For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	1 of 12

1. SCOPE

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

2. PART NUMBER

Part Number	Packaging	Quantity
MM8430-2610B	Bulk Package	
MM8430-2610RA1	178 mm dia. reel	1000 pcs/reel
MM8430-2610RB3	330 mm dia. reel	3000 pcs/reel

3. RATING:

Item		Specification
3.1	Voltage Rating	250V r.m.s. maximum
3.2	Nominal Frequency Range	DC to 6GHz
3.3	Nominal Impedance	50Ω
3.4	Temperature Rating	-40°C to +90°C

4. DESIGN AND CONSTRUCTION

See FIGURE 1.

5. STANDARD PATTERN DIMENSION

See FIGURE 2.

6. STANDARD STENCIL MASK PATTERN

The standard stencil mask pattern is as FIGURE 3.(Thickness is 0.15mm)
There is the possibility to have the contact failure by solder shifting into contact point, if the excess solder is used by non standard stencil mask pattern

ISSUE	ISSUE DATE	RELEASES AND REVISIONS
F	20/Apr./2006	Revised 8.5 and 9.
E	19/Sep./2005	Revised Figure 2.
D	8/Aug./2005	Revised Paragraph 3, and 10.
C	9/Feb./2005	Revised paragraph 9.4.
B	6/Jan./2005	Revised paragraph 9
A	10/Nov./2004	Revised paragraph 3, 9, 10 and FIGURE. 8.
	5/Mar./2004	First release.

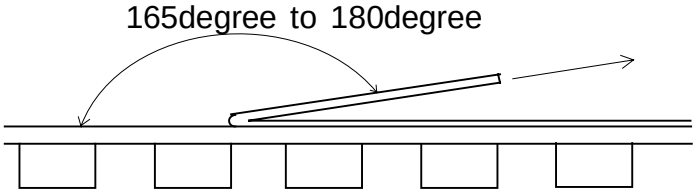
For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	2 of 12

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.



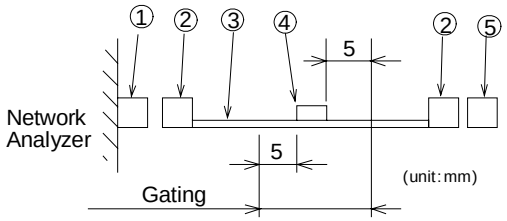
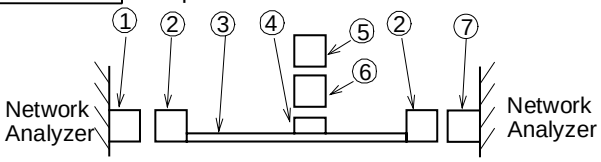
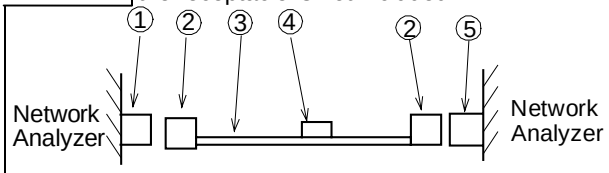
8. ELECTRICAL PERFORMANCE:

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 : 1min
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 : 1min
8.3	Contact Resistance	Initial 50mΩmax. (60mΩmax.)*1 After test. 120mΩmax. (130mΩmax.)*1 *1 The specification is *1 value when we measure the device which is not by the 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.

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	3 of 12

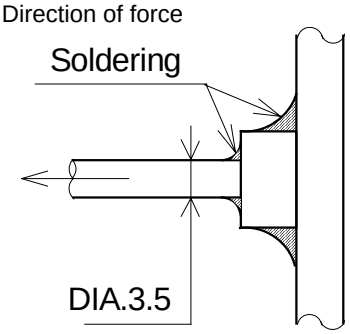
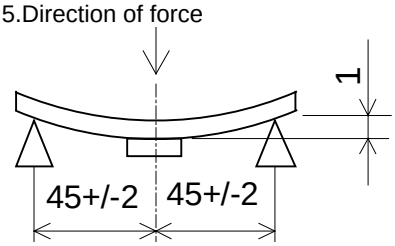
Item		Specification	Test
8.4	Voltage Standing Wave Ratio (V.S.W.R.)	1.2max.(DC~3GHz) 1.3max.(3GHz ~6GHz)	Measurement system is as following figure. The judgment is done by the data only from work by using gating function. Frequency : 0.1GHz to 6.0GHz  ①:Port 1 ②:SMA Jack ③:Microstrip line ④:MM8430-2610B ⑤:Termination
8.5	Isolation	20dBmin.(DC~3GHz) 15dBmin.(3GHz ~6GHz)	Measurement system is as following figure. Frequency : 0.1GHz to 6.0GHz Test probe : MM126036  ①:Port 1 ②:SMA Jack ③:Microstrip line ④:MM8430-2610B ⑤:Termination ⑥:MM126036 ⑦:Port 2
8.6	Insertion Loss	0.1dBmax. (DC~3GHz) 0.2dBmax.(3GHz ~6GHz)	Measurement system is as following figure. Frequency : 0.1GHz to 6.0GHz The loss of the other conductive part than the receptacle is not included.  ①:Port 1 ②:SMA Jack ③:Microstrip line ④:MM 8430-2610B ⑤:Port 2

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	4 of 12

9. MECHANICAL PERFORMANCE:

Item		Specification	Test
9.1	Engage and Disengage Force.	a. Engagement 30N maximum b. Disengagement 5N minimum 40N 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.	500 cycles of mating and withdrawal with jig at 12 cycles/min maximum.
9.3	Adhered Force of Electrode Terminal	No excoriation of electrode terminal.	Soldering test sample with test PCB. Measurement as follows. 1.Force : 50N 2.Time : 5s+/-1s 3.Direction of force  Unit : mm 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
9.4	Strength of PCB Bending	No excoriation of electrode terminal	Soldering test sample with test PCB. Measurement as follows. 1.Thickness of PCB : 1.6mm 2.Speed :1.0mm/s 3.Bend : 1.0mm 4.Time : 30s 5.Direction of force  Unit : mm 6.Solder paste : Sn-3.0Ag-0.5Cu 7.Thickness of solder paste : 150μm

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	5 of 12

Item		Specification	Test
9.5	Solderability	At least 95% covered by a continuous new solder coating	MIL-STD-202, Method 208. 1.Solder : Sn-3.0Ag-0.5Cu 2.Flux :Rosin 25%, IPA 75% 3.Temperature : 245°C 4.Time : 3s Test sample should be observed by the magnification of 10 times after the test.
9.6	Resistance to Soldering Heat	No evidence of mechanical damage, and meet the insulation resistance, withstanding voltage and contact resistance specifications.	Reflow soldering by FIGURE 8. Measurement after 24h+/-2h

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.	MIL-STD-202, Method 103, Test Condition B. Temperature : 60 °C Humidity : 95% RH Time : 96h Measurements should be done within 2h after removal from humidity. The test is done with and without mating adapter by the below test time.

	Test Time
without adapter	96h
with adapter	50h

Item		Specification	Test
10.2	Thermal Shock	No evidence of mechanical damage, and meet the insulation resistance, withstanding voltage and contact resistance specifications.	MIL-STD-202, Method 107. Test condition is as follows. Number of cycles : 50 cycles

Step	Temp(°C)	Time(min)
1	-40	30
2	25	5 max.
3	90	30
4	25	5 max.

Note :The test is done with and without mating adapter.

10.3	Vibration	No electrical interruption exceeding 10μs 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

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	6 of 12

Item		Specification	Test
10.4	Mechanical Shock	No electrical interruption exceeding 10μs 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 : 6ms 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 (Cl_2, H_2S, NH_3, SO_X, NO_X etc.).
(2) Ambient air containing volatile or combustible gas.
(3) In liquid (water, oil, chemical solution, organic solvents, etc.).
(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.

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	7 of 12

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 avoid the cleaning of this product.

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 SWD type connector. Any other connector can not be used with this receptacle.

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.

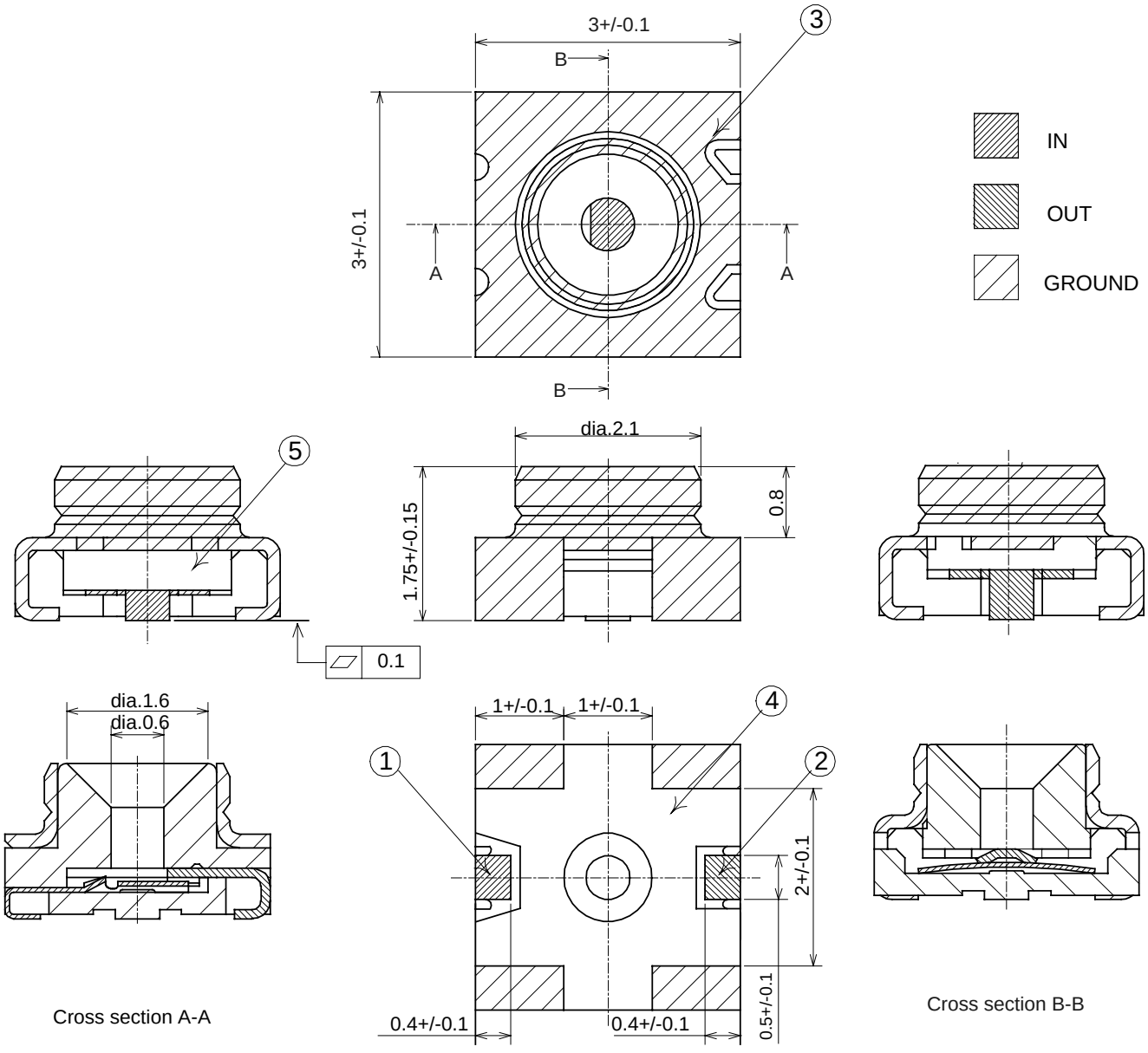
15.3 Please return one duplicate of this product specification to us with your signature to acknowledge your receipt. If the duplicate is not returned within three months, the product specification will be deemed to have been received by you.

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.

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	8 of 12



Scale: Free
Tolerances Unless
Otherwise Specified: +/-0.2
Unit: mm

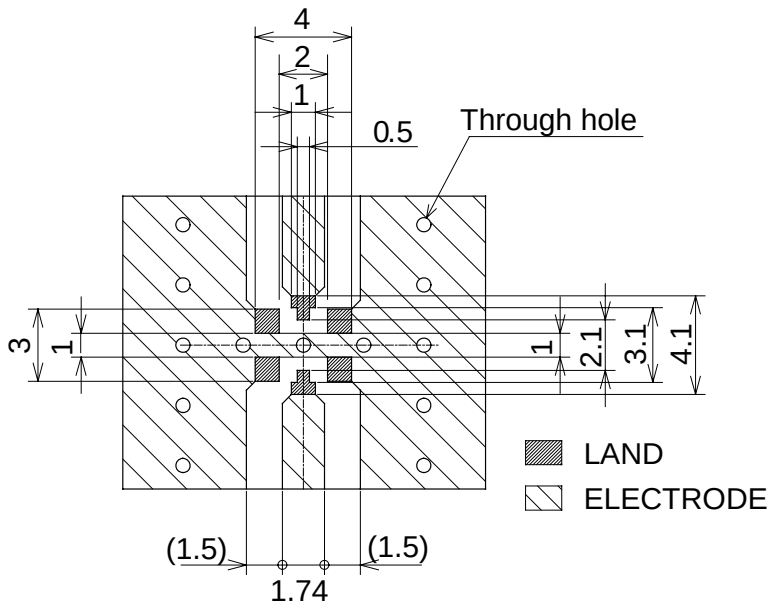
No.	Part Name	Material	Finish	Q'ty
5	Case2	Engineering Plastic	None	1
4	Case1	Engineering Plastic	None	1
3	Outer terminal	Copper Alloy	Silver Plating	1
2	Inner terminal (R)	Copper Alloy	Gold Plating	1
1	Inner terminal (C)	Stainless Steel	Gold Plating	1

FIGURE1. Construction

For Your Reference

DRAWING

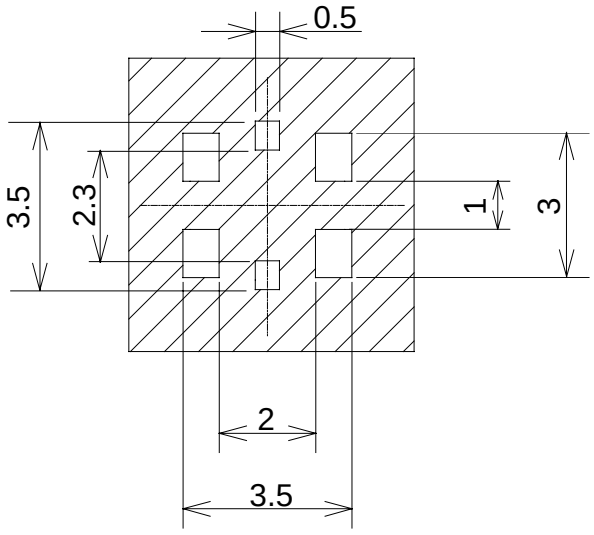
TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	9 of 12



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. (εr=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

The standard solder cream stencil mask drawing (Thickness : 0.15mm)

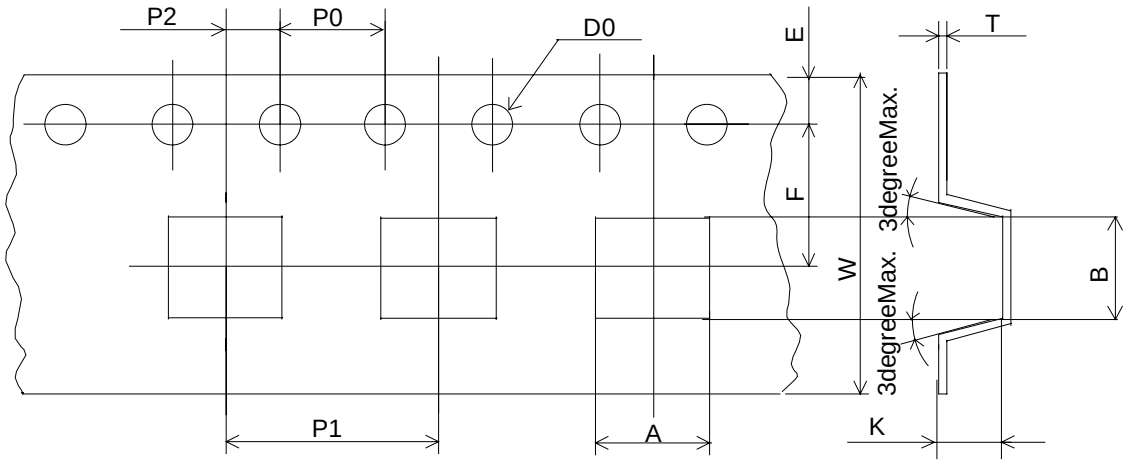
Note) There is the possibility to have the contact failure by solder shifting into contact point, if the excess solder is used by non standard stencil mask pattern.

FIGURE3. Standard stencil mask pattern

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	10 of 12

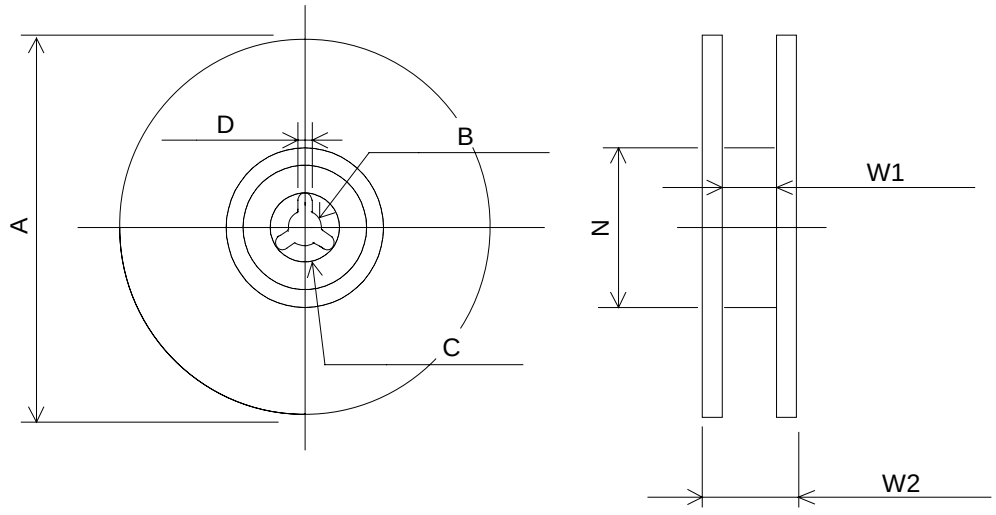


A	B	W	D0	E	F	K
+/-0.1	+/-0.1	+/-0.2	+0.1	+/-0.1	+/-0.1	+/-0.15
3.4	3.4	12	Dia.1.5	1.75	5.5	2.0

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.)
MM8430-2610RA1	178	13	21	2	Dia.50	13.5	18.5
MM8430-2610RB3	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

For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	11 of 12

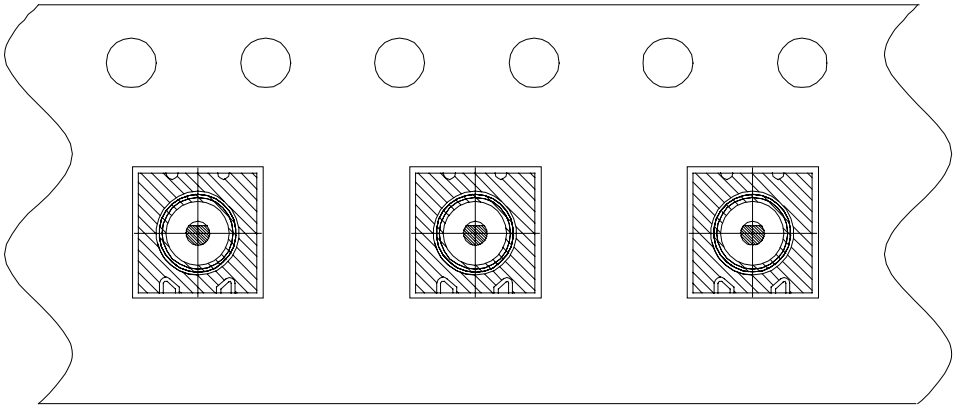


FIGURE6. Direction of terminal

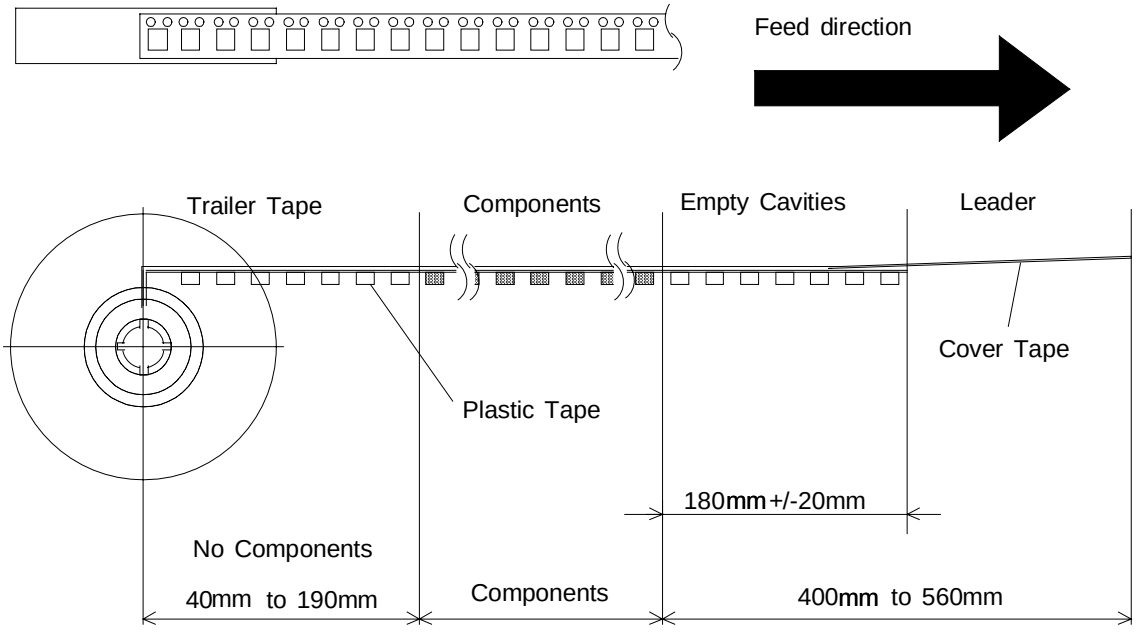
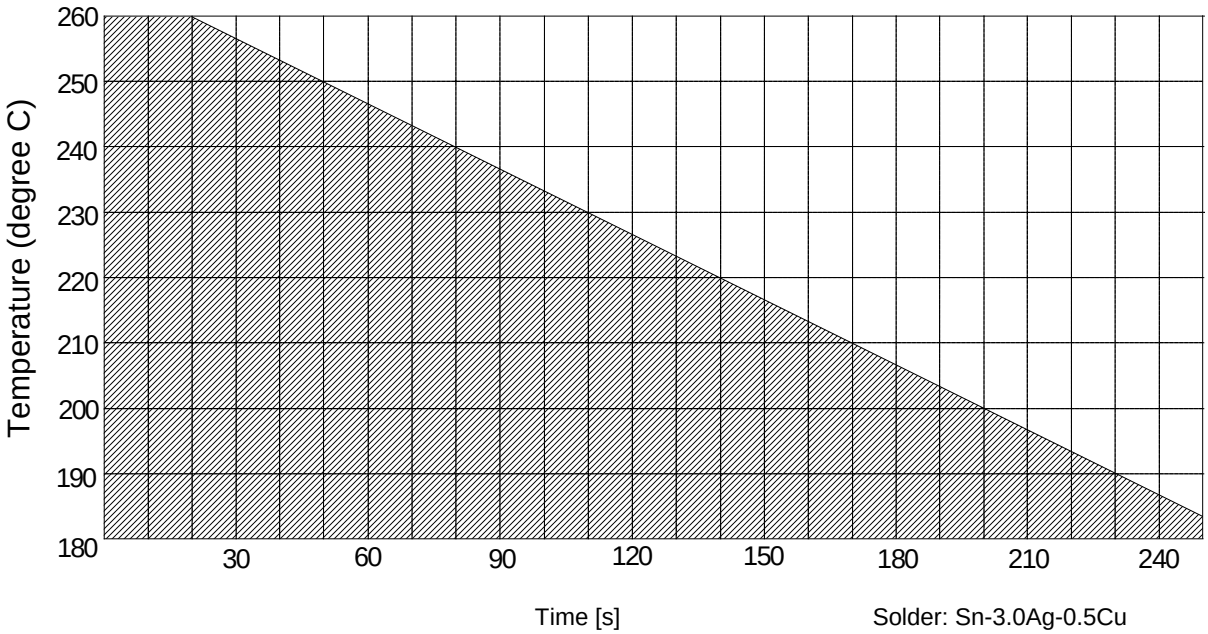


FIGURE7. Taping condition

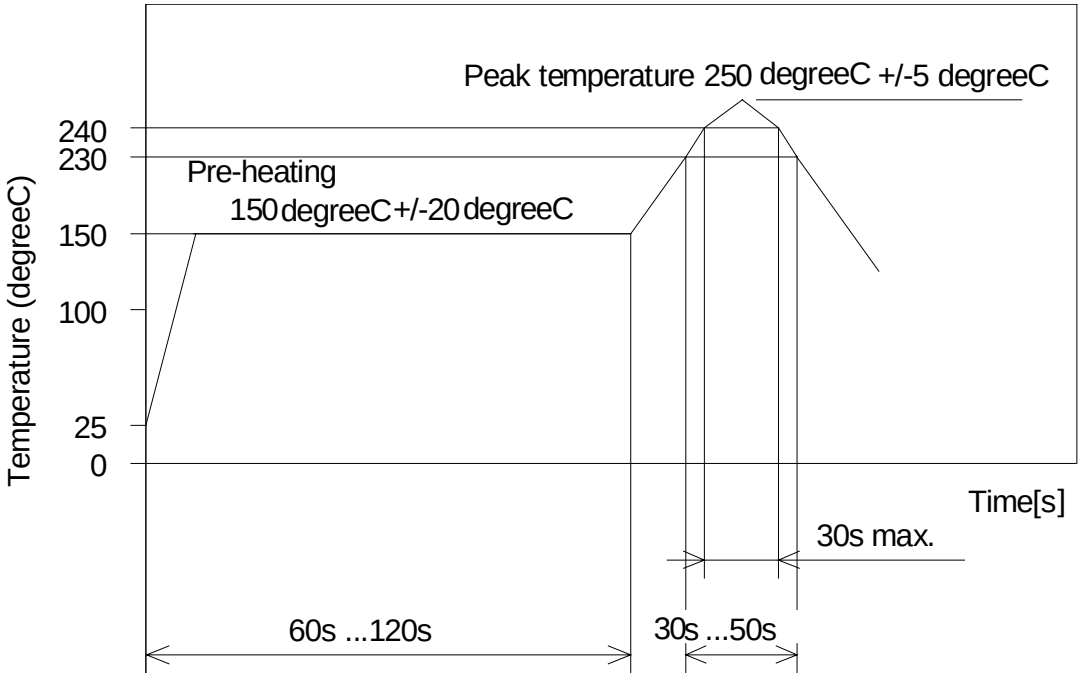
For Your Reference

DRAWING

TITLE	DRAWING NO.	ISSUE	ISSUE DATE	SHEET
CONNECTOR	NMM22-5017	F	20/Apr./2006	12 of 12



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