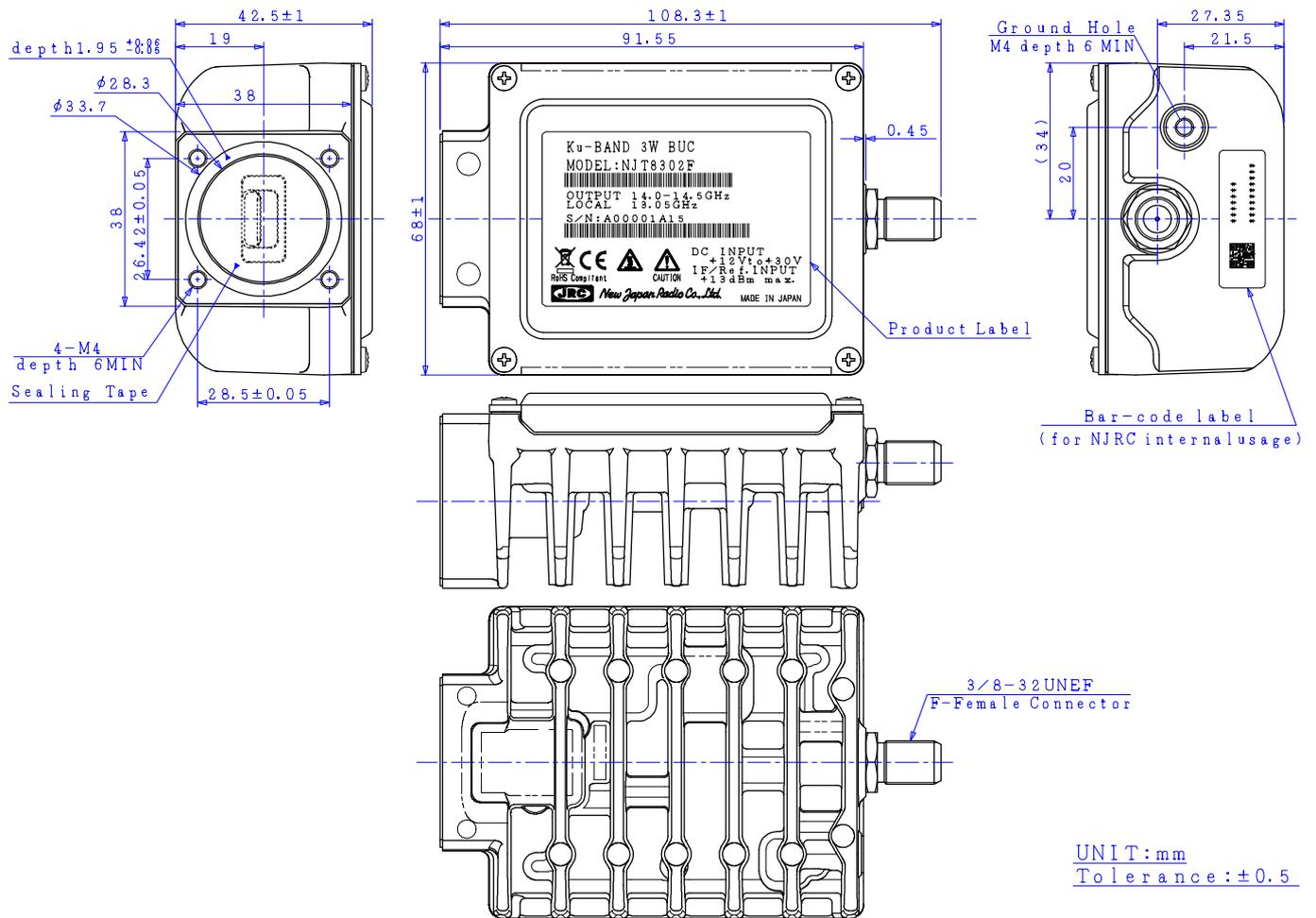
### 4.1. N-type Model



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

\* Above Specifications are subject to change without notice.

## 4.2. F-type Model

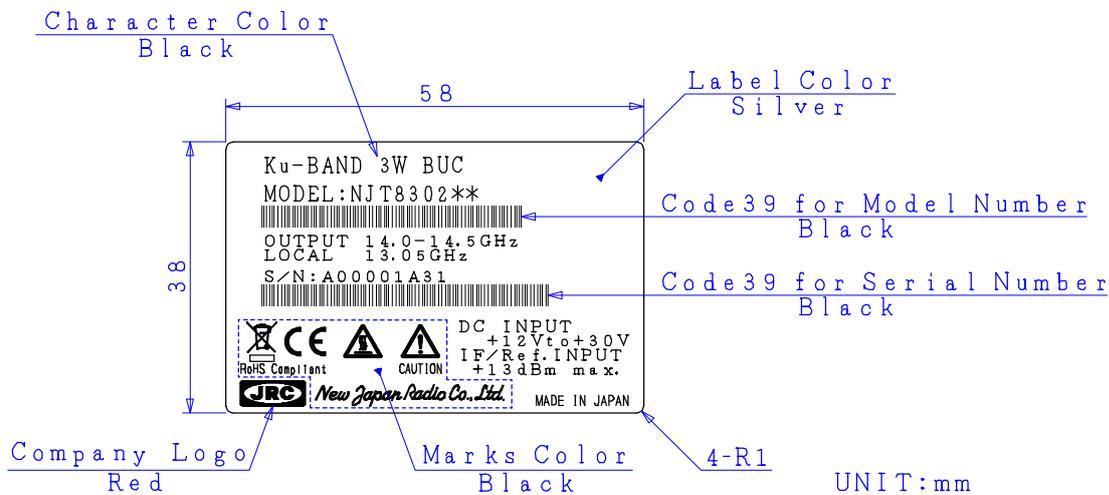


Caution: **DO NOT** remove the sealing tape on the waveguide. If the sealing tape is removed, it may lose the performance of waterproof.

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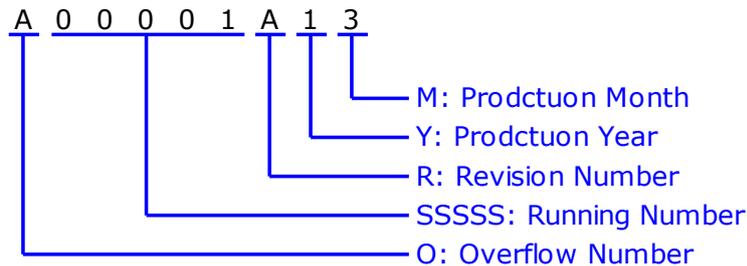
## 5. Label

### 5.1. Label Outline



### 5.2. Definitions

Serial Number (OSSSSRYM) - ALPHANUMERIC (9 characters)



O: Overflow Number - ALPHABET (1 character)

"A" to "T" except "I" and "O", e.g.: A99999 ⇒ B00001

"V" to "Z": Specified Numbers

SSSS: Running Number - NUMBER (5 digits)

"00001" to "99999"

R: Revision Number - ALPHABET (1 character)

"A" to "Z" except "I", "O", and "U"

Y: Production Year - NUMBER (1 digit)

"0" to "9", Last Digit of Calendar Number

e.g.: 2021:"1", 2022:"2", 2023:"3".....

M: Production Month - ALPHANUMERIC (1 character)

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

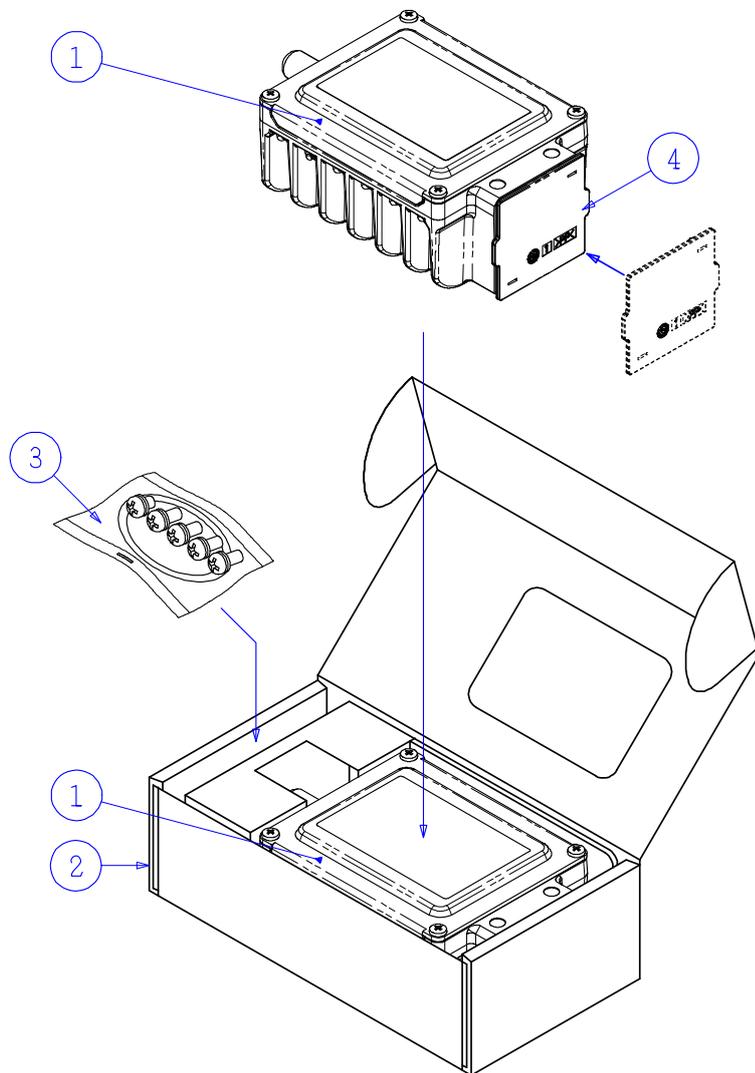
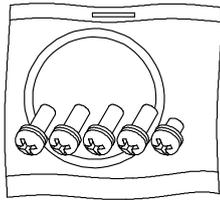
\* Above Specifications are subject to change without notice.

## 6. Package

### 6.1. Individual Package

#### Accessories

- O-ring
- Cross Recessed Head Screws  
 M4×10 4 pieces(SUS, SW and W) for Waveguide Flange Holes  
 M4×6 1 piece(SUS, SW and W) for Ground Hole



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

UNIT:mm

\* Above Specifications are subject to change without notice.

## 7. Handling Precautions

### 7.1. DANGER



This statement indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Items	Description
Input Voltage	Only input a DC voltage within the range indicated in specifications. <u>Do</u> operate with the input voltage range between +12 and +30 V DC power. When applying higher voltage than specifications (+30 V as maximum voltage in DC power requirement), it will not only cause this unit failure, but it may also result in <u>electric shock</u> and <u>fire</u> .
Disassembling	<u>Do not</u> disassemble the unit. Disassembling will not only cause this unit failure, but it may also result in <u>electric shock</u> .

### 7.2. WARNING



This statement indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Items	Description
RF Radiation	A radiation hazard exists if this unit is operated with its RF signal output unterminated. <u>Do not</u> operate this unit without a load or termination attached to the RF signal output.
Hot Surface	Whole of body and heat sink is hot when this unit is powered, and even after power is disconnected until it is cooled down. <u>Do not</u> touch hot surface to avoid a burn hazard.

### 7.3. CAUTION



This statement indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. The statement may also be used to indicate other unsafe practices or risks of property damage.

\* Above Specifications are subject to change without notice.

Items	Description
Disposal	<p>This unit contains gallium arsenide (GaAs), classified as a harmful substance. To avoid danger, <u>do not</u> incinerate, crush, or chemically treat the unit in such a way that gases or dust are released.</p> <p>When disposing the unit, comply with all applicable laws and regulations and <u>do not</u> treat it as general industrial waste or household waste.</p>

#### 7.4. NOTE

### ! NOTE

This statement is used to notify of installation, operation, or maintenance information that is important, but not hazard-related.

Items	Description
Mounting	<p><u>Do not</u> block fins of this unit to keep the heat dissipation performance.</p> <p>Normally the unit should be mounted with long fins face up.</p>
Grounding	<p>To reduce the risk of damage or broken by lightning surge, the unit should be grounded by connecting the ground wire.</p>
Torque Management	<p><u>Do not</u> tighten with excessive torque when attaching screws/bolts and connectors.</p> <p>The following value as tighten torque is recommended.</p> <ul style="list-style-type: none"> <li>■ Screws/Bolts - M4: 1.15 to 1.4 N·m</li> <li>■ IF Connector (N-type / F-type): 0.68 to 1.13 N·m</li> </ul>
Weatherproof	<p>The unit mounted in outdoor should be conducted with adequately weatherproof procedure.</p> <p>Do seal all of cable connection points from the connector to the cable sheath by usage of self-amalgamating tape.</p> <p>Ensure the waveguide connection is properly assembled with the enclosed o-ring gasket as accessories. The o-ring gasket is full-type and it is assumed to connect the unit to a flat waveguide flange.</p>
Waveguide Sealing Tape	<p><u>Do not</u> remove the sealing tape on the waveguide.</p> <p>If the sealing tape is removed, it will lose the performance of waterproof and also it will become out-of-warranty.</p>
Input Voltage	<p><u>Do</u> operate with the input voltage range between +12 and +30 V DC power.</p> <p>Avoid applying more than the maximum voltage in this range (including ripple voltage) under any conditions.</p>
Input IF Signal Power	<p><u>Do not</u> supply the input IF signal over the maximum level (+13 dBm), which is indicated on the product label.</p>

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