



Messrs.: MECCAMANUFACTURINO CO., LTD

Specification No. NMM22-5012T

Agent.: GRANSTAR INTERNATIONAL CO., LTD.

Product Specification

Issued Date: 2007/03/08

Part Description : Microwave Coaxial Connector

Customer Part No: _____

Murata Part No MM9329-2700B/ RA1/ RB5

Acknowledgement of reception

We have received the attached specification.	
Date: Company: _____	Date: Agent: _____
Received by _____ (Signature)	Received by _____ (Signature)
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Sales Office

Technical Dept.

Prepared by

(Signature)
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Yoshihiro Osaki (Type)

Representative

(Company name/Dept.)

Yoshihito Otani (Signature)
Yoshihito Otani (Type)

Product Engineering Section
Microwave Products Department 2
Murata Mfg.Co.,Ltd.

Wellshow



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IPEX MHF/ MHF 2 / MHF 3/ MHF 4
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RF connector and RF cable

SMA / SMB / SSMB / SMC / MMCX /
MCX / FME / BNC / TNC / N ...etc.



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DRAWING

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1. SCOPE

This product specification is applied to microwave coaxial connector GSC type receptacle. Please contact us before using any of the products in the applications not described above.

2. PART NUMBER

Part Number	Packaging	Quantity
MM9329-2700B	Bulk Package	
MM9329-2700RA1	178 mm dia. reel	1000 pcs/reel
MM9329-2700RB5	330 mm dia. reel	5000 pcs/reel

3. RATING:

Item	Specification
3.1 Voltage Rating	250V r.m.s. maximum
3.2 Nominal Frequency Range	DC to 6 GHz
3.3 Nominal Impedance	50Ω
3.4 Temperature Rating	-40°C to +85°C

4. DESIGN AND CONSTRUCTION

See FIGURE 1.

5. STANDARD PATTERN DIMENSION

See FIGURE 2.

6. STANDARD STENCIL MASK PATTERN

The recommended stencil mask pattern is as FIGURE 3.(Thickness is 0.15mm)

There is the possibility at receptacle to solder- joint with some gap in between PCB by the excess solder.

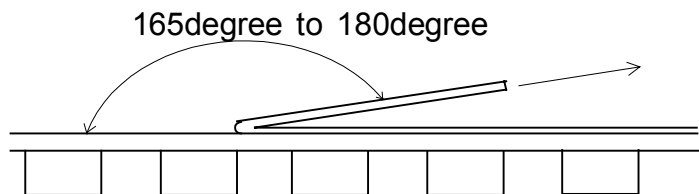
T	22/Feb./2005	Revised paragraph 9.3.
S	15/Dec./2004	Revised FIGURE 3 Revised paragraph 9.4.
R	25/Nov./2004	Revised paragraph 3, 9, 10, and FIGURE 8.
P	4/Mar./2004	Revised FIGURE2.
N	4/Jul./2003	Revised paragraph 1, 8.4, 13.3.3.
M	10/Jun./2003	Revised paragraph 6 and FIGURE 3.
L	18/Apr./2003	Added paragraph 14.6.2. Revised paragraph 9.6.
K	19/Sep./2002	Revised paragraph 13.2.
J	24/Apr./2002	Revised paragraph 14.6.1.
H	20/Mar./2002	Revised paragraph 9.3, 9.4, 13.1.1, Figure 1, 2, 3, 4, 5 and 9.
G	26/Jul./2001	Revised paragraph 15.
F	25/Apr./2001	Revised paragraph 3.3.1. and Figure 4.
E	12/Mar./2001	Revised to standard unit
D	29/Nov./2000	Revised paragraph 1, 12, 13 and 14.4. Revised to New Part No.
C	21/Jan./2000	The format and unit of "paragraph 5, 6, 7.8, 9.1, 10.3, 10.4, 13 and 14" are changed
B	9/Sep./1999	Revised paragraph 10.3, 10.4.
A	25/May./1999	Revised Figure 1, 2, 7. Revised paragraph 6, 9.2, 9.6.
	7/Jan./1999	First release.
ISSUE	ISSUE DATE	RELEASES AND REVISIONS

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7. TAPING SPECIFICATION

- (1) The dimension of carrier tape is shown in FIGURE 4.
- (2) The dimension of reel is shown in FIGURE 5.
- (3) The direction of terminal is shown in FIGURE 6.
- (4) The taping condition is shown in FIGURE 7.
- (5) Beginning of winding
When the tape runs out, it can be removed from the reel easily.
- (6) End of winding
Leader part shall be taped on the edge of reel.
- (7) When the plastic tape is pulled out from the reel, the pilot hole of this tape is the right side.
- (8) Peeling off force of cover tape
When cover tape is peeled off as in right figure by a speed of 300mm/min. , the peeling off force should be 0.7N maximum.

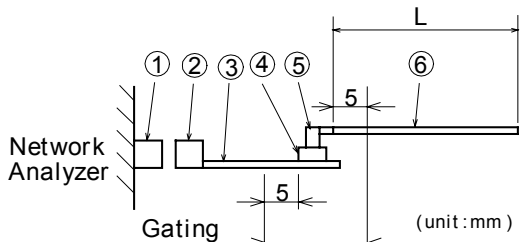


8. ELECTRICAL PERFORMANCE:

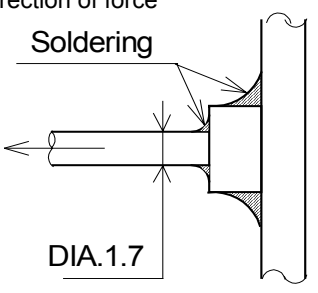
Item		Specification			Test
8.1	Insulation Resistance	500 MΩ minimum			MIL-STD-202, Method 302 Testing by applying the specified voltage between inner and outer conductor. Voltage : DC 250V+/-25V Time : 1 min
8.2	Withstanding Voltage	No evidence of breakdown			MIL-STD-202, Method 301 Testing by applying the specified voltage between inner and outer conductor. Voltage : AC 300V+/-20V r.m.s. Time : 1 min
8.3	Contact Resistance		Initial	After test.	MIL-STD-1344 Method 3002.1 Testing by the voltage dropping method with the specified current. 1. Frequency : 1,000Hz. 2. Current : 150mA max. 3. Voltage drop : 200μV max. 4. Measurement point : a. Center contact b. Outer contact The conductor resistance is eliminated from data.
		Center contact	15.0mΩ max.	20.0mΩ max.	
		Outer contact	15.0mΩ max.	20.0mΩ max.	

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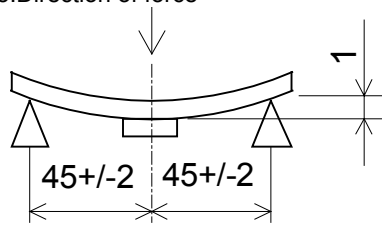
Item	Specification	Test
8.4 Voltage Standing Wave Ratio (V.S.W.R.)	1.2max.(DC~3GHz) 1.3max.(3GHz ~6GHz)	<p>Measurement system is as following figure. The judgment is done by the data only from work by using gating function. Frequency : 0.1GHz to 6.0GHz</p>  <p>① : Port 1 ④ : MM9329-2700B ② : SMA Jack ⑤ : GSC type plug ③ : Microstrip line ⑥ : Coaxial Cable L=200m Min.</p>

9. MECHANICAL PERFORMANCE:

Item	Specification	Test
9.1 Engage and Disengage Force.	a. Engagement 30N maximum b. Disengagement 3N minimum 20N maximum	a. Engagement force. Measuring the required force for complete engagement to mated connector. b. Disengagement force. Measuring the required force for complete disengagement from mated connector.
9.2 Connector Durability	No evidence of visual or mechanical damage and meet the contact resistance and engage / disengage force specifications.	100 cycles of mating and withdrawal with jig at 12 cycles/min maximum.
9.3 Adhered Force of Electrode Terminal	No excoriation of electrode terminal.	<p>Soldering test sample with test PCB. Measurement as follows. 1. Force : 20N 2. Time : 5 s +/- 1 s 3. Direction of force</p>  <p align="right">Unit :mm</p> <p>The metal rod is soldered and pulled to vertical direction against the PCB. 4. Solder paste : Sn-3.0Ag-0.5Cu 5. Thickness of solder paste : 150μm</p>

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Item	Specification	Test
9.4	Intensity of Bend No excoriation of electrode terminal	<p>Soldering test sample with test PCB. Measurement as follows.</p> <p>1.Thickness of PCB : 1.6mm 2.Speed :1.0mm/s 3.Bend : 1.0mm 4.Time : 30 s 5.Direction of force</p>  <p>6.Solder paste: Sn-3.0Ag-0.5Cu % 7.Thickness of solder paste : 150µm</p>
9.5	Solderability At least 95% covered by a continuous new solder coating	<p>MIL-STD-202, Method 208.</p> <p>1.Solder : Sn-3.0Ag-0.5Cu 2.Flux :Rosin 25%, IPA 75% 3.Temperature : 245°C 4.Time : 3 s</p> <p>Test sample should be observed by the magnification of 10 times after the test.</p>
9.6	Resistance to Soldering Heat No evidence of mechanical damage, and meet the insulation resistance, withstanding voltage and contact resistance specifications.	<p>Reflow soldering by FIGURE 8. Measurement after 24 h +/- 2 h</p>

10. ENVIRONMENTAL PERFORMANCE:

Item	Specification	Test															
10.1	Moisture Resistance No evidence of mechanical damage, and meet the insulation resistance, withstanding voltage and contact resistance specifications.	<p>MIL-STD-202, Method 103, Test Condition B.</p> <p>Temperature : 40 °C Humidity : 95% RH Time : 96 h</p> <p>Measurements should be done within 2h after removal from humidity.</p>															
10.2	Thermal Shock No evidence of mechanical damage, and meet the insulation resistance, withstanding voltage and contact resistance specifications.	<p>MIL-STD-202, Method 107. Test condition is as follows.</p> <p>Number of cycles : 50 cycles</p> <table border="1" data-bbox="1021 1769 1428 1971"> <thead> <tr> <th>Step</th> <th>Temp(°C)</th> <th>Time(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40</td> <td>30</td> </tr> <tr> <td>2</td> <td>25</td> <td>5 max.</td> </tr> <tr> <td>3</td> <td>85</td> <td>30</td> </tr> <tr> <td>4</td> <td>25</td> <td>5 max.</td> </tr> </tbody> </table>	Step	Temp(°C)	Time(min)	1	-40	30	2	25	5 max.	3	85	30	4	25	5 max.
Step	Temp(°C)	Time(min)															
1	-40	30															
2	25	5 max.															
3	85	30															
4	25	5 max.															

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Item		Specification	Test
10.3	Vibration	No electrical interruption exceeding 10 μ s and no evidence of visual or mechanical damage and meet the requirement of the center contact resistance.	1. Test directions. 3 mutually perpendicular directions 2. Sweep condition One cycle : 10Hz~100Hz~10Hz (20 min) 10Hz~30Hz : 3mm(0.12 inch) peak to peak 30Hz~100Hz : 60m/s ² 3. Test cycles 1direction 3cycles Total 9cycles 4. Test current : 100 mA
10.4	Mechanical Shock	No electrical interruption exceeding 10 μ s and no evidence of visual or mechanical damage and meet the requirement of the center contact resistance.	MIL-STD-202, Method 213, Test Condition B. 1. Test direction. 6 mutually perpendicular directions. 2. Test condition Acceleration : 750m/s ² Peak Duration of shock : 6m s Wave form : Half-sine 3. Test cycles 1direction 3times Total 18times 4. Test current : 100 mA

11. STANDARD REFLOW TEMPERATURE PROFILE

See FIGURE 8.

12.  CAUTION

12.1 Limitation of Applications

Please contact us before using our 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.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Power plant control equipment
- (5) Medical equipment
- (6) Transportation equipment (vehicles, trains, ships, etc.)
- (7) Traffic signal equipment
- (8) Disaster prevention / crime prevention equipment
- (9) Data-processing equipment
- (10) Application of similar complexity and/or reliability requirements to the applications listed in the above.

12.2 Fail-safe

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

13. NOTICE


13.1 Environment Conditions

13.1.1 This product is designed for use of electrical equipment in the environment (temperature, humidity, atmospheric pressure, etc.) specified in this approval drawing: it may not be used in the following environments or under the following conditions :

- (1) Ambient air containing corrosive gas (Cl₂, H₂S, NH₃, SO_x, NO_x etc.).
- (2) Ambient air containing volatile or combustible gas.
- (3) In liquid (water, oil, chemical solution, organic solvents, etc.).

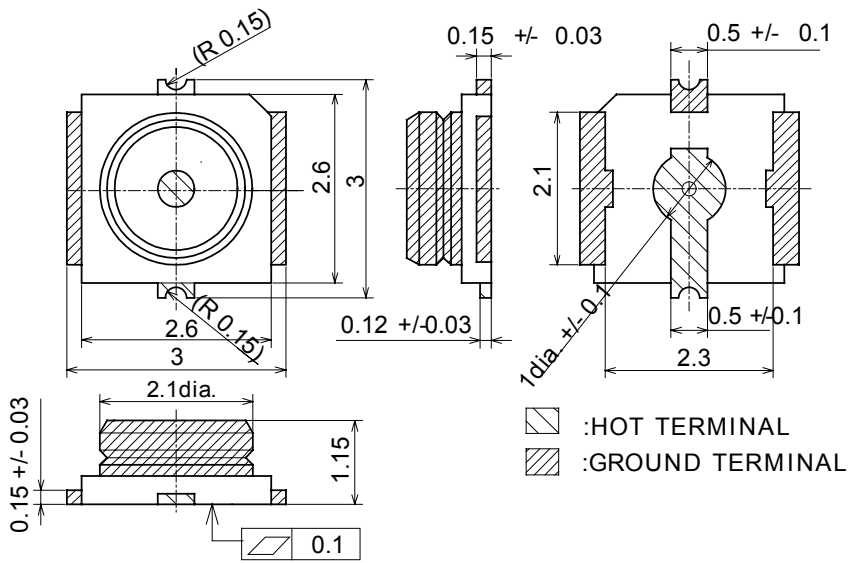
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- (4) In environments with a high concentration of airborne particles.
 - (5) In direct sunlight.
 - (6) Dusty conditions.
 - (7) In freezing.
 - (8) Other environments similar to the above conditions.
- 13.1.2 Contact the manufacturer before using the product in any of the above environments or under any of the above conditions.
- 13.2 Usage Conditions
- 13.2.1 Do not apply electrical voltage greater than specified in the drawing. It might be a cause of degradation or destruction of the product. Even if it endures during a short time, long time qualification is not guaranteed.
- 13.2.2 Confirm that there are not any influence to the product's performance which might be caused by the other components which touch with the product.
- 13.3 Handling, storage and transportation of the product
- 13.3.1 Do not apply excessive shock or load to subassembly like soldered printed circuit board in case of handling and transporting it.
- 13.3.2 Use the product of former delivery first.
- 13.3.3 Store in manufacturer's package or tightly re-closed box with the following conditions.
- Temperature : -10°C ~ +40 °C
 - Humidity : 15 %~ 85 % RH
- Use this product within 6 month after receipt.
- Check the terminal solderability before use, if the product has been stored for more than 6 months.
- 13.4 Safety
- 13.4.1 This product has two failure modes,- "OPEN" and "SHORT"-.
- 13.4.2 Please contact the manufacturer before using the product in any other than the previously informed application.
14. SOLDERING
- 14.1 We cannot warrant against mishaps caused by any use of this product that deviates from allowable temperature and time of reflow soldering.
- 14.2 In soldering, do not apply excessive mechanical force to terminals or leads greater than specified in the drawing.
- 14.3 Please note the following in case of soldering terminals or leads of the product.
- (1) Use rosin based flux, but not with strong acid flux (Chlorine content should be less than 0.20 wt%).
 - (2) Flux should be cleaned thoroughly.
- 14.4 Please mount this product at the position so that stress by warp and/or bend of the PCB may not apply to it.
- 14.5 Please dry out this product immediately after soldering and cleaning.
- 14.6 Handling
- Disregard with following notes could give mechanical damage and/or poor electrical performance.
- 14.6.1 This receptacle is just only fit with GSC type connector. Any other connector can not be used with this receptacle.
- 14.6.2 FIGURE 9 shows engagement is completed. Need to check if the mating height is less than 2 mm.
15.  NOTE
- 15.1 Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- 15.2 You are requested not to use our product deviating from the agreed specifications.
- 15.3 Please return one duplicate of this product specification to us with your signature to acknowledge your receipt. If the duplicate is not returned within three months, the product specification will be deemed to have been received by you.
- 15.4 We consider it not appropriate to include any terms and conditions with regard to the business transaction in the product specifications, drawings or other technical documents. Therefore, if your technical documents as above include such terms and conditions such as warranty clause, product liability clause, or intellectual property infringement liability clause, they will be deemed to be invalid.

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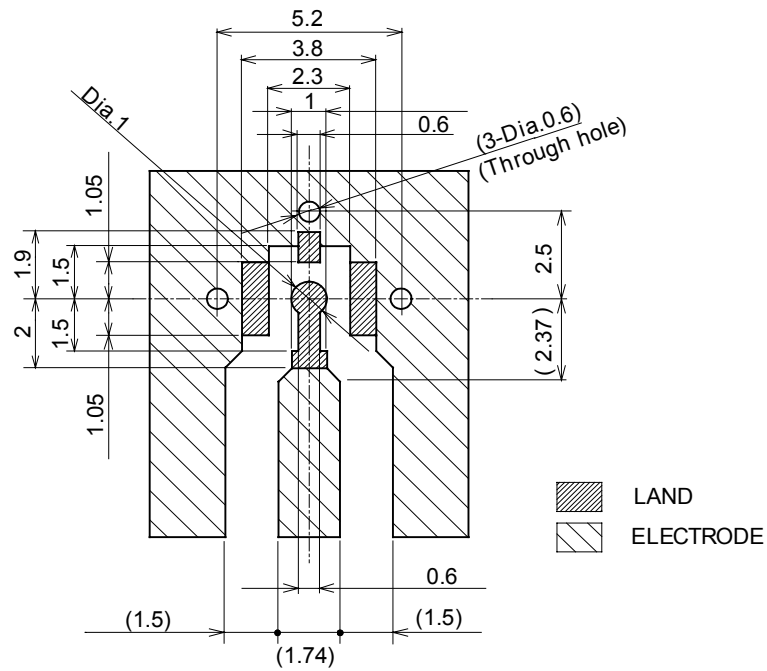


3	Case	Engineering Plastic	None	1
2	Outer contact	Copper Alloy	Silver Plated	1
1	Center pin	Copper Alloy	Gold Plated	1
No.	Part Name	Material	Finish	Q'ty

FIGURE1. Construction

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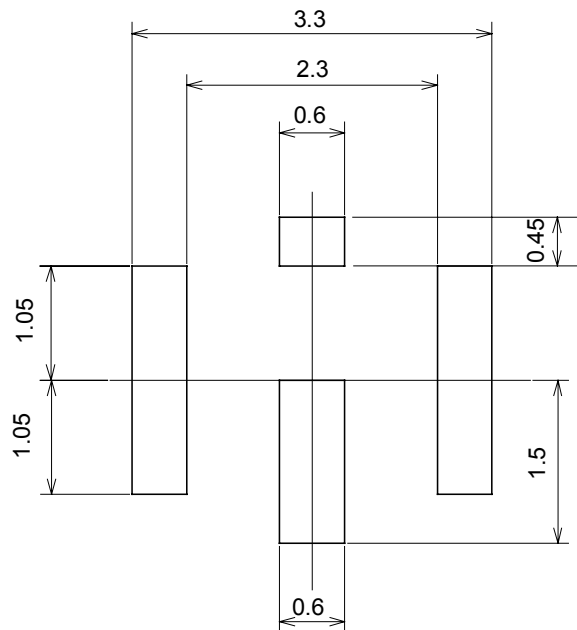
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Unit: mm

(Note) I/O pattern should be designed to be the impedance match 50 ohm.
 The material of PCB is the epoxy resin of glass fabric base. ($\epsilon_r = 4.8$). Thickness is 1.0mm.
 The solder resist should be printed except for the land pattern on the PCB

FIGURE2. Standard pattern dimensions

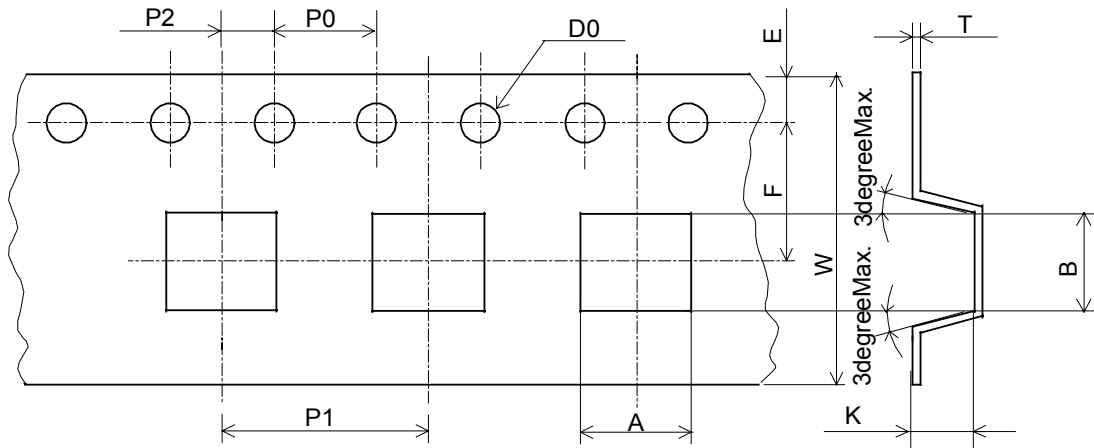


Unit: mm

FIGURE3. Standard stencil mask pattern

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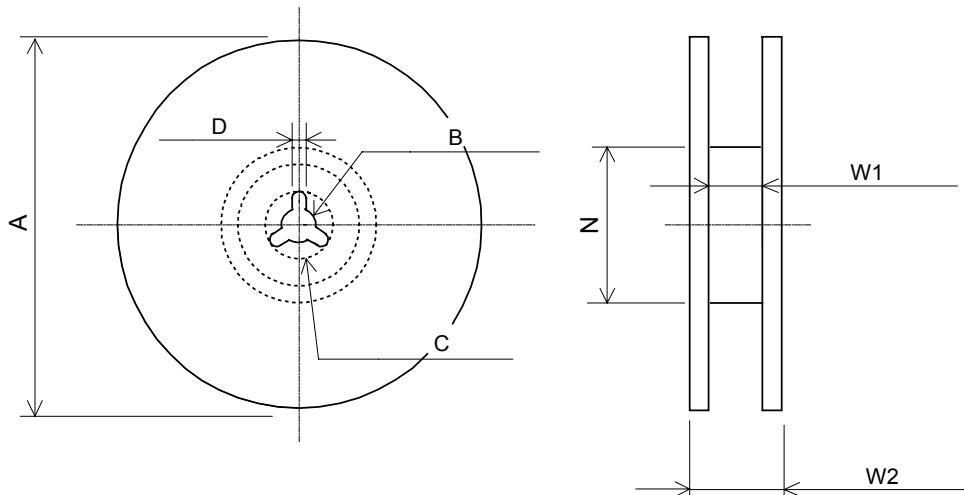


A	B	W	D0	E	F	K
+/-0.1	+/-0.1	+/-0.2	+0.1/-0	+/-0.1	+/-0.1	+/-0.15
3.8	3.8	12	Dia.1.5	1.75	5.5	1.25

P0	P1	P2	T
+/-0.1	+/-0.1	+/-0.1	+/-0.05
4	8	2	0.3

Unit: mm

FIGURE4. Dimensions of carrier tape



Unit: mm

Murata Part Number	A	B	C	D	N(min.)	W1	W2(max.)
MM9329-2700RA1	178	13	21	2	Dia.50	13.5	18.5
MM9329-2700RB5	330	13	21	2	Dia.50	13.5	18.5
TOLERANCE	+/- 2.0	+/- 0.5	+/- 0.8	+/- 0.5	--	+/-1.5	--

FIGURE5. Dimensions of reel

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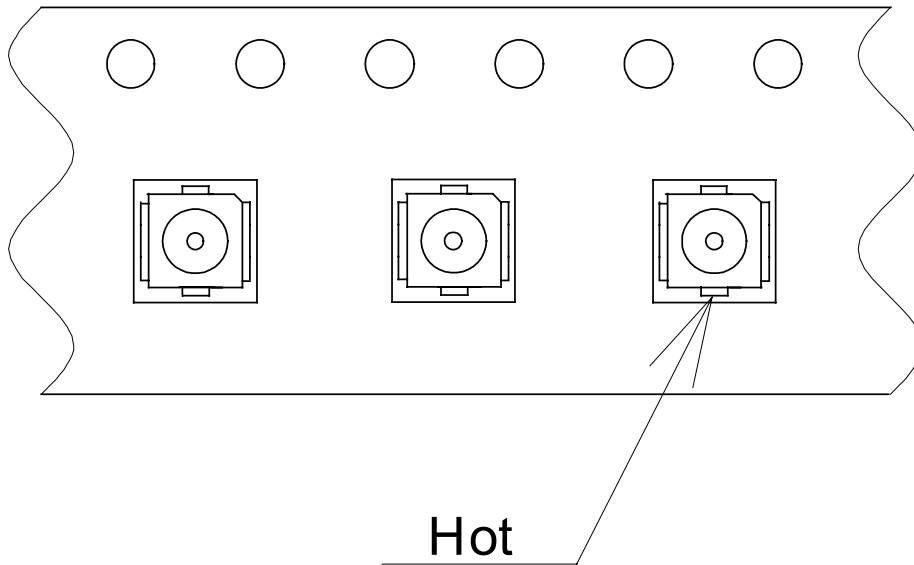


FIGURE6. Direction of terminal

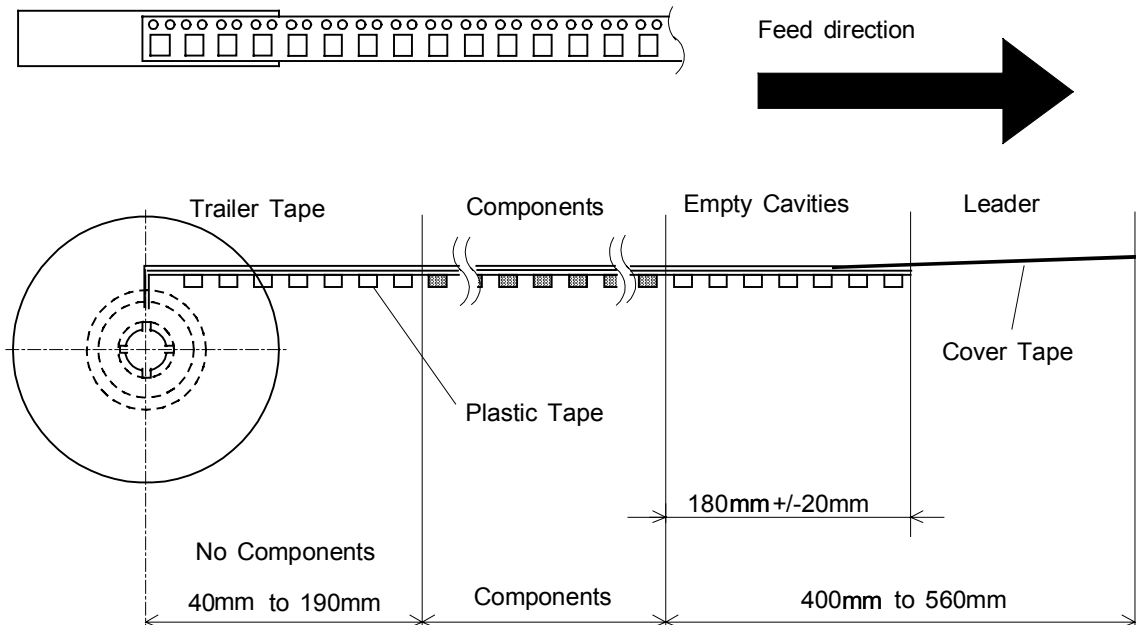
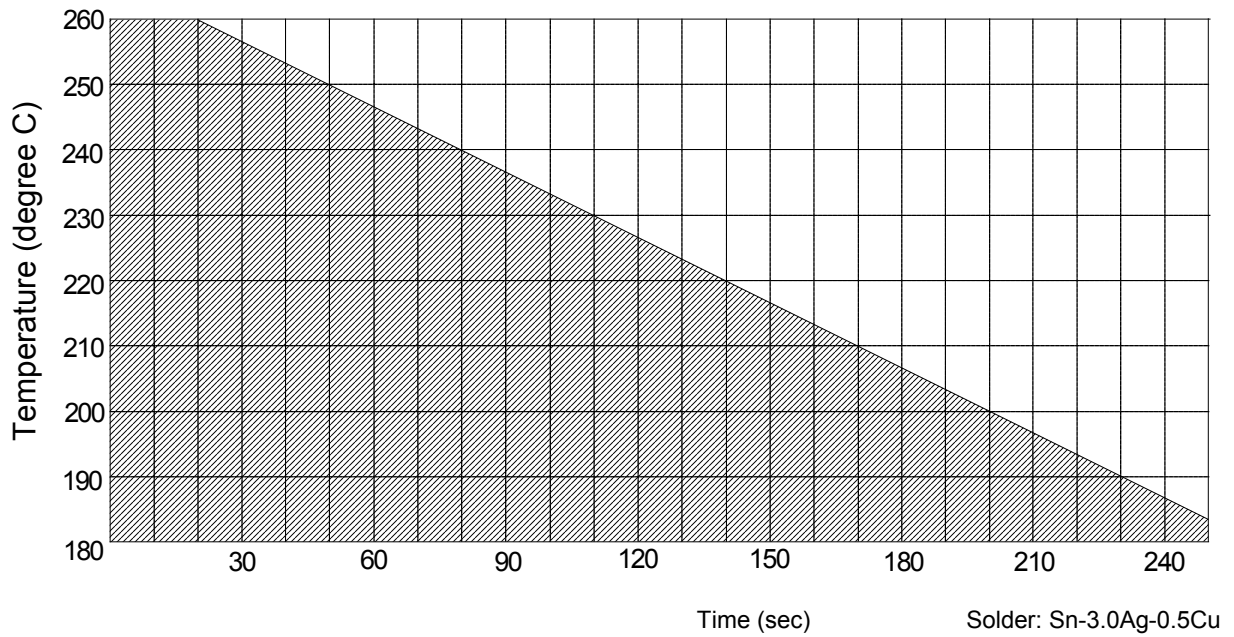


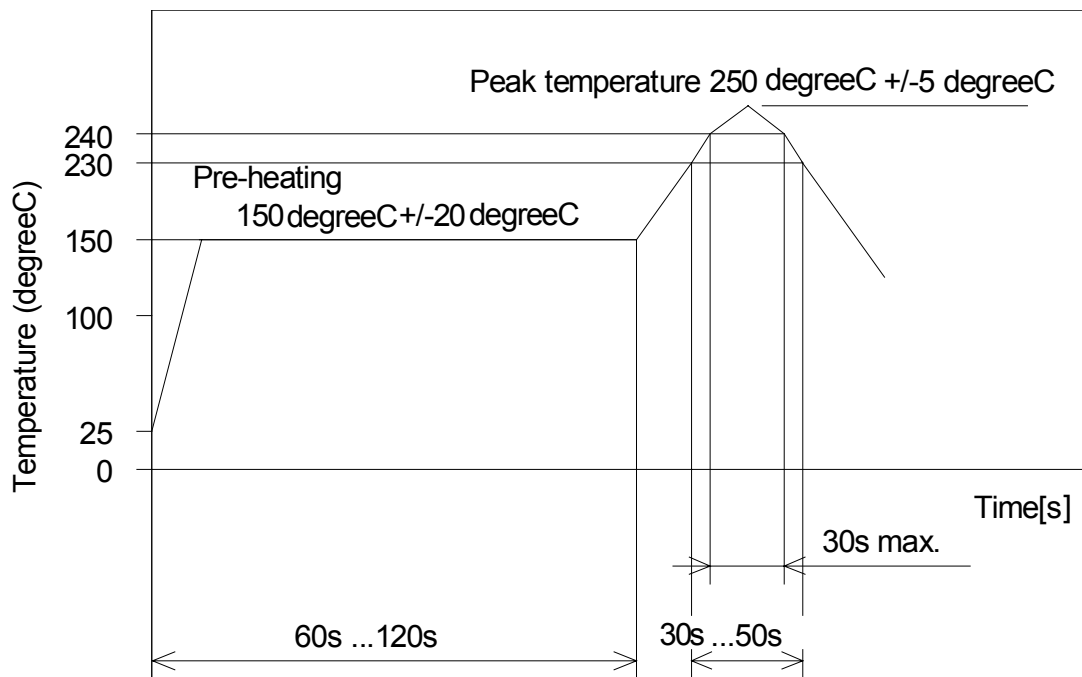
FIGURE7. Taping condition

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Allowable temperature and time of reflow soldering



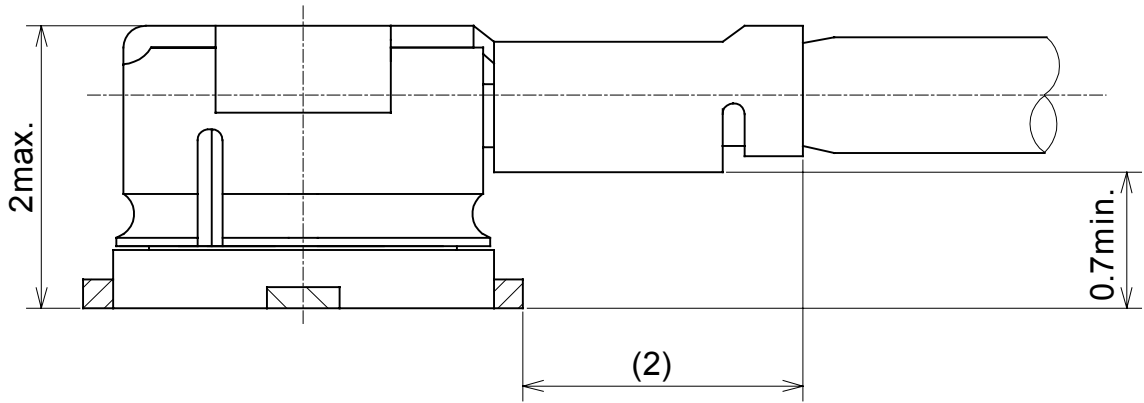
- Measuring point of temperature
In-out terminals of the device
- Reflow Soldering
Both convection and infrared rays
Hot air / Hot plate

Reflow soldering conditions

FIGURE8. Reflow soldering conditions

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Unit: mm

FIGURE9. Completion of engagement