

## **Ku-band 1.5W BUC**

RF Frequency:

13.75 to 14.5 GHz and 14.0 to 14.5 GHz

### Model No. NJT8301 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. :  
+31.0 dBm (1.5W)  
IF / Ref. (10MHz) Input :  
N-type / F-type, Female Connector  
DC Power Input : IF Connector

## **Specifications**

**Rev.09 February 3, 2017**

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**New Japan Radio Co., Ltd.  
Microwave Division**

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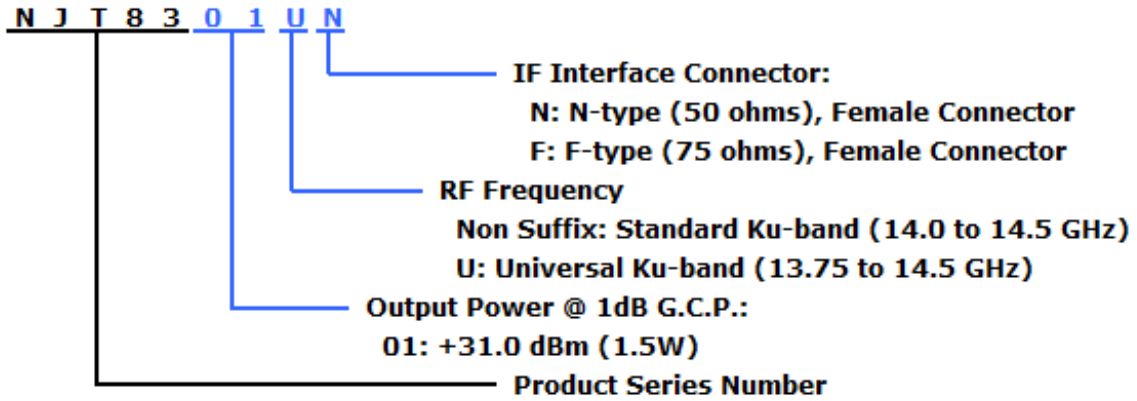
## Caution

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.
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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
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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
<b>NJT8301N</b>	14.0 to 14.5GHz (Standard Ku-band)	13.05 GHz	950 to 1,450 MHz	1.5W Linear (+31dBm min.)	N-type	+12 to +30 V DC Power
<b>NJT8301F</b>					F-type	
<b>NJT8301UN</b>	13.75 to 14.5GHz (Universal Ku-band)	12.80 GHz	950 to 1,700 MHz		N-type	
<b>NJT8301UF</b>					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)	+31.0 dBm min. over temperature
1-8.	Linear Gain	55 dB typ. 48 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 = +31 dBm
1-12.	Requirement for External Reference [Frequency] [Input Power] [Phase Noise]	10 MHz (sine-wave) -5 to +5 dBm @ Input port -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 = +31 dBm [in band] [in receive band] [Out-of-band]	-50 dBc max. @ RF Frequency -70 dBm max. @ 10.95 to 12.75 GHz -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 12.25 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	20 dB nom., 25 dB max.
1-17.	Input Impedance	
	<N-type Model>	50 ohms nom.
	<F-type Model>	75 ohms nom.

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#	Items	Specifications
1-18.	Input V.S.W.R.	2 : 1 max.
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) 12 W typ., 14 W max. @ Pout = +31 dBm 11 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	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 max. [0.77 lbs max.]

## 3. Environmental Specifications

#	Items	Specifications
3-1.	Temperature Range (ambient) [Operating] [Storage]	-40 to +55 °C *1
		-40 to +75 °C
3-2.	Humidity	0 to 100 % *2
3-3.	Altitude	15,000 feet
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	

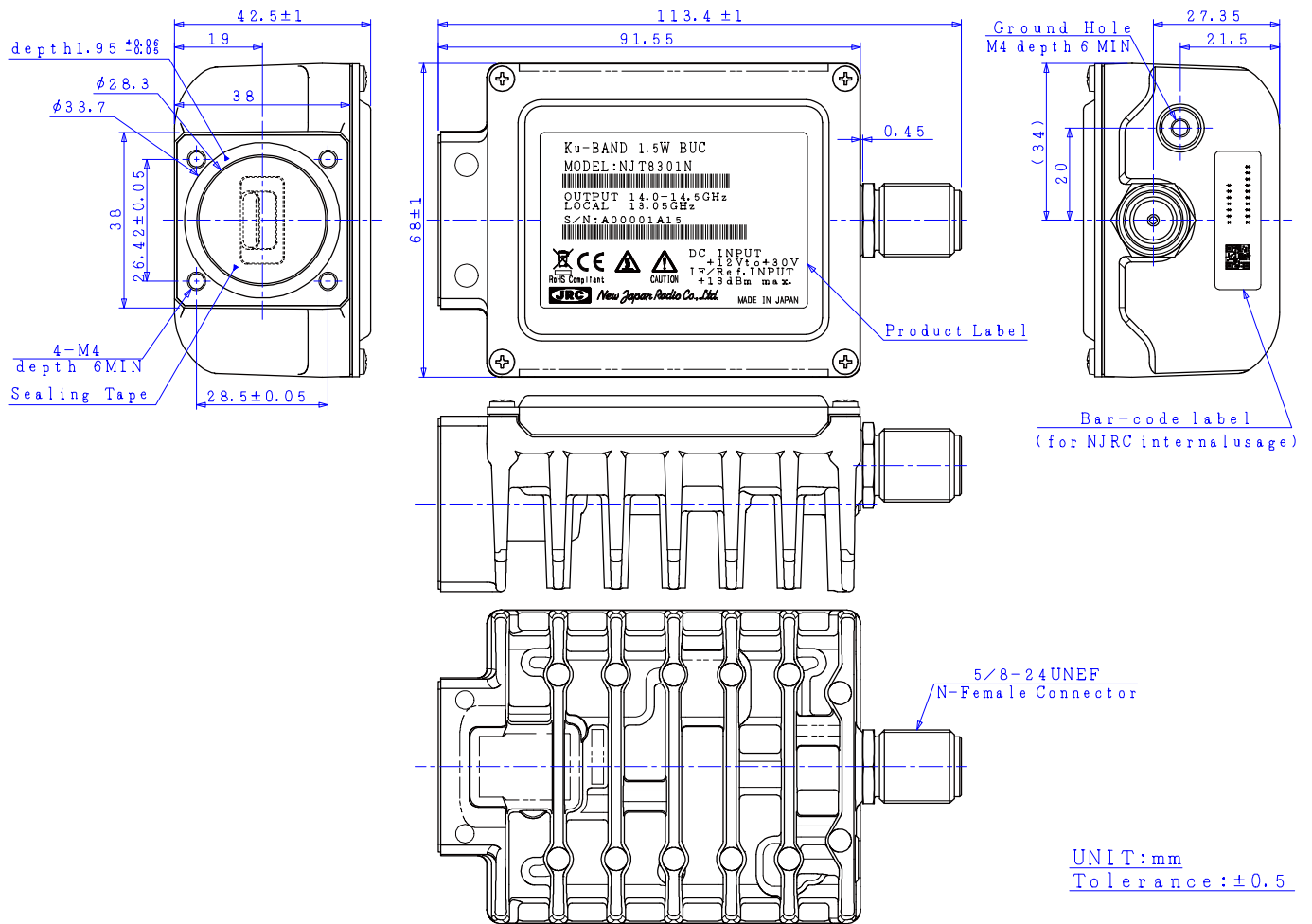
\*1: Conditioned on connection with OMT and TRF.

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

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## 4. Outline Drawing

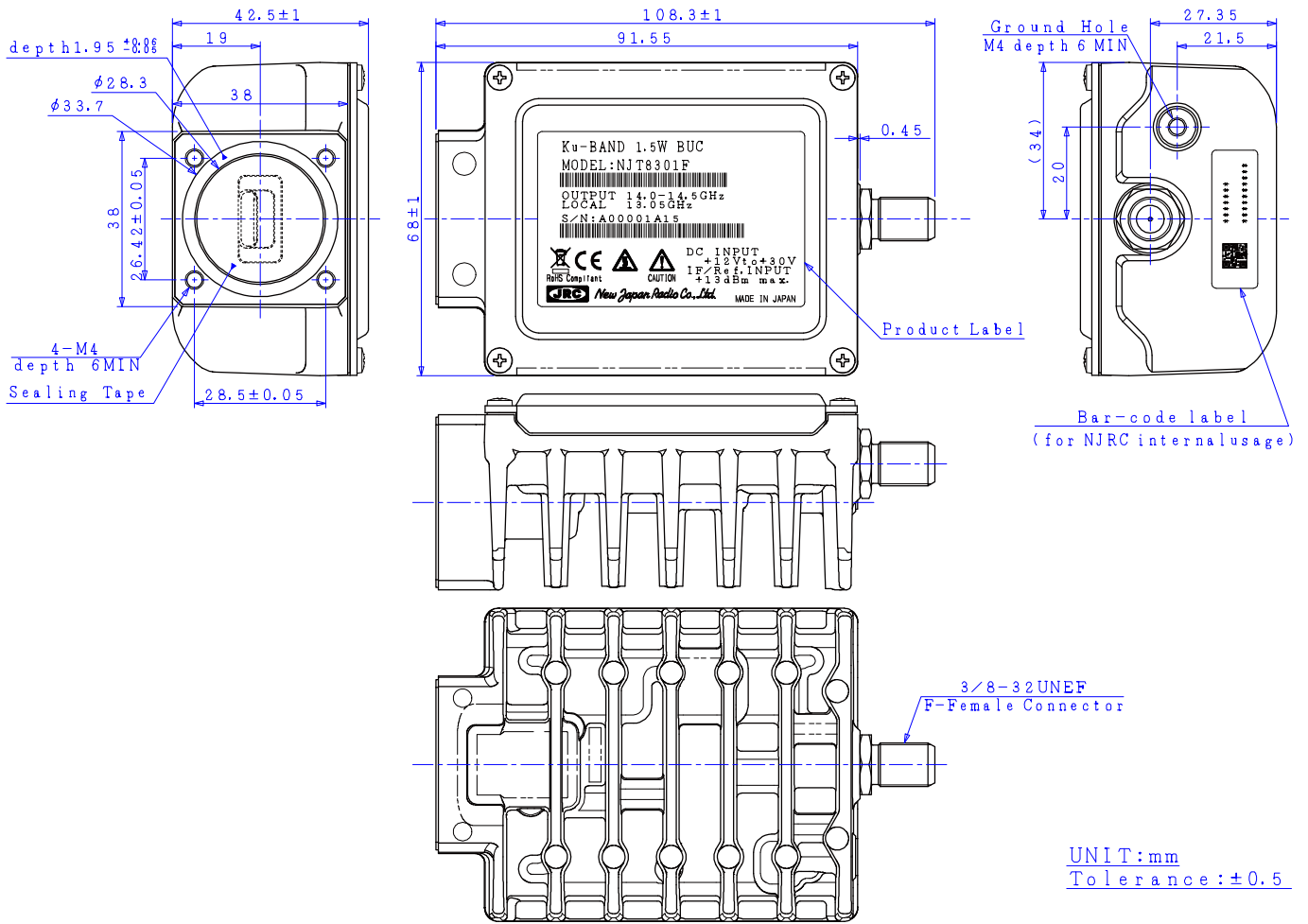
- N-type Model



**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

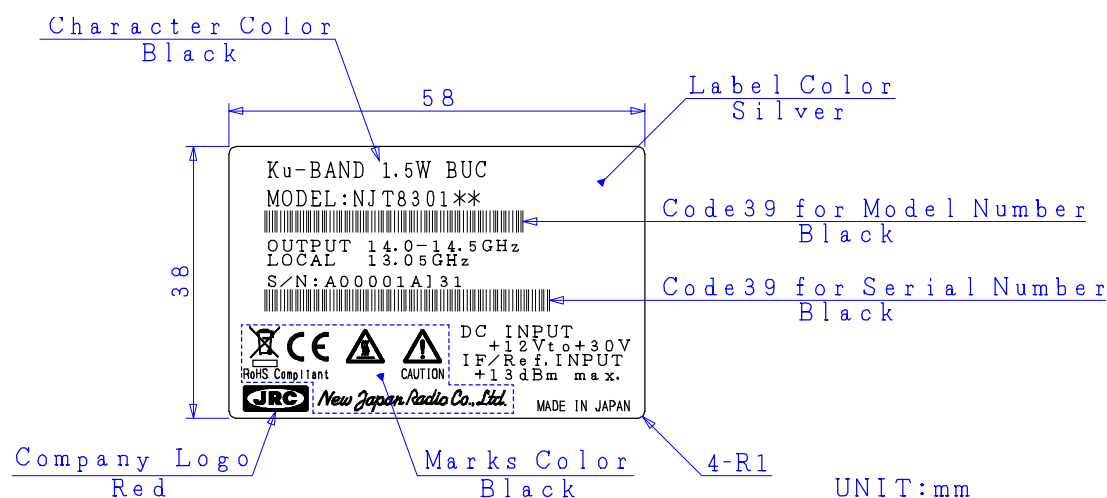


**Caution:** *DO NOT remove the sealing tape on the waveguide. If the sealing tape is removed, it may lose the performance of waterproof.*

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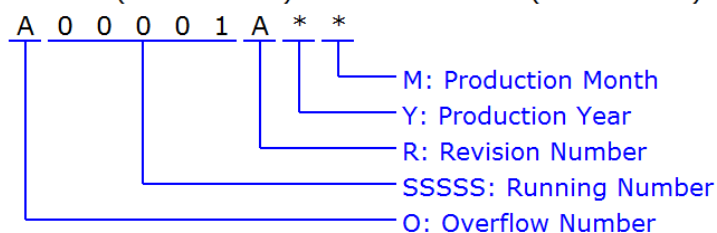
## 5. Label

### Product Label



### Definition of Serial Number

Serial Number (OSSSSRYM) - 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 (1 character)

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

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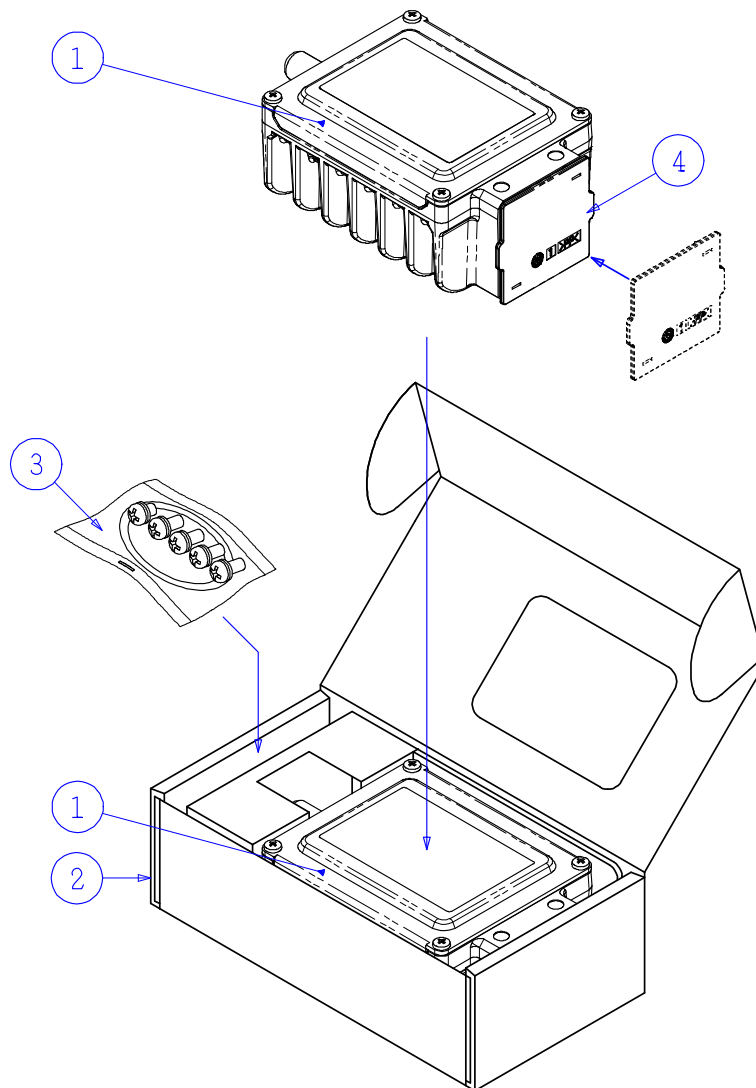
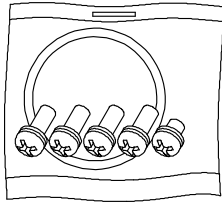


## 6. Package

### Individual Package

#### Accessories

- O-ring
- Cross Recessed Head Screws  
M4×10 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

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