



Ka-band 10W BUC

Model No. NJT5836L / NJT5836H

RF Frequency	:	27,652 to 28,388 MHz / 28,072 to 29,071 MHz
LO Frequency	:	26,600 MHz / 27,200 MHz
IF Frequency	:	1,052 to 1,788 MHz / 972 to 1,871 MHz
IF / Ref. (10MHz) Input	:	
	:	N-type Female Connector
DC Power Input	:	MS Connector
M&C Option	:	Ethernet Interface M&C

There are two frequency ranges, a high band unit and a low band unit, which operate in different parts of the O3b spectrum. The low band units operate in O3b channels 1, 2, and 3. The high band units operate in O3b channels 3, 4, and 5.

Specifications
Rev.1.0 March 24, 2016

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New Japan Radio Co., Ltd.
Microwave Components Division

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1. Model Number

- NJT5836 L L : Low-band
- NJT5836 H H : High-band

2. Electrical Specifications

2-1.	The BUC shall cover the entire O3b frequency band using one of two separate units.	
2-2.	Low-band output frequency Low-band Local frequency	27652 to 28388 MHz 26600 MHz
2-3.	High-band output frequency High-band Local frequency	28172 to 29071 MHz 27200 MHz
2-6.	Saturated Output Power	+40 dBm min. @ Ta = -20, +25 °C +39 dBm min. @ Ta = +55 °C
2-7.	ACPR Measured at 1.5 times the symbol rate from the carrier, when driven with a DVB-S2 waveform using 8PSK at a data rate of 1 Mbps.	-25 dBc max. @ Pout = +38 dBm
2-8.	Input Frequency Range [Low-band] [High-band]	1,052 to 1,788 MHz 972 to 1,871 MHz
2-9.	Input Return Loss	10 dB min.
2-10.	IF Input Connector	N-type female connector
2-11.	Output interface	Waveguide, WR-28 (with Groove)
2-12.	Output Return Loss	10 dB min.
2-13.	Maximum IF input power Conversion Gain @ IF Gain Control 0dB	-20 dBm max. 61 dB min., 71 dB max. over temperature
2-14.	Gain Variation over the 216 MHz band @ fixed temperature	3 dBp-p max.
2-15.	Gain Stability over temperature @ fixed frequency	5 dBp-p max.
2-16.	Requirement for External Reference [Frequency] [Frequency Stability] [Input Power] [Phase Noise]	10 MHz (sine-wave) +/-5 ppm max. over all conditions -5 to +5 dBm @ Input port -105 dBc/Hz max. @ 10 Hz -130 dBc/Hz max. @ 100 Hz -150 dBc/Hz max. @ 1 kHz -155 dBc/Hz max. @ 10 kHz
2-17.	Spurious emission excluding harmonics Tx noise output @ IF Gain Control 0dB IF harmonics(IDU)	-60 dBc max. @ Pout = +38 dBm -83 dBm/Hz max. -60 dBc max.
2-18.	L.O. Phase Noise	-60 dBc/Hz max. @ 100 Hz -73 dBc/Hz max. @ 1 kHz -83 dBc/Hz max. @ 10 kHz -93 dBc/Hz max. @ 100 kHz
2-19.	Group Delay over the 216 MHz band	+/-5 nsec max.
2-20.	The BUC Shall be unconditionally stable when powered but with no input drive or load.	
2-21.	An Ethernet port for Monitor and Control shall be provided via an external connector.	

Drawing No. CMSE-T5836(1)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H

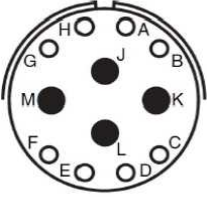
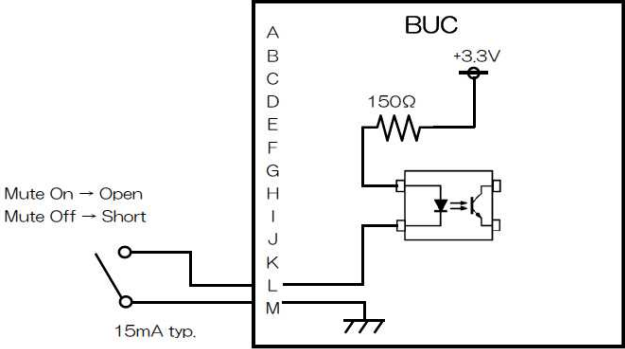


2-22.	M&C monitor functions	Temperature Output Power LO Status
2-23.	M&C control functions [Gain control step] [Gain control range] [Power monitor dynamic range] [Power Monitor Accuracy]	1dB 0 to 15 dB 12 dB @ Pout = +27 to +39 dBm +/- 1.0 dB typ.
2-24.	Output mute command [Mute On/Off Isolation] External Mute Control	40 dB min. The BUC shall have an external mute control independent of the M&C function through access to connector pins. When an external open collector input is open, the BUC shall be muted. When this input is closed, the BUC shall be un-muted. <i>* Details of connector pins are mentioned on Input Interface Specifications.</i>
2-26.	DC power input	Power shall be applied through a separate MS connector.
2-27.	DC input voltage range	+22 to +56 VDC
2-29.	Power consumption	170 W max.
2-30.	Power consumption of the BUC when in the mute condition	25 W max.
2-32.	Weight	4.5 kg max.
2-34.	Dimension	168(L) × 149.6(W) × 90(H) mm without interface connectors and screws
2-35.	MTBF Based on Ta = +40°C	90,000 hours min.

Drawing No. CMSE-T5836(2)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H

3. Input Interface Specifications

<p>3-1. Input Interface</p>	<p>[IF Connector] N-type, female IF / Ref. Input</p> <p>[DC Input] MS Connector</p> <p>- MS Connector - Part No.: PT02E-14-12P (025) Mating connector: PT06E-14-12S (470) Assignment:</p> <table border="1" data-bbox="839 562 1177 875"> <thead> <tr> <th>PIN #</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>A</td><td>Tx - (Ethernet)</td></tr> <tr><td>B</td><td>Tx + (Ethernet)</td></tr> <tr><td>C</td><td>Rx + (Ethernet)</td></tr> <tr><td>D</td><td>Rx - (Ethernet)</td></tr> <tr><td>E</td><td>Option RTS (RS232)</td></tr> <tr><td>F</td><td>Option CTS (RS232)</td></tr> <tr><td>G</td><td>Option TxD (RS232)</td></tr> <tr><td>H</td><td>Option RxD (RS232)</td></tr> <tr><td>J</td><td>DC Power +</td></tr> <tr><td>K</td><td>DC Power - (Return - GND)</td></tr> <tr><td>L</td><td>Mute +</td></tr> <tr><td>M</td><td>Mute - (Return)</td></tr> </tbody> </table> <p>[External Mute] The BUC shall have an external mute control independent of the M&C function through access to connector pins. When an external open collector input is open, the BUC shall be muted. When this input is closed, the BUC shall be un-muted.</p>	PIN #	Function	A	Tx - (Ethernet)	B	Tx + (Ethernet)	C	Rx + (Ethernet)	D	Rx - (Ethernet)	E	Option RTS (RS232)	F	Option CTS (RS232)	G	Option TxD (RS232)	H	Option RxD (RS232)	J	DC Power +	K	DC Power - (Return - GND)	L	Mute +	M	Mute - (Return)	 <p>DC Power is applied through MS Connector using J and K Pins.</p>  <p>Mute On → Open Mute Off → Short</p> <p>15mA typ.</p> <p>The terminal 'L' is pulled up to 3.3V by 150 ohm resistor and photocoupler in the BUC.</p>
PIN #	Function																											
A	Tx - (Ethernet)																											
B	Tx + (Ethernet)																											
C	Rx + (Ethernet)																											
D	Rx - (Ethernet)																											
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G	Option TxD (RS232)																											
H	Option RxD (RS232)																											
J	DC Power +																											
K	DC Power - (Return - GND)																											
L	Mute +																											
M	Mute - (Return)																											



4. Environmental Specifications

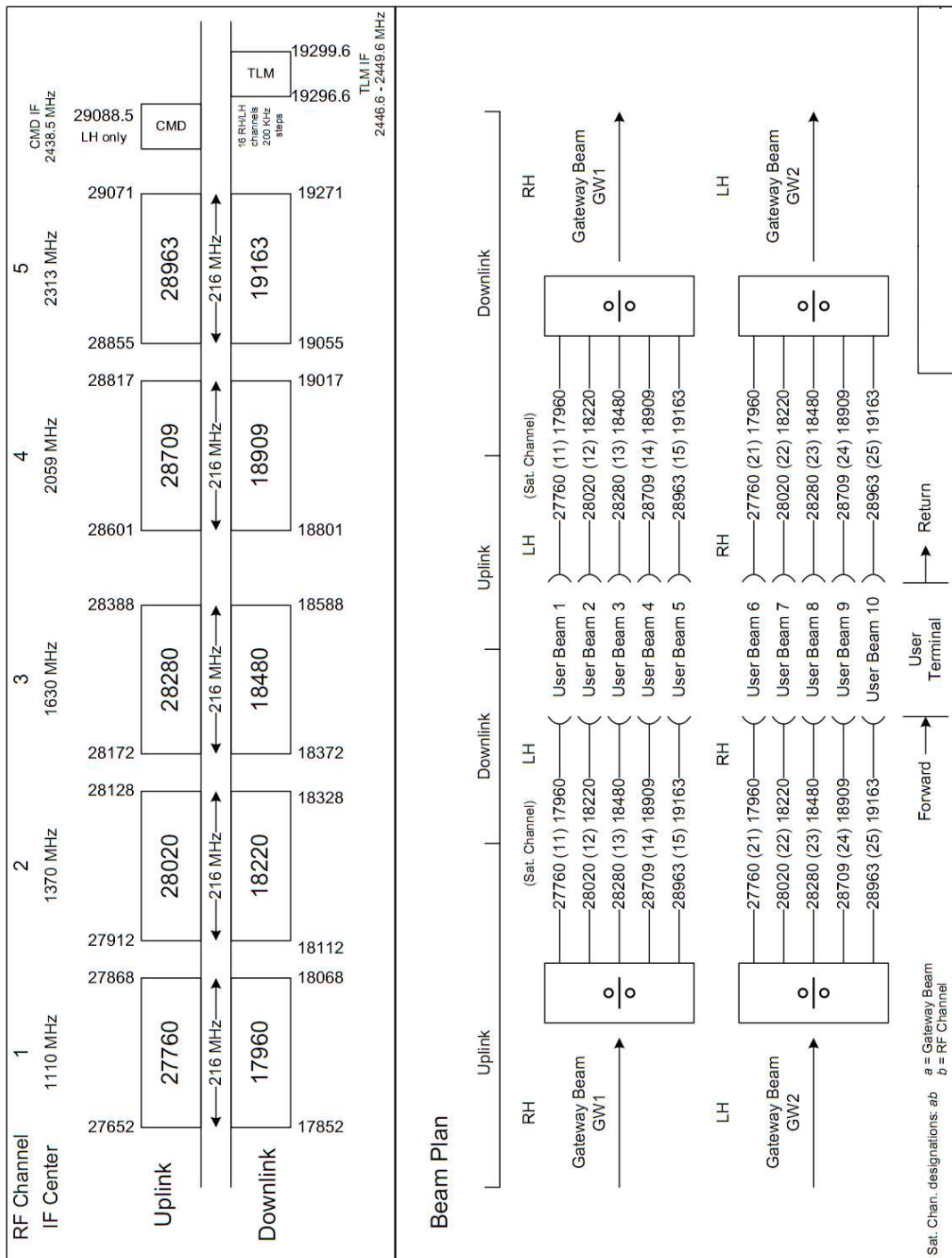
4-1.	Temperature Range (ambient) [Operating] [Storage]	-20 to +55 °C -20 to +55 °C
4-2.	Humidity	0 to 100 %
4-3.	Altitude	10,000 feet (3,048 m)
4-4.	Lightning protection	+/-5 kV max.
4-5.	Electrostatic discharge	+/-15 kV max.
4-6.	All exposed fasteners should be stainless or galvanized.	
4-7.	The BUC must be able to operate in dry and dusty environments typical of arid locations.	
4-8.	The BUCs must be able to withstand salty environments typical of coastal locations. Cosmetic staining, oxidation, and/or tarnishing of the hardware may occur but shall not impact system operation or performance. MIL-STD-810G METHOD 509.3 Salt Fog Condition 5 ± 1 percent salt solution 35 ±2°C 48 hours of exposure Criteria No corrosion	
4-9.	The packaged BUCs shall survive with no damage under normal shock and vibration encountered in land, air, and sea transport.	

Drawing No. CMSE-T5836(4)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H



5. O3b Frequency Plan



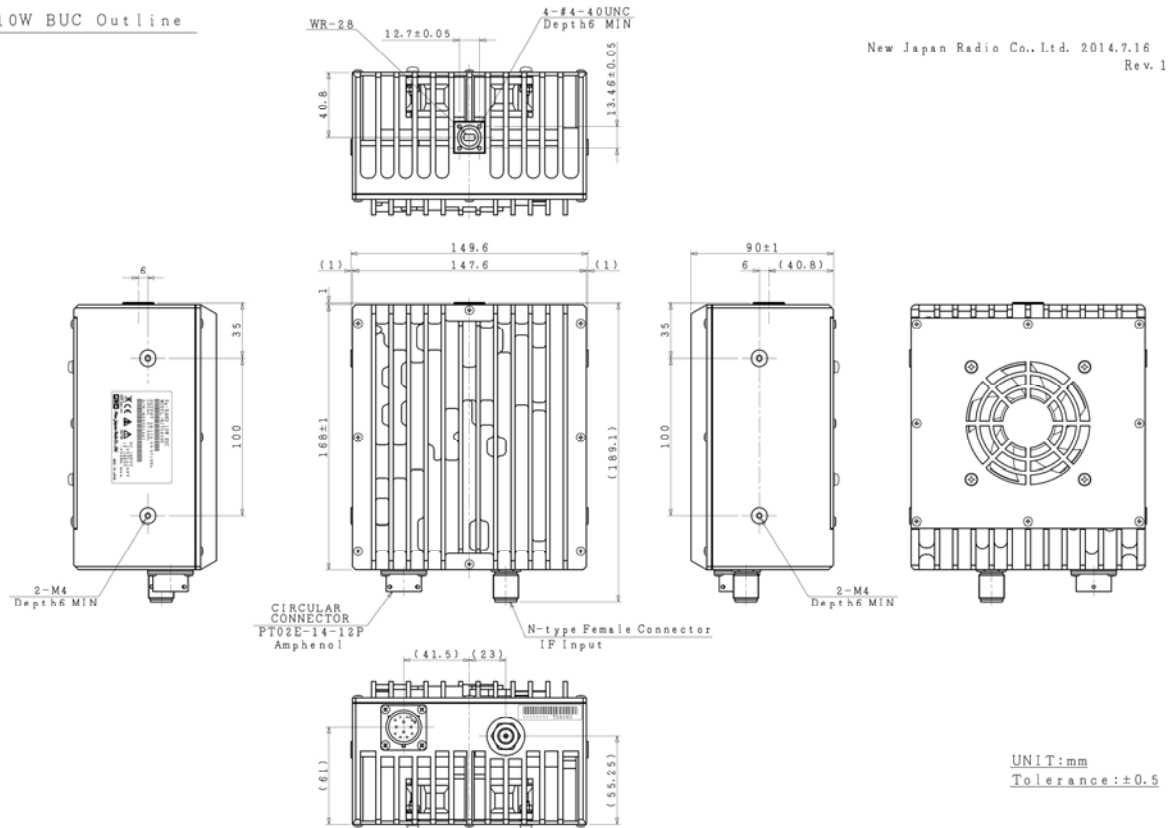
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Rev.1.0_Mar.24,2016_NJT5836L/H

6. Outline Drawing

- IF / Ref. Input: N-type Female Connector
- MS Connector equipped

10W BUC Outline



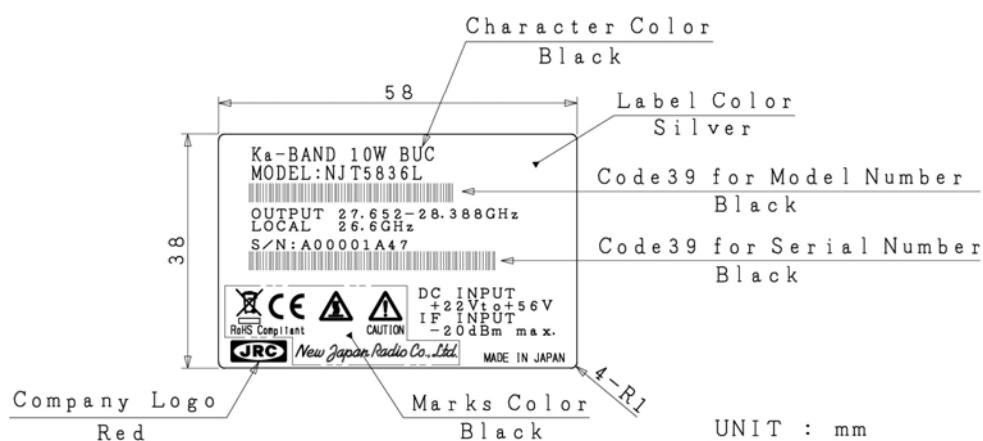
Drawing No. CMSF-T5836(1)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H



7. Label

Product Label
Model: NJT5836L



Serial Number (OSSSSSRYM) - ALPHANUMERIC (9 characters)

A00001A47

M: Production Month
Y: Production Year
R: Revision Number
SSSS: Running Number
O: Overflow Number

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...

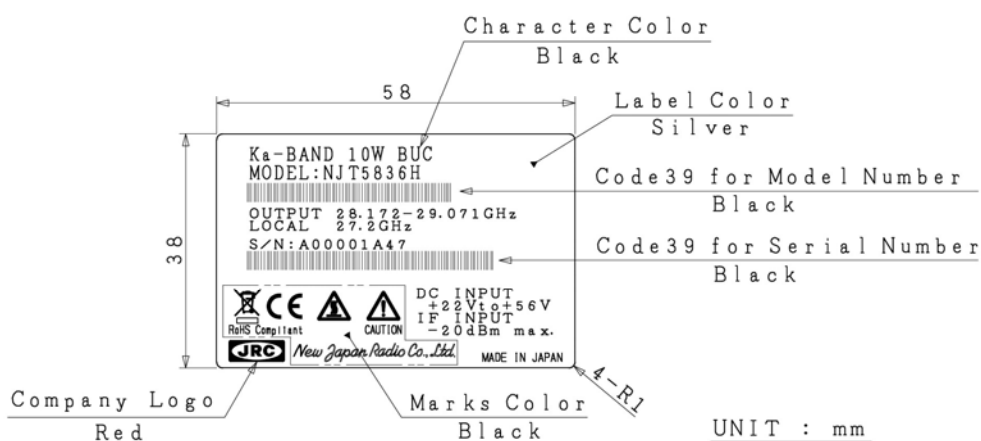
M: Production Month - ALPHANUMERIC (1 character)
"1" to "9", "X" as October, "Y" as November, "Z" as December

Drawing No. CMSF-T5836(2)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H



Product Label
Model: NJT5836H



Serial Number (OSSSSSRYM) - ALPHANUMERIC (9 characters)

A00001A47

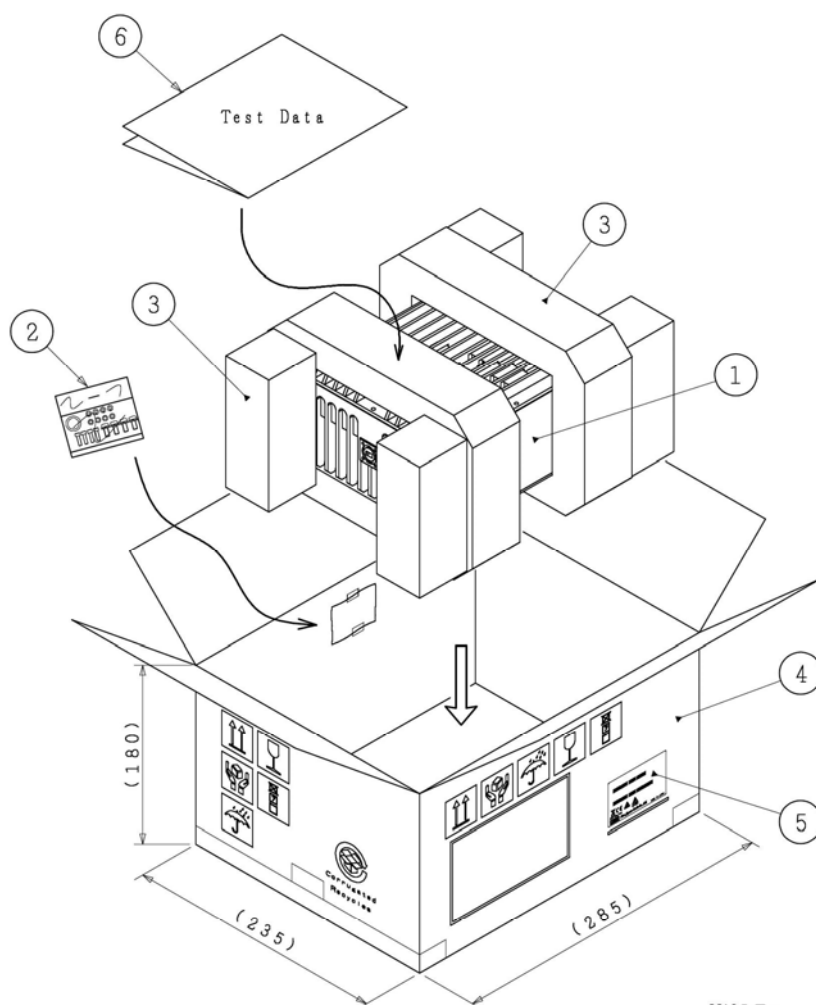
M: Production Month
Y: Production Year
R: Revision Number
SSSSS: Running Number
O: Overflow Number

- 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

Drawing No. CMSF-T5836(3)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H

8. Packaging Container



UNIT: mm

- ①: BUC
- ②: Accessories
 - O-RING
 - Hexagon Socket Head Bolts
#4-40×3/8Inch 4pieces(SUS) for Waveguide Flange Holes
 - Plain Washers
M2.6 type 4pieces(SUS) for Weveguide Flange Holes
 - Spring lock washers
M2.6 type 4pieces(SUS) for Weveguide Flange Holes
 - Cross Recessed Head Screws
M4×10 4 pieces(SUS, SW and W)
- ③: Polyethylene Foam For Package Cushioning
- ④: Corrugated Fibreboard(Double Wall)
- ⑤: Label
- ⑥: Test Data

Drawing No. CMSP-T5836(1)-1.0

Rev.1.0_Mar.24,2016_NJT5836L/H