

DT-X10 Product Description

General

Model:	DT-X10M30URC,DX-X10M20URC
CPU:	Intel® PXA250 Application Processor (300MHz max.)
Memory:	32MB RAM; 32MB Flash ROM (FlashFX built in)
OS:	Microsoft® Windows® CE.NET operating system,
Display:	3.5-inch, 240 × 320-dot color 2-Way TFT color LCD
Power	Consumption: 2.5A DC, 3.7/5V
Operating Temperature:	−20 °C to 50°C (−4 °F to 122°F)
Approximate Dimensions:	77(W) × 220(D) × 47(H) mm (3"H × 85/8"D × 17/8"H)
Approximate Weight:	350g (12.3oz)

Bluetooth™ Data Communication:

Protocol:	Bluetooth™ Specification Ver.1.1
Interface:	UART
Output level (Class2)	3dBm max.
Frequency	2402- 2480MHz
Modulation	FHSS
Channel intervals	1MHz
Number of channels	79CH
Power supply voltage	1.8-3.6V



Messr CASIO Computer Co., Ltd.

Reference Sheet for Product Specification

Issued Date : 29/Nov/2002

Product description : Blue ModuleTM

Customer Part Number : _____

MuRata Part Number : LBMA29BAE2-011

Date :
Company
Dept.
Approved By Signature :
Type :

The duplicate of this specification shall be returned to us with your authorised signature. Unless it reaches us by 28,December,2002, it shall be mutually understood that this specification has been duly approved by you.

Prepared by

R. Sugihara (signature)

Rika Sugihara(type)

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Manager

Product Engineering Section

Bluetooth Modules Department

Component Divison III

MURATA MFG. CO., LTD.

1. Scope

This specification is applied to the Bluetooth HCI module (Blue Module™).

2. Part Number

LBMA29BAE2-011

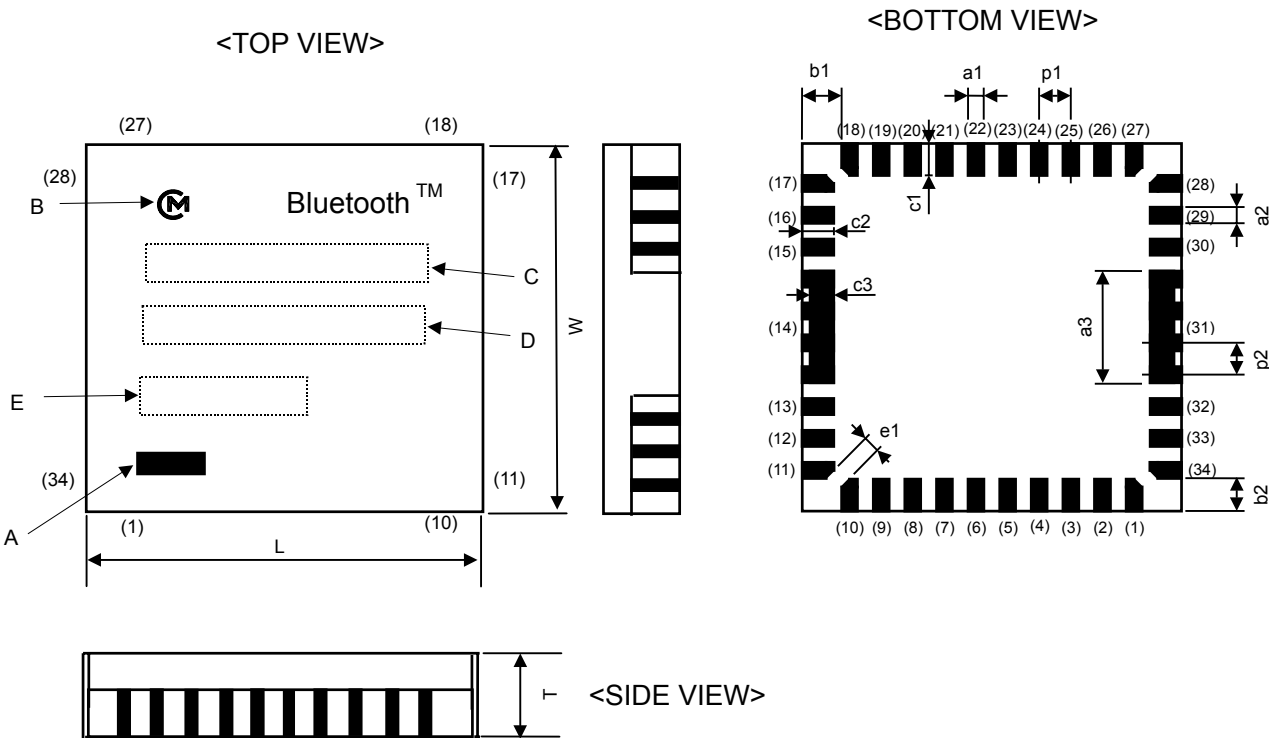
3. Rating

	Min	Max	Unit
Storage Temperature	-40	+85	deg.C
	Min	Max	Unit
Supply Voltage			
VDD_1.8V & VDD_VCO	-0.4	1.9	V
VDD	-0.4	3.6	V

4. Weight (nominal)

0.6 g

5. CONSTRUCTION, DIMENSIONS, MARKING and Terminal Configurations



Dimensions				(Unit : mm)	
Mark	Dimension	Mark	Dimension	Mark	Dimension
L	9.8 ± 0.3	W	9.6 ± 0.3	T	1.7 ± 0.1
a1	0.4 ± 0.2	a2	0.4 ± 0.2	a3	2.8 ± 0.2
b1	1.0 ± 0.2	b2	1.0 ± 0.2	c1	0.95 ± 0.20
c2	0.95 ± 0.20	c3	0.75 ± 0.20	e1	0.42 ± 0.20
p1	0.8 ± 0.2	p2	0.8 ± 0.2	-	-

Marking					
Mark	Meaning	Mark	Meaning	Mark	Meaning
A	1 PIN INDEX	B	MURATA Logo	C	Part Number
D	BD_ADDR.	E	Lot No..	-	-

Terminal Configurations

Terminal No.	Terminal Name	Pad Type	Description
(1)	GND		
(2)	VDD_1.8V	VDD	Positive supply for RF, analogue and digital circuitry (1.8V)
(3)	GND		
(4)	VDD	VDD	Power supply for others and memory (3V)
(5)	GND		
(6)	NC		
(7)	NC		
(8)	NC		
(9)	NC		
(10)	RST	CMOS input with weak internal pull-down	Reset if high. Input debounced so must be high for >5ms to cause a reset
(11)	UART_CTS	CMOS input with weak internal pull-down	UART clear to send active low
(12)	UART_RTS	CMOS output, tristatable with internal pull-up	UART request to send active low
(13)	UART_Tx	CMOS output	UART data output active high
(14)	GND		
(15)	UART_Rx	CMOS input with weak internal pull-down	UART data input active high
(16)	PCM_IN	CMOS input, with internal weak pull-down	Synchronous data input
(17)	PCM_SYNC	Bi-directional with weak internal pull-down	Synchronous data SYNC
(18)	PCM_OUT	CMOS output, tristatable with internal weak pull-down	Synchronous data output
(19)	PCM_CLK	Bi-directional with weak internal pull-down	Synchronous data clock
(20)	NC		
(21)	NC		
(22)	NC		
(23)	NC		
(24)	NC		
(25)	NC		
(26)	NC		
(27)	NC		
(28)	NC		
(29)	NC		
(30)	NC		
(31)	GND		
(32)	ANT		For Antenna / 50ohm
(33)	GND		
(34)	VDD_VCO	VDD	Positive supply for VCO and synthesiser circuitry (1.8V)

6. Electrical Characteristics

6-1 Operating Conditions

	Min	Typ	Max	Unit
Operating Temperature	-20	+25	+85	deg.C
Supply Voltage, VDD_1.8V & VDD_VCO	1.7	1.8	1.9	V
VDD	2.7	3.0	3.6	V

Input/Output Terminal Characteristics				
Digital Terminals	Min	Typ	Max	Unit
Input Voltage				
VIL input logic level low (VDD=3.0V)	-0.4		+0.8	V
(VDD=1.8V)	-0.4		+0.4	V
VIH input logic level high	0.7VDD		VDD+0.4	V
Output voltage				
VOL output logic level low, (IO = 4.0mA), VDD=3.0V	-	-	0.2	V
VOL output logic level low, (IO = 4.0mA), VDD=1.8V	-	-	0.4	V
VOH output logic level high, (IO = -4.0mA), VDD=3.0V	VDD-0.2	-	-	V
VOH output logic level high, (IO = -4.0mA), VDD=1.8V	VDD-0.4	-	-	V
Input and Tristate Current with:				
Strong pull-up	-100	-20	-10	μ A
Strong pull-down	+10	+20	+100	μ A
Weak pull-up	-5	-1	0	μ A
Weak pull-down	0	+1	+5	μ A
I/O pad leakage current	-1	0	+1	μ A
CI Input Capacitance	2.5	-	10	pF

6-2 Radio Characteristics

6-2-1 Normal condition 25 deg.C, VDD_1.8V=1.8V, VDD_VCO=1.8V, VDD=3.0V

Items	Contents			
Bluetooth specification	Ver 1.1			
Channel spacing	1MHz			
Number of RF channel	79			
Power class	2			
Operation mode(Rx/Tx)	Time division multiplex either transmit or receive frequency hopping after one Rx/Tx cycle			
	Min	Typ (nominal)	Max	Unit
1.DC Current				
1.1 DH1 Packet	-	55	75	mA
1.2 DH3 Packet	-	59	80	mA
1.3 DH5 Packet	-	60	85	mA
-TX characteristics-				
2.Output Power	-4	0	+3	dBm
3.Frequency range	2400 to 2483.5			MHz
4.20 dB Bandwidth	-	0.8	1	MHz

5. Adjacent channel power ^{*1}				
5.1 [M-N]=-2,+2	-	-	-26	dBm
5.2 [M-N]=-3,-4,-5	-	-	-47	dBm
5.3 [M-N]=+3,+4,+5	-	-	-46	dBm
6.Modulation Characteristics				
6.1 Modulation δf_{1avg}	142	165	172	kHz
6.2 Modulation δf_{2max}	120	144	-	kHz
6.3 $\delta f_{2avg}/\delta f_{1avg}$	0.85	1	-	
7.Initial Carrier Frequency Tolerance	-45	-	+45	kHz
8.Carrier Frequency Drift				
8.1 1slot	-25	-	+25	kHz
8.2 3slot	-40	-	+40	kHz
8.3 5slot	-40	-	+40	kHz
8.4 Maximum drift rate	-20	-	+20	kHz/50 μs
9.Out-of-Band Spurious Emissions				
9.1 1220.5 MHz (Operation mode)	-	-70	-40	dBm
9.2 1850.0 MHz (Operation mode)	-	-70	-40	dBm
9.3 2150.0 MHz (Operation mode)	-	-60	-40	dBm
9.4 3661.5 MHz (Operation mode)	-	-70	-40	dBm
9.5 4882.0 MHz (Operation mode)	-	-60	-40	dBm
9.6 6102.5 MHz (Operation mode)	-	-75	-40	dBm
9.7 7323.0 MHz (Operation mode)	-	-70	-40	dBm
-RX Characteristics-	Min	Typ (nominal)	Max	Unit
10.Sensitivity (BER $\leq$ 0.1%)				
10.1 2402MHz	-	-83	-75	dBm
10.2 2441MHz	-	-84	-77	dBm
10.3 2480MHz	-	-83	-77	dBm
11.C/I performance (BER $\leq$ 0.1%) ^{*2}				
11.1 co-channel ratio (-60dBm input)	-	-	+14	dB
11.2 1 MHz ratio (-60dBm input)	-	-	+4	dB
11.3 2 MHz ratio (-60dBm input)	-	-	-30	dB
11.4 3 MHz ratio (-67dBm input)	-	-	-40	dB
11.5 image ratio (-67dBm input)	-	-	-6	dB
11.6 image $\pm$ 1MHz ratio (-67dBm input)	-	-	-16	dB
12. Blocking performance (BER $\leq$ 0.1%) ^{*3}				
12.1 30MHz to 2000MHz	-10	-	-	dBm
12.2 2000MHz to 2400MHz	-27	-	-	dBm
12.3 2500Mhz to 3000MHz	-27	-	-	dBm
12.4 3000MHz to 12.75GHz	-10	-	-	dBm
13.Intermodulation performance (BER $\leq$ 0.1%), (-64dBm input)	-39	-31	-	dBm
14. Maximum Input Level (BER $\leq$ 0.1%)	0	5	-	dBm

*1 Up to three spurious responses within Bluetooth limits are allowed.

*2 Up to five spurious responses within Bluetooth limits are allowed.

*3 Up to twenty-four spurious responses within Bluetooth limits are allowed.

Note:

The above-mentioned values have been obtained according to our own measuring methods(testing jig : Fig.1) and may vary depending on the circuit, in which this component is actually incorporated.

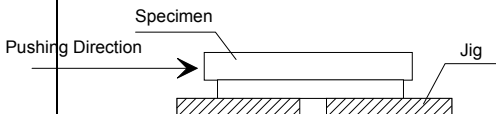
You are, therefore, kindly requested to test the performance of this component incorporating in your set.

6-2-2 Extreme condition -20 to +85 deg.C, VDD_{1.8V}=VDD_{1.8V}, VCO=1.7 to 1.9V, VDD=2.7 to 3.6V

Items	Contents		
	Min	Max	Unit
1.DC current			
1.1 DH1 Packet	-	80	mA
1.2 DH3 Packet	-	85	mA
1.3 DH5 Packet	-	90	mA
-Tx Characteristics-			
2.Output Power	-6	+4	dBm
3.Frequency range	2400 to 2483.5		MHz
4.20 dB Bandwidth	-	1	MHz
5.Adjacent channel power *1			
5.1 [M-N]=2	-	-20	dBm
5.2 [M-N]≥3	-	-40	dBm
6.Modulation Characteristics			
6.1 Modulation δf_{1avg}	140	175	kHz
6.2 Modulation δf_{2max}	115	-	kHz
6.3 $\delta f_{2avg}/\delta f_{1avg}$	0.8	-	
7.Initial Carrier Frequency Tolerance	-75	+75	KHz
8.Carrier Frequency Drift			
8.1 1slot	-25	+25	kHz
8.2 3slot	-40	+40	kHz
8.3 5slot	-40	+40	kHz
8.4 Maximum drift rate	-20	+20	kHz/50 μ s
9.Out-of-Band Spurious Emissions			
9.1 1220.5MHz(Operation Mode)	-	-30	dBm
9.2 1850.0MHz(Operation Mode)	-	-30	dBm
9.3 2150.0MHz(Operation Mode)	-	-30	dBm
9.4 3661.5MHz(Operation Mode)	-	-30	dBm
9.5 4882.0MHz(Operation Mode)	-	-30	dBm
9.6 6102.5MHz(Operation Mode)	-	-30	dBm
9.7 7323.0MHz(Operation Mode)	-	-30	dBm
-Rx Characteristics-			
10.Sensitivity (BER≤0.1%)			
10.1 2402MHz	-	-73	dBm
10.2 2441MHz	-	-75	dBm
10.3 2480MHz	-	-75	dBm

*1 Up to three spurious responses within Bluetooth limits are allowed.

7. OTHER SPECIFICATION AND METHODS

No.	Items		Specifications	Test Methods
1	Vibration Resistance	Appearance	No severe damages	Solder specimens on the testing jig shown in appended Fig.1 by an solder. The soldering shall be done either by iron or reflow and be conducted with care so that the soldering is uniform and free of defect such as by heat shock. Frequency : 10 to 2000 to 10 Hz Acceleration : 196 m/s² Direction : X,Y,Z 3axes Period : 2 h on each direction(Total 6 h.)
		Electrical Specifications	Satisfy specifications listed in paragraph 6-2-2.	
2	Shock	Appearance	No severe damages	Solder specimens on the testing jig shown in appended Fig.1 by an solder. The soldering shall be done either by iron or reflow and be conducted with care so that the soldering is uniform and free of defect such as by heat shock. Pulse Wave : Sine Half Wave Acceleration : 980 m/s² (Peak) Period : 6 ms. Cycle : 10 times
		Electrical Specifications	Satisfy specifications listed in paragraph 6-2-2.	
3	Deflection		No damage with 1mm deflection	Solder specimens on the testing jig shown in appended Fig.3 by an solder. The soldering shall be done either by iron or reflow and be conducted with care so that the soldering is uniform and free of defect such as by heat shock.
4	Soldering strength (Push Strength)		9.8 N Minimum	Solder specimens on the testing jig shown in appended Fig.3 by an solder. As shown below, apply pushing force at 0.5 mm/s until electrode pads are peeled off or ceramics are broken. Pushing force is applied as show below. 
5	Solderability of Termination		75% of the terminations is to be soldered evenly and continuously.	Immerse specimens first a ethanol solution of rosin (25% rosin in weight proportion), then in an solder solution for 2+/-0.5 s at 230+/-5 deg.C. Preheat : 100 to 120 deg.C, 60 s Solder Paste : Eutectic Solder Flux : Solution of ethanol and rosin (25% rosin in weight proportion)
6	Resistance to Soldering Heat (Dipping)	Appearance	No severe damages	Immerse the chip in an solder solution of 270+/-5 deg.C for 20+/-0.5 s (flow soldering bath) after preheating for 1min at 120 to 150 deg.C. Then set it for 2 to 24 h at room temperature and measure.

7	Resistance to Soldering Heat (Reflow)	Appearance	No severe damages	Preheat Temperature : 150+/-10 deg.C Preheat Period : 60 s min. Peak Temperature : 230+/-5 deg.C Peak Temp. Period : 10 s Specimens are soldered twice with the above condition, then kept in room condition for 24 h before measurements.									
		Electrical specifications	Satisfy specifications listed in paragraph 6-2-2.										
8	Temperature Cycle	Appearance	No severe damages	Set the specimens to the supporting jig in the same manner and under the same condition as Fig.1 and conduct the 100 cycles according to the temperatures and time shown in the following table. <table><tr><td>Step</td><td>1</td><td>2</td></tr><tr><td>Temp.(deg.C)</td><td>Min Operating Temp. +0/-3</td><td>Max Operating Temp. +3/-0</td></tr><tr><td>Time (min)</td><td>30+/-3</td><td>30+/-3</td></tr></table>	Step	1	2	Temp.(deg.C)	Min Operating Temp. +0/-3	Max Operating Temp. +3/-0	Time (min)	30+/-3	30+/-3
		Step	1		2								
		Temp.(deg.C)	Min Operating Temp. +0/-3		Max Operating Temp. +3/-0								
Time (min)	30+/-3	30+/-3											
Electrical specifications	Satisfy specifications listed in paragraph 6-2-2.												
9	Humidity Load Life	Appearance	No severe damages	Temperature : 85+/-2 deg.C Humidity : 80 to 85%RH Period : 500+48/-0 h Room Condition : 2 to 24 h Supply Voltage : 3.6V D.C./1.9V D.C.									
		Electrical specifications	Satisfy specifications listed in paragraph 6-2-2.										
10	High Temp. Load Life	Appearance	No severe damages	Temperature : 85+/-2 deg.C Period : 500+48/-0 h Room Condition : 2 to 24 h Supply Voltage : 3.6V D.C./1.9V D.C.									
		Electrical specifications	Satisfy specifications listed in paragraph 6-2-2.										

Excessive mechanical force or thermal stress may damage the products. Appropriate handling is required.

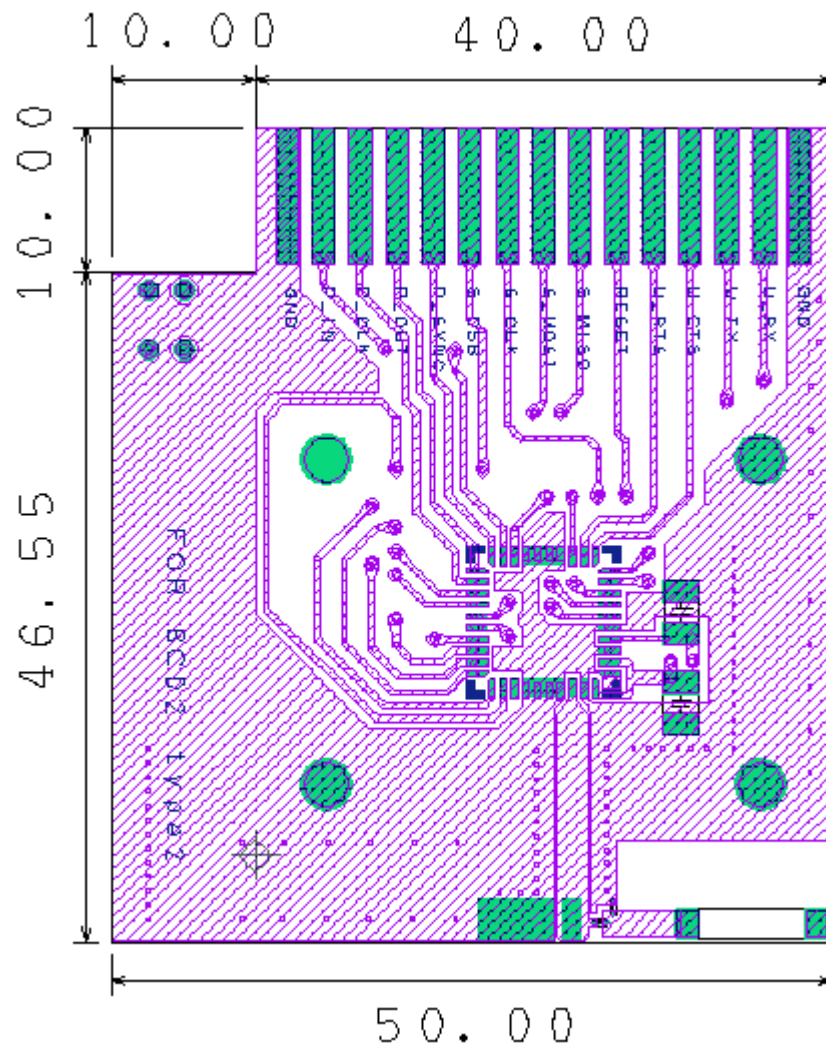
8. Interface
 UART (H4)
 115.2 kbps

9. Firmware
 CSR Firmware Version Ver.14.7

10. Production Site
 FUKUI MURATA MFG.CO.,LTD.

Fig.1

Measurement Boardy

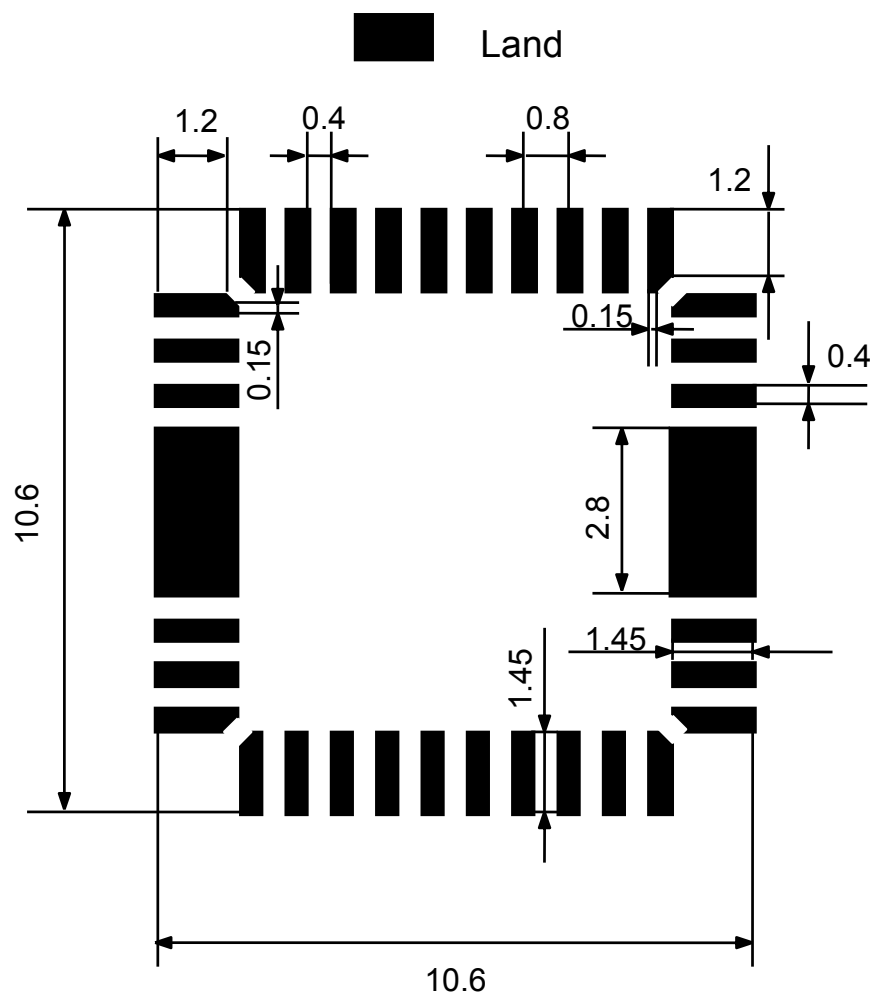


(Unit : mm)

Glass epoxy board $t = 1.6\text{mm}$
Copper thickness $35\text{ }\mu\text{m}$

Fig.2

Land Patterns



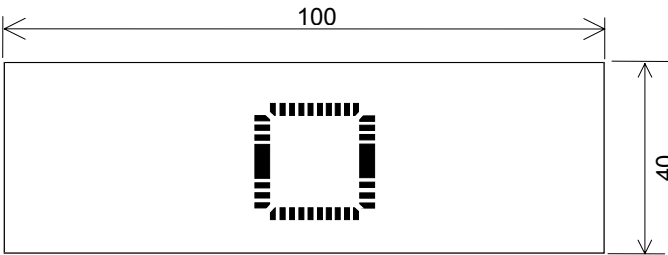
Unit : mm

Fig.3

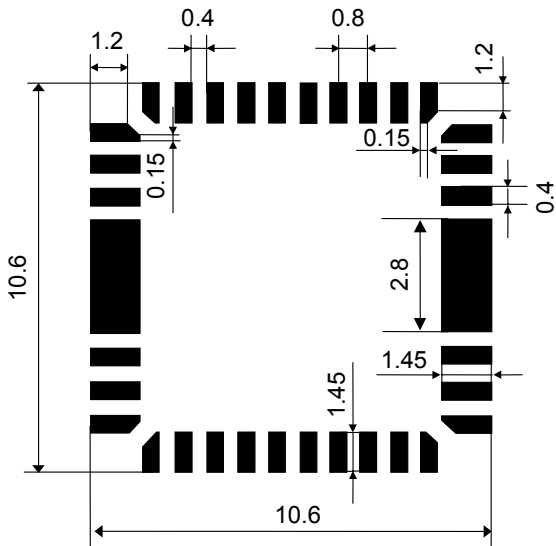
Testing Board



Land

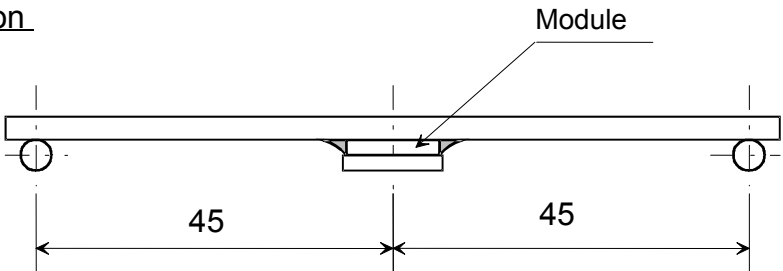


Unit : mm



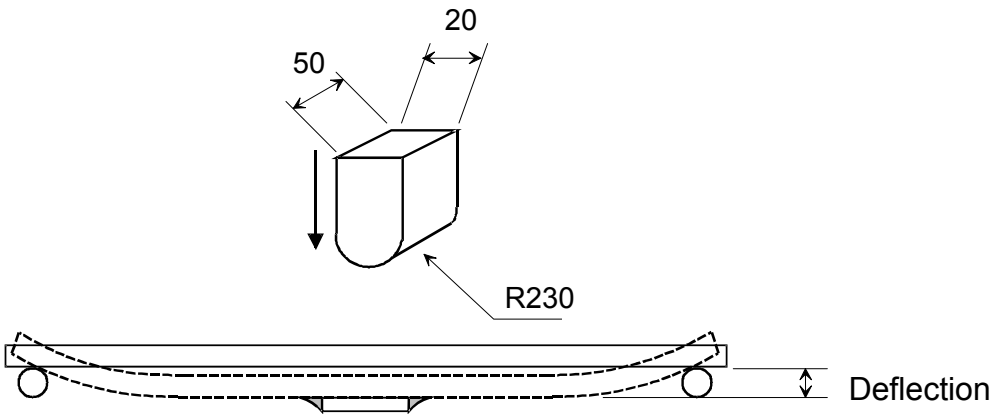
Glass epoxy board t = 0.8 mm
Copper thickness 35 um min.

Mounted Situation



Unit : mm

Testing Method



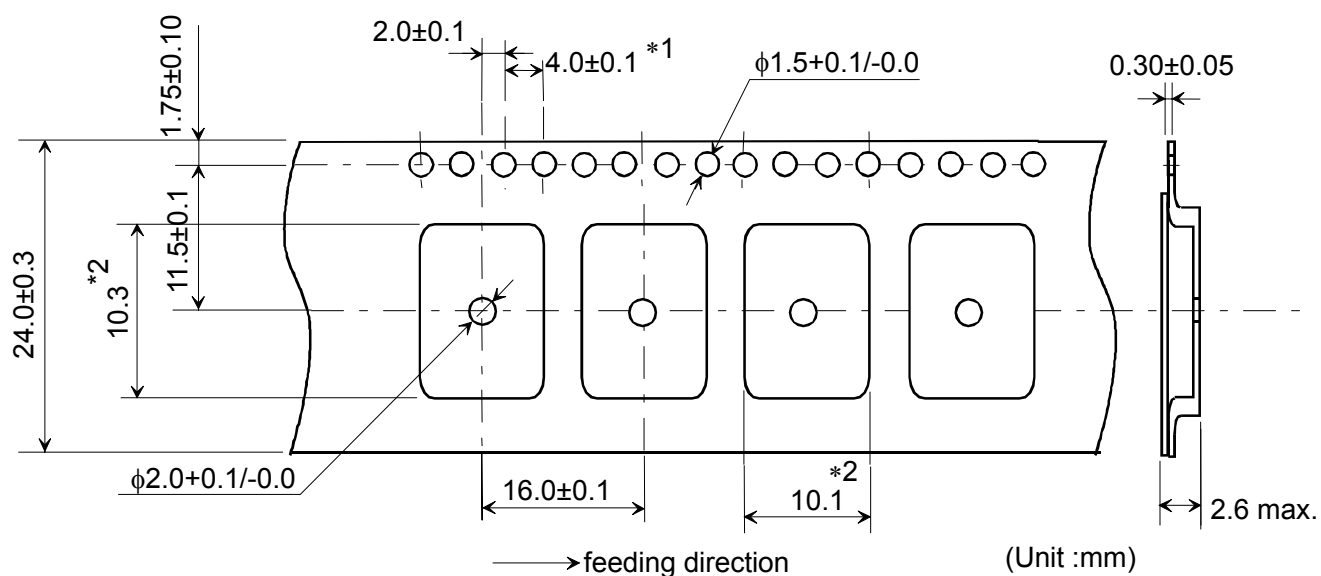
Unit : mm

10. Tape and Reel Packing

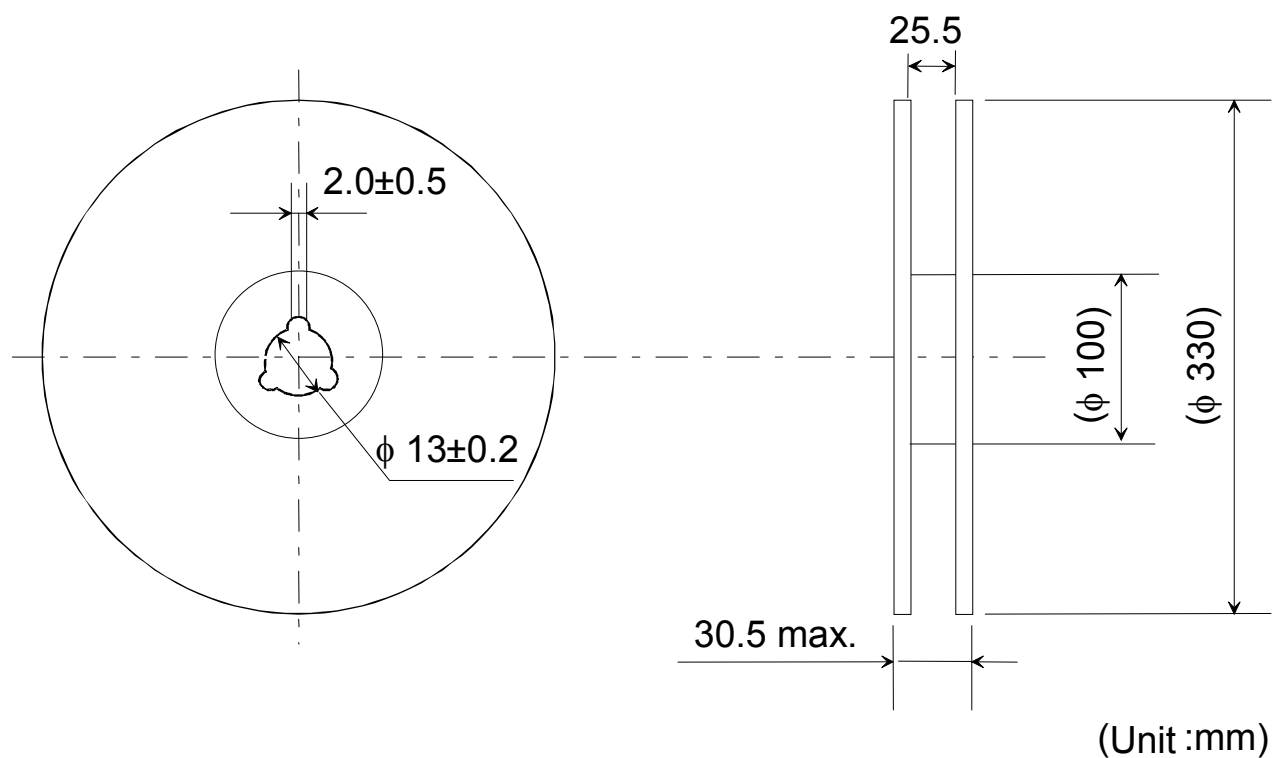
(1) Dimensions of Tape (Plastic tape)

*1.Cumulative tolerance of max. ± 0.3 every 10 pitches

*2.Reference value

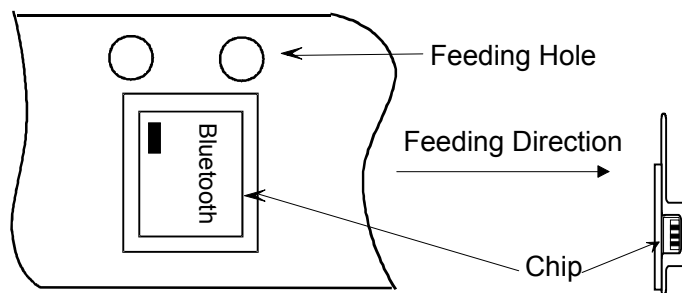
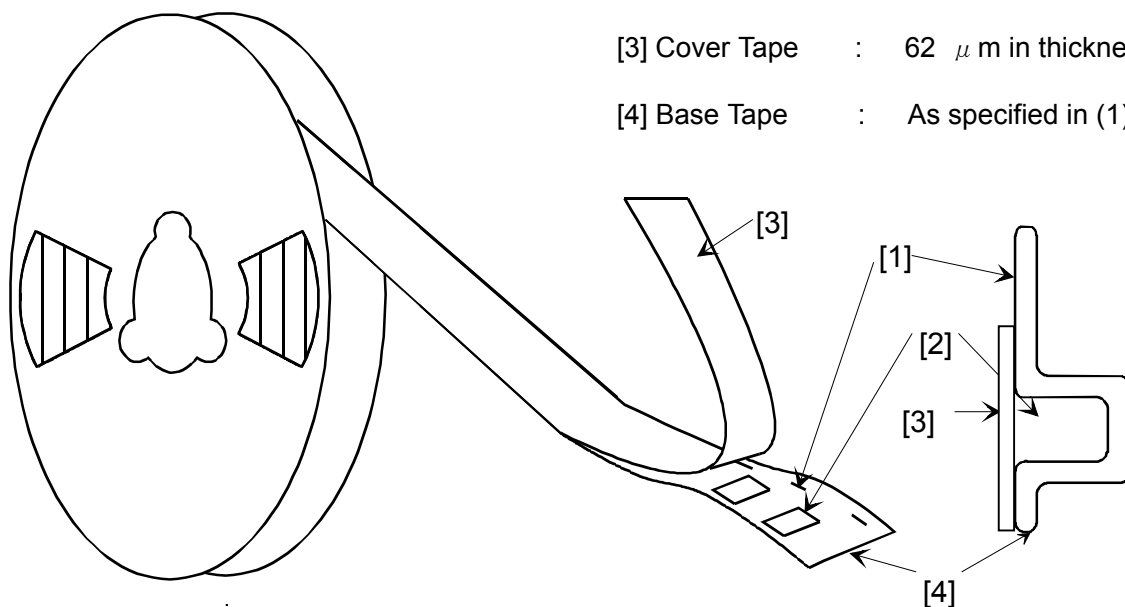


(2) Dimensions of Reel

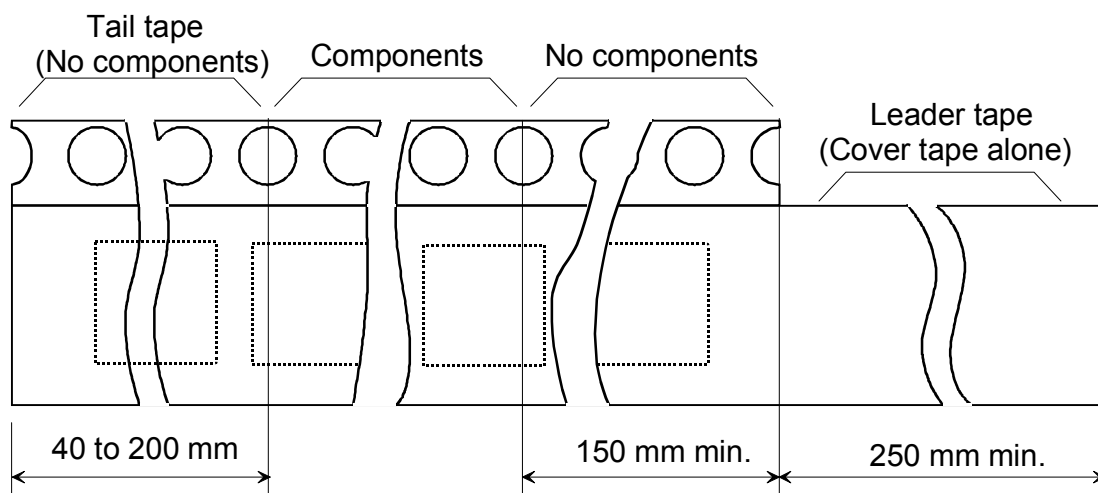


(3) Taping Diagrams

- [1] Feeding Hole : As specified in (1)
- [2] Hole for Chip : As specified in (1)
- [3] Cover Tape : 62 μ m in thickness
- [4] Base Tape : As specified in (1)



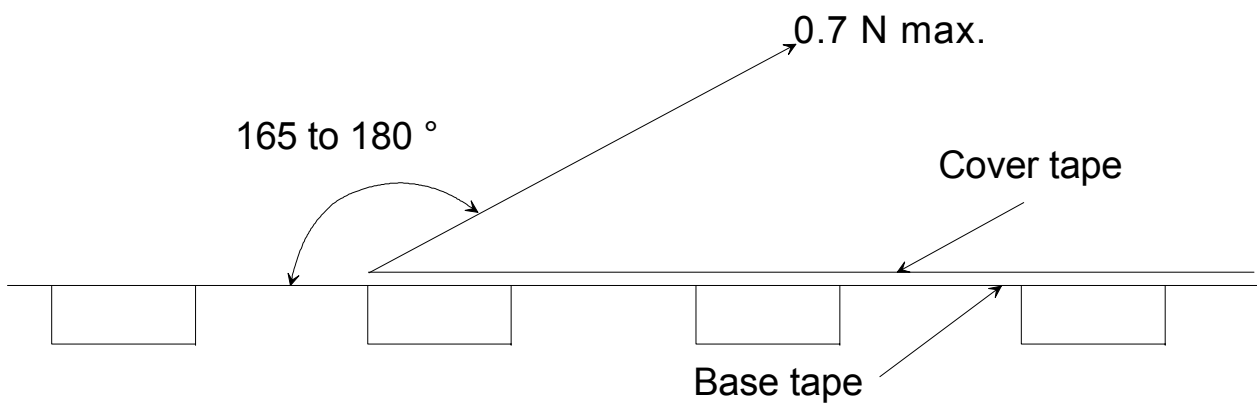
(4) Leader and Tail Tape



- (5) The tape for chips are wound clockwise, the Feeding Holes to the right side as the tape is

pulled toward the user.

- (6) The Cover Tape and Base Tape are not adhered at no components area for 250 mm min.
- (7) Tear off strength against pulling of Cover Tape : 5 N min.
- (8) Packaging unit : 1000 pcs./ Reel
- (9) Material
 - Base Tape : Plastic
 - Reel : Plastic
 - Cover Tape , Base Tape and Reel are made the anti-static processing.
- (10) Peeling of force : 0.7 N max. in the direction of peeling as shown below.



NOTICE

1. Storage Conditions:

To avoid damaging the solderability of the external electrodes, be sure to observe the following points.

- Store products where the ambient temperature is 5 to 30 deg.C and humidity 60% RH min.
(Packing materials, in particular, may be deformed at the temperature over 40 deg.C.)
- Store products in non corrosive gas (Cl₂, NH₃, SO₂, NO_x, etc.).
- Stored products shall be used within 6 months of receipt. If the product is stored more than this period, the product shall be baked with the following baking condition and solderability should be verified.
- Baking condition.
125+/-5 deg.C, 18 hours, 1 time
The products shall be baked on the heat-resistant tray because the material (Base Tape, Reel Tape and Cover Tape) are not heat-resistant.
- When the indicator in the packing has changed its color, the product shall be baked before soldering.
- After opening the packing, the product shall be stored at 5 to 30 deg.C / <60% RH and the product shall be used within 48 hours.

2. Handling Conditions:

Be careful in handling or transporting products because excessive stress or mechanical shock may break products due to the nature of ceramics structure.

Handle with care because the characteristics of products may change if products may have cracks or damages on their terminals. Do not touch products with bare hands that may result in poor solderability.

3. Standard PCB Design (Land Patterns and Dimensions):

All the ground terminals should be connected to the ground patterns. Please refer to Fig.2 for the standard land dimensions.

The recommended land patterns and dimensions are as Murata's standard. The characteristics of products may vary depending on the pattern drawing method, grounding method, land dimensions, land forming method of the NC terminals and the PCB material and thickness. Therefore, be sure to verify the characteristics in the actual set. When using non-standard lands, contact Murata beforehand.

4. Notice for Chip Placer:

When placing products on the PCB, products may be stressed and broken by uneven forces from a worn-out chucking locating claw or a suction nozzle. To prevent products from damages, be sure to follow the specifications for the maintenance of the chip placer being used. For the positioning of products on the PCB, be aware that mechanical chucking may damage products.

5. Soldering Conditions:

Carefully perform preheating so that the temperature difference (ΔT) between the solder and products surface should be in the following range. When products are immersed in solvent after mounting, pay special attention to maintain the temperature difference within 100 deg.C. Soldering must be carried out by the above mentioned conditions to prevent products from damage. Contact Murata before use if concerning other soldering conditions.

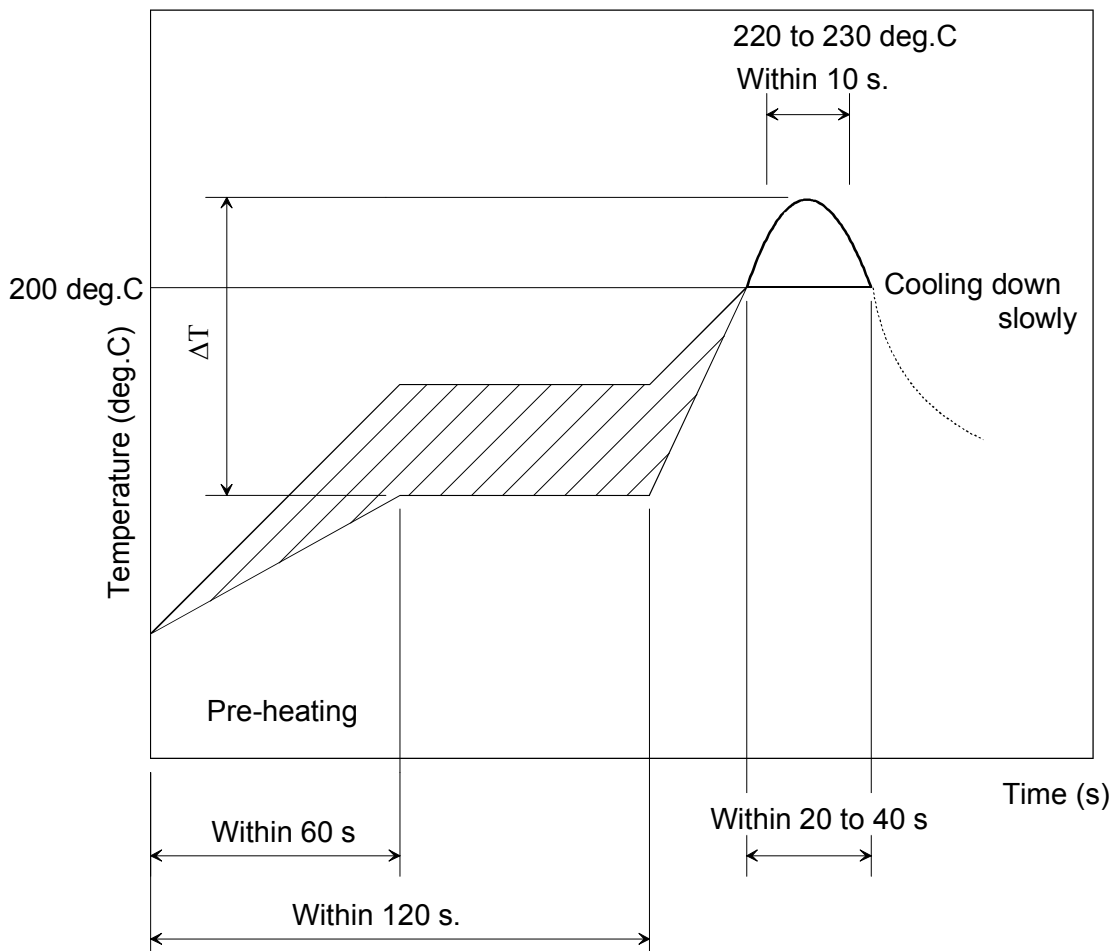
Soldering methods	Temperature
Soldering iron method	$\Delta T \leq 130$ deg.C
Reflow method	

- Soldering iron method conditions are indicated below.

Items \ Kind of iron	Nichrome heater	Ceramics heater
Soldering iron wattage	≤ 30 W	≤ 18 W
Temperature of iron-tip	≤ 280 deg.C	≤ 250 deg.C

- Diameter of iron-tip : 3.0 mm max.
- Do not touch the module itself directly by the iron-tip.

Infrared reflow soldering standard conditions(Example)

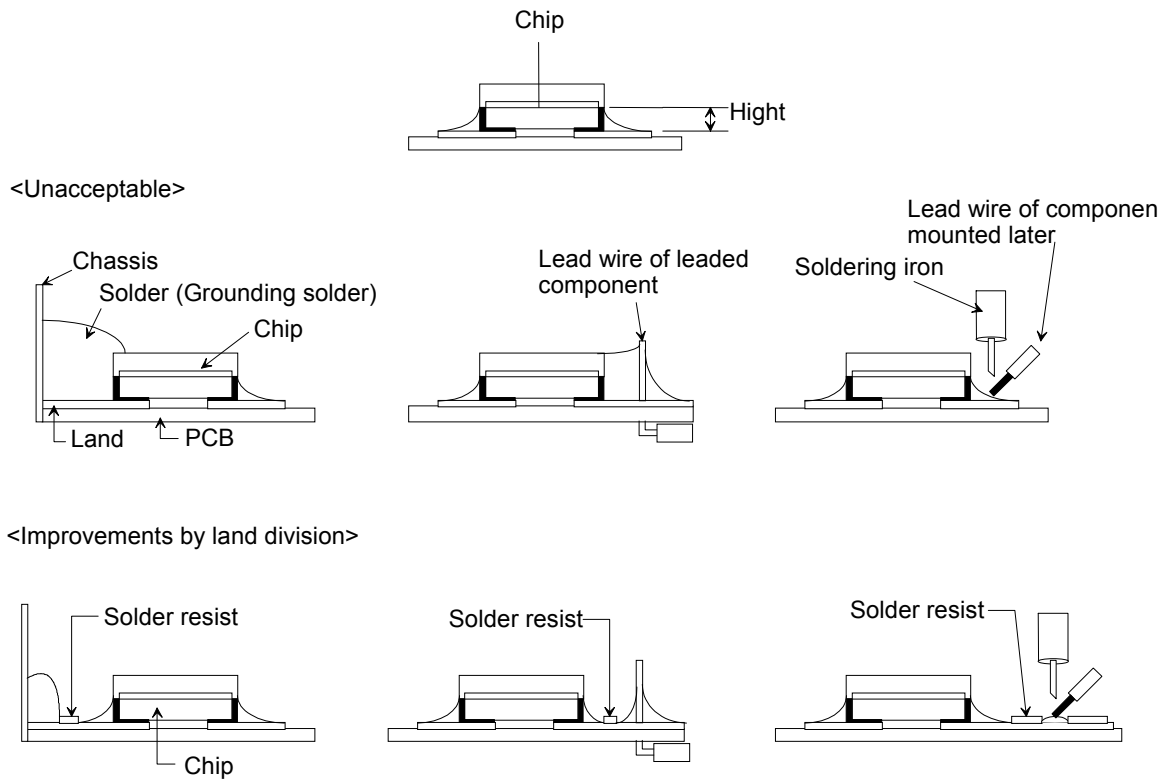


Use rosin type flux or weakly active flux with a chlorine content of 0.2 wt % or less. Be careful so as not to remain the flux residue around products. Because there are possibilities to become worse the characteristics.

Amount of Solder Paste:

- Ensure that solder is applied smoothly to a minimum height of 0.2 to 0.5 mm at the end surface of the external electrodes. If too much or little solder is applied, there is high possibility that the mechanical strength will be insufficient, creating the variation of characteristics.

Amount of solder paste



6. Cleaning Conditions:

The total cleaning time of soaking, ultrasonic and steam methods should be within 5 minutes.

Consult with Murata concerning the cleaning solvent. In order to totally abolish ODC (Freon, Trichloroethane), Murata has carried out testing on non-cleaning and water cleaning (water-soluble flux, water-soluble cream solder, water-based cleaning solvent). Therefore, be sure to contact Murata beforehand for details when applying any of the above mentioned cleaning fluid.

The ultrasonic cleaning conditions are indicated below :

Power	15 W min. per liter(1 cyc)(0.25 W min. per sq cm)
Frequency	28 to 29 kHz
Temperature	Normal temperature

If the ultrasonic output power is too high, the PCB may resonate and products mounted on the PCB may be damaged. The ultrasonic cleaning conditions may change depending on the size of the vessel and the size of the PCB. Contact Murata regarding conditions other than those stated above.

Dry the products immediately after cleaning. And bake the products according to the specification before soldering.

7. Operational Environment Conditions:

Products are designed to work for electronic products under normal environmental conditions (ambient temperature, humidity and pressure). Therefore, products have no problems to be used under the similar conditions to the above-mentioned. However, if products are used under the following circumstances, it may damage products and electric shock and abnormal temperature may occur.

- In an atmosphere containing corrosive gas (Cl_2 , NH_3 , SO_x , NO_x etc.).
- In an atmosphere containing combustible and volatile gases.
- Dusty place.
- Direct sunlight place.
- Water splashing place.
- Humid place where water condenses.
- Freezing place.

If there are possibilities for products to be used under the preceding clause, consult with Murata before actual use.

As it might be a cause of degradation or destruction to apply static electricity to products, do not apply static electricity or excessive voltage while assembling and measuring.

8. Limitation of Applications:

Please contact Murata before using products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Transportation equipment (vehicles, trains, ships, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Data-processing equipment
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.



Note:

Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.

All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.

We consider it not appropriate to include other terms and conditions for transaction warranty in product specifications, drawings or other technical documents. Therefore, even if your original part of this product specification includes such terms and conditions as warranty clause, product liability clause, or intellectual property infringement liability clause, we are not able to accept such terms and conditions in this product specification unless they are based on the governmental regulation or what we have agreed otherwise in a separate contact. We would like to suggest that you propose to discuss them under negotiation of contract.

PSKey Table

PSKEY	VALUE (* Any number)	NOTES
0001	*	// PSKEY_BDADDR
0002	0000	// PSKEY_COUNTRYCODE
0003	00000000	// PSKEY_CLASSOFDEVICE
0004	00FA	// PSKEY_DEVICE_DRIFT
0005	000A	// PSKEY_DEVICE_JITTER
000D	0007	// PSKEY_MAX_ACLS
000E	0003	// PSKEY_MAX_SCOS
000F	0001	// PSKEY_MAX_REMOTE_MASTERS
0010	0000	// PSKEY_ENABLE_MASTERY_WITH_SLAVERY
0011	00C0	// PSKEY_H_HC_FC_MAX_ACL_PKT_LEN
0012	0040	// PSKEY_H_HC_FC_MAX_SCO_PKT_LEN
0013	0008	// PSKEY_H_HC_FC_MAX_ACL_PKTS
0014	0008	// PSKEY_H_HC_FC_MAX_SCO_PKTS
0015	020002800300	// PSKEY_LC_FC_BUFFER_LOW_WATER_MARK
0017	0004	// PSKEY_LC_MAX_TX_POWER
001D	3010	// PSKEY_TX_GAIN_RAMP
001E	0A00EC001300F1001D00F6002600FB0030000000	// PSKEY_LC_POWER_TABLE
001F	000F4240	// PSKEY_LC_PEER_POWER_PERIOD
0020	00140018001A	// PSKEY_LC_FC_POOLS_LOW_WATER_MARK
0021	0000	// PSKEY_LC_DEFAULT_TX_POWER
0022	0050	// PSKEY_LC_RSSI_GOLDEN_RANGE
0023	0001	// PSKEY_LC_ATTEN_GOLDEN_RANGE_MINIMUM
0024	000C	// PSKEY_LC_ATTEN_GOLDEN_RANGE_MAXIMUM
0025	8000	// PSKEY_LC_MAX_FREE_SLOTS
0064	0001	// PSKEY_ONCHIPBCMGR_ACTIVE
0065	0001	// PSKEY_ONCHIPBCMGR_ENABLE_TX
00C9	0000	// PSKEY_FREE_KEY_PIGEON_HOLE
00DA	0001	// PSKEY_ENC_KEY_LMIN
00DB	0010	// PSKEY_ENC_KEY_LMAX
00DC	00000000000000000000000000000000 00000000000000000000000000000000	// PSKEY_LOCAL_NAME0
00EE	0001	// PSKEY_LOCAL_NAME_LENGTH
00EF	FFFF000B00000000	// PSKEY_LOCAL_SUPPORTED_FEATURES
00F0	0000	// PSKEY_LM_USE_UNIT_KEY
00F2	0000	// PSKEY_HCI_NOP_DISABLE
00F3	0001	// PSKEY_WHITEN_LMP_TEST_CONTROL
00F4	0005	// PSKEY_LM_MAX_EVENT_FILTERS
00F5	0001	// PSKEY_LM_USE_ENC_MODE_BROADCAST
00F6	0000	// PSKEY_LM_TEST_SEND_ACCEPTED_TWICE
0136	0007	// PSKEY_DFU_ATTRIBUTES
0137	1388	// PSKEY_DFU_DETACH_TO
0138	03FF	// PSKEY_DFU_TRANSFER_SIZE
0139	0001	// PSKEY_DFU_ENABLE

0191	01D800A800FA0014000400000004001E0 064000A	// PSKEY_HOSTIO_UART_PS_BLOCK
0192	0001000000FA	// PSKEY_BCSP_LM_PS_BLOCK
0193	00FA000400040000	// PSKEY_HOSTIO_FC_PS_BLOCK
0194	00000000	// PSKEY_HOSTIO_PROTOCOL_INFO0
0195	01000000	// PSKEY_HOSTIO_PROTOCOL_INFO1
0196	01009800	// PSKEY_HOSTIO_PROTOCOL_INFO2
0197	01009800	// PSKEY_HOSTIO_PROTOCOL_INFO3
0198	0200A000	// PSKEY_HOSTIO_PROTOCOL_INFO4
0199	0103A800	// PSKEY_HOSTIO_PROTOCOL_INFO5
019A	0200B000	// PSKEY_HOSTIO_PROTOCOL_INFO6
019B	00FF0800	// PSKEY_HOSTIO_PROTOCOL_INFO7
019C	0100B800	// PSKEY_HOSTIO_PROTOCOL_INFO8
019D	0100B800	// PSKEY_HOSTIO_PROTOCOL_INFO9
019E	0100B800	// PSKEY_HOSTIO_PROTOCOL_INFO10
019F	0100B800	// PSKEY_HOSTIO_PROTOCOL_INFO11
01A0	0FFFB800	// PSKEY_HOSTIO_PROTOCOL_INFO12
01A1	0100B800	// PSKEY_HOSTIO_PROTOCOL_INFO13
01A2	0000B800	// PSKEY_HOSTIO_PROTOCOL_INFO14
01A3	0000B800	// PSKEY_HOSTIO_PROTOCOL_INFO15
01A4	00000000	// PSKEY_HOSTIO_UART_RESET_TIMEOUT
01A5	0000	// PSKEY_HOSTIO_USE_HCI_EXTN
01A6	0000	// PSKEY_HOSTIO_USE_HCI_EXTN_CCFC
01A7	00FF	// PSKEY_HOSTIO_HCI_EXTN_PAYLOAD_SIZE
01AA	0002	// PSKEY_BCSP_LM_CNF_CNT_LIMIT
01AB	0001	// PSKEY_HOSTIO_MAP_SCO_PCM
01AC	0000	// PSKEY_HOSTIO_AWKWARD_PCM_SYNC
01AD	00000000	// PSKEY_HOSTIO_BREAK_POLL_PERIOD
01AE	001E	// PSKEY_HOSTIO_MIN_UART_HCI_SCO_SIZE
01AF	0006	// PSKEY_HOSTIO_UART_DFU_CONFIG
01B0	0000	// PSKEY_HOSTIO_MAP_SCO_CODEC
01B1	0000	// PSKEY_PCM_CVSD_TX_HI_FREQ_BOOST
01B2	0000	// PSKEY_PCM_CVSD_RX_HI_FREQ_BOOST
01B3	00800000	// PSKEY_PCM_CONFIG32
01B5	0001	// PSKEY_PCM_CVSD_USE_NEW_FILTER
01F5	0004	// PSKEY_MAXMMUPMALLOC
01F6	0000 - 003F	// PSKEY_ANA_FTRIM
01F7	004C4B40	// PSKEY_WD_TIMEOUT
01F8	002DC6C0	// PSKEY_WD_PERIOD
01F9	0003	// PSKEY_HOST_INTERFACE
01FA	0000	// PSKEY_MKT_TASK_ACTIVE
01FB	004C4B40	// PSKEY_HQ_HOST_TIMEOUT
01FC	0001	// PSKEY_HQ_ACTIVE
01FD	0000	// PSKEY_BCCMD_SECURITY_ACTIVE
01FE	0004	// PSKEY_ANA_FREQ
0202	0003	// PSKEY_PIO_PROTECT_MASK
0203	000200780004003C0008003B000A001E0 01000280014001E0020001500520020007 8000100060028000000000	// PSKEY_PMALLOC_SIZES

0207	0000	// PSKEY_STUB
0208	2018	// PSKEY_IQ_TRIM
0209	0001	// PSKEY_TXRX_PIO_CONTROL
020A	0009	// PSKEY_ANA_LO_LEVEL
020B	000F	// PSKEY_ANA_RX_LEVEL
020C	0844	// PSKEY_ANA_RX_FTRIM
020D	00E7	// PSKEY_PSBC_DATA_VERSION
020E	0001	// PSKEY_ANA_CONFIG
020F	0003	// PSKEY_PCM0_ATTENUATION
0210	0000	// PSKEY_LO_LVL_MIN
0211	000F	// PSKEY_LO_LVL_MAX
0212	002B	// PSKEY_LO_ADC_AMPL_MIN
0213	002D	// PSKEY_LO_ADC_AMPL_MAX
0214	002C	// PSKEY_IQ_TRIM_CHANNEL
0215	0620	// PSKEY_IQ_TRIM_GAIN
0216	0002	// PSKEY_IQ_TRIM_ENABLE
0217	FFFE	// PSKEY_TX_OFFSET_HALF_MHZ
0218	03E8	// PSKEY_DEBUG_TASK_PERIOD
0219	0000	// PSKEY_TXLVL_TX_OFFSET
021A	0000	// PSKEY_TXLVL_LO_OFFSET
021B	0014	// PSKEY_TXLVL_TX_MINIMUM
021C	0036	// PSKEY_TXLVL_TX_MAXIMUM
021D	001A	// PSKEY_TXLVL_LO_MINIMUM
021E	0024	// PSKEY_TXLVL_LO_MAXIMUM
021F	363633322E2A2422201F1E00	// PSKEY_TXLVL_LUT
0220	0000	// PSKEY_ENABLE_MAX_TXLVL
0221	0818	// PSKEY_GBL_MISC_ENABLES
0222	03E8	// PSKEY_UART_SLEEP_TIMEOUT
0229	0001	// PSKEY_DEEP_SLEEP_STATE
022A	000F	// PSKEY_IQ_MAX_DEMAND_LEVEL
022B	0000	// PSKEY_AMUX_A
022C	0001	// PSKEY_AMUX_B
022D	0001	// PSKEY_IQ_ENABLE_PHASE_TRIM
022E	0002	// PSKEY_IQ_DEMAND_BACKOFF
022F	0000	// PSKEY_RXLVL_TRIM_ENABLE
0230	0000	// PSKEY_RXLVL_RX_OFFSET
0231	0000	// PSKEY_RXLVL_LO_OFFSET
0232	0006	// PSKEY_RXLVL_RX_MINIMUM
0233	000B	// PSKEY_RXLVL_RX_MAXIMUM
0234	0018	// PSKEY_RXLVL_LO_MINIMUM
0235	0022	// PSKEY_RXLVL_LO_MAXIMUM
0236	0B0A090807060606060600	// PSKEY_RXLVL_LUT
0237	00E4E1C0	// PSKEY_HCI_HANDLE_FREEZE_PERIOD
0238	0014	// PSKEY_MAX_FROZEN_HCI_HANDLES
0239	0000C350	// PSKEY_PAGETABLE_DESTRUCTION_DELAY
023A	0000	// PSKEY_IQ_TRIM_PIO_SETTINGS
023B	0001	// PSKEY_USE_EXTERNAL_CLOCK
023C	0000	// PSKEY_DEEP_SLEEP_WAKE_CTS
023D	00989680	// PSKEY_FC_HC2H_FLUSH_DELAY

023E	0000	// PSKEY_RX_HIGHSIDE
023F	0000	// PSKEY_RX_USE_LO_LVL_F
0240	0006	// PSKEY_TX_PRE_LVL
0241	000A	// PSKEY_XTAL_LVL
0242	0000	// PSKEY_RX_SINGLE_ECDED
0243	FF070003	// PSKEY_TX_FILTER_CONFIG
0244	0001	// PSKEY_TX_TRIM_ENABLE
0245	14001E002800320039003F00	// PSKEY_TX_TRIM_TABLE
0246	0000	// PSKEY_CLOCK_REQUEST_ENABLE
0247	0004	// PSKEY_TX_MOD_INDEX_TRIM
0248	0001	// PSKEY_TX_USE_NEW_PULSE_SHAPE
0249	0000	// PSKEY_RX_MIN_ATTEN
024A	0001	// PSKEY_TX_USE_DYNAMIC_OFFSET
024B	0000	// PSKEY_XTAL_TARGET_AMPLITUDE
024D	0001	// PSKEY_PCM_MIN_CPU_CLOCK
0251	0001	// PSKEY_CPU_IDLE_MODE
0253	0000	// PSKEY_MIN_RX_LEVEL
0254	0080	// PSKEY_RF_RESONANCE_TRIM
0255	0010	// PSKEY_DEEP_SLEEP_PIO_WAKE
0259	*	// PSKEY_MODULE_ID
025A	0000	// PSKEY_MODULE_DESIGN
025D	0000	// PSKEY_VM_DISABLE
02B0	*	// PSKEY_USR38
02B1	*	// PSKEY_USR39
02B2	*	// PSKEY_USR40
02B3	*	// PSKEY_USR41
02BC	0110	// PSKEY_USB_VERSION
02BD	00E000010001	// PSKEY_USB_DEVICE_CLASS_CODES
02BE	0A12	// PSKEY_USB_VENDOR_ID
02BF	0001	// PSKEY_USB_PRODUCT_ID
02C5	00C0	// PSKEY_USB_ATTRIBUTES
02C6	0000	// PSKEY_USB_MAX_POWER
02C7	00E000010001	// PSKEY_USB_BT_IF_CLASS_CODES
02C9	0409	// PSKEY_USB_LANGID
02CA	00FE00010000	// PSKEY_USB_DFU_CLASS_CODES
02CB	FFFF	// PSKEY_USB_DFU_PRODUCT_ID
02D0	0010	// PSKEY_USB_PIO_PULLUP
02D2	0000	// PSKEY_USB_PIO_WAKE_TIMEOUT
02D4	00E000010001	// PSKEY_USB_BT_SCO_IF_CLASS_CODES
0320	0000	// PSKEY_RADIOTEST_ATTEN_INIT
0321	0006	// PSKEY_RADIOTEST_ATTEN_FAST_RAMP
0322	0007	// PSKEY_RADIOTEST_TX_TRIM1
0323	0007	// PSKEY_RADIOTEST_TX_TRIM2
0324	0007	// PSKEY_RADIOTEST_TX_TRIM3
0325	0000	// PSKEY_RADIOTEST_RADIO_ON_OFFSET
0326	004C4B40	// PSKEY_RADIOTEST_FIRST_TRIM_TIME
0327	00000000	// PSKEY_RADIOTEST_SUBSEQUENT_TRIM_TIME
0328	0001	// PSKEY_RADIOTEST_LO_LVL_TRIM_ENABLE
0329	0050	// PSKEY_RADIOTEST_RSSI_GOLDEN_RANGE

032A	0000	// PSKEY_RADIOTEST_RX_USE_LO_LVL_F
032B	0000	// PSKEY_RADIOTEST_TXDATA3_LO_ADC_OFFSET
032C	0000	// PSKEY_RADIOTEST_DISABLE_MODULATION
0352	0004	// PSKEY_RFCOMM_FCON_THRESHOLD
0353	0003	// PSKEY_RFCOMM_FCOFF_THRESHOLD