EU RoHS Compliant

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our web page, "Murata's Approach for EU RoHS" (https://www.murata.com/en-eu/support/compliance/rohs).

Contents

Product specifications are as of February 2021.

Please check the MURATA website (**https://www.murata.com/**) if you cannot find a part number in this catalog.

Part Numbering

Microwave Coaxial Connectors/Multi Line Connectors

(Part Number) MM ❶ | 8930 ❷ | -26 ❸ | 00 ❹ | R ❺ | K0 ❻

❶Product ID

Code	
MM	Microwave Coaxial Connectors/Multi Line Connectors (Chip Type Receptacle)

❷Series

Code	Series
8430	SWD Type
8130	SWF Type
8030	SWG Type
8930	SWH Type
8830	SWJ Type
3529	MLF-Male (Plug) Type
3531	MLF-Female (Plug Receptacle) Type

❸Individual Specification Code (1)

Code	Individual Specification Code (1)
-26	Switch Connector SMD Type
-27	Connector SMD Type

❹Individual Specification Code (2)

Code	Individual Specification Code (2)
**	Expressed by two figure

❺Package Product ID

Code	Package Product ID
B	Bulk
R	Reel

*You cannot order with Bulk for MP items.

❻Package Detail

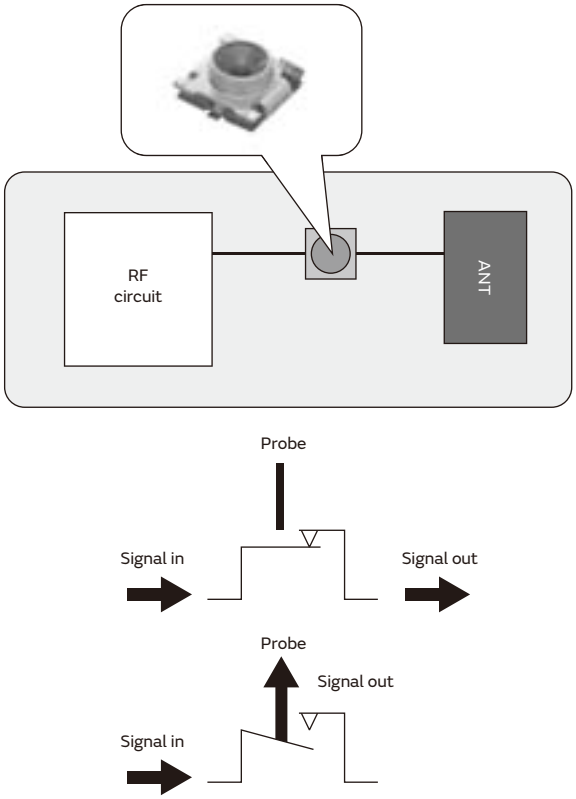
Code	Package Detail
A1	SWD Type, 1000pcs./Reel (ø180mm)
A2	SWF Type, 2000pcs./Reel (ø180mm)
B3	SWD Type, 3000pcs./Reel (ø330mm)
B8	SWF Type, 8000pcs./Reel (ø330mm)
J3	SWG Type, 3000pcs./Reel (ø180mm)
J4	SWH, SWJ Type, 4000pcs./Reel (ø180mm)
K0	SWG, SWH Type, 10000pcs./Reel (ø330mm)
K15	SWJ Type, 15000pcs./Reel (ø330mm)
A5	MLF-Male (Plug), MLF-Female (Plug Receptacle), 5000pcs./Reel (ø180mm)
B18	MLF-Male (Plug), MLF-Female (Plug Receptacle), 18000pcs./Reel (ø330mm)
E5/G5	MLF-Female (Plug Receptacle), 5000pcs./Reel (Clear emboss, ø180mm)
F18/H18	MLF-Female (Plug Receptacle), 18000pcs./Reel (Clear emboss, ø330mm)

Type of Connectors

Murata offers a variety of connectors:
- Switch connector to measure RF circuit.
- Board to Board connector to transmit high frequency signals from board to board with low loss.

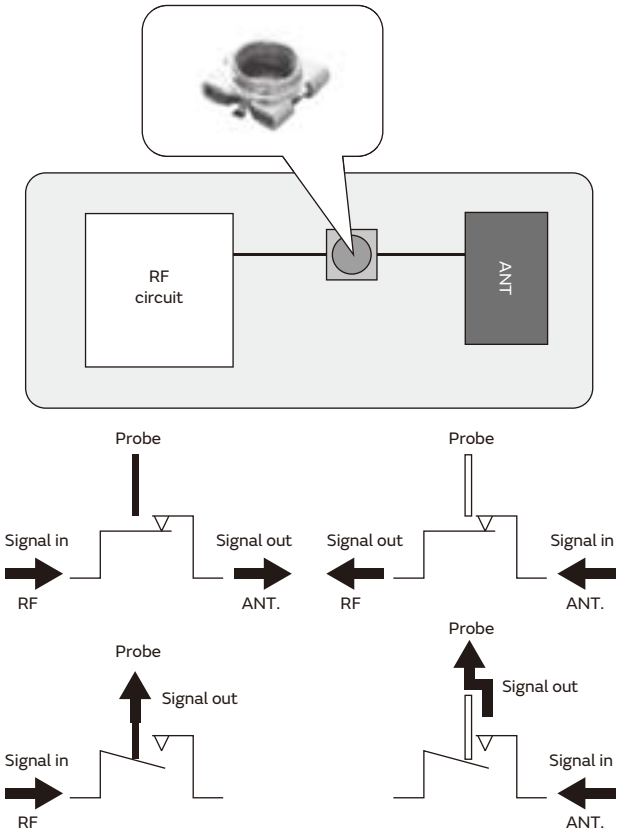
Microwave Coaxial Connectors with Switch

The RF circuit and ANT characteristics can be measured by mounting in an RF transmission line.
The internally built-in mechanical switch separates the RF circuit and ANT circuit, so that the circuit can be measured without any mutual effect using a dedicated probe made by Murata. Except when measuring with probe, internal mechanical switch is connected, so RF circuit and Antenna circuit are connected.



Microwave Coaxial Connectors with Switch (bi-direction)

RF circuit and Antenna circuit can be measured by using special probe without remounting switch connector.



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Type of Connectors

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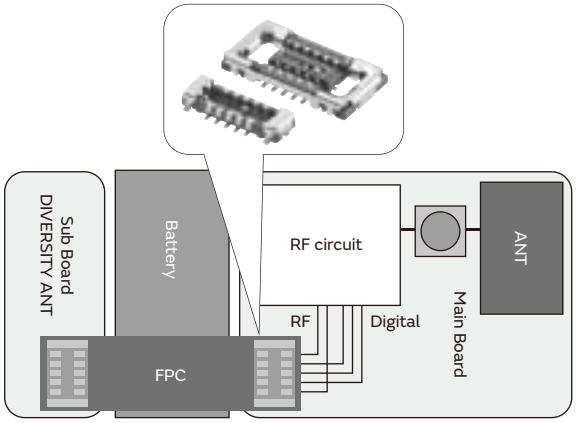
Microwave Multi Line Connector

Multi line connector transmit signals from board to board.
The connectors can transmit not only digital signals but also RF signals.
It contributes to save space for the various devices such as mobile phone and wearable device mainly.

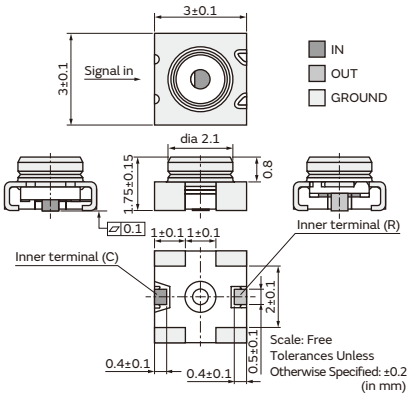


Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWD Type

Features

1. The microwave coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuits for PC, tablet, and cellular phone.
2. Size 3x3x1.75mm (LxWxH), Occupation area 9mm^2
3. Excellent characteristics, IL 0.2dB max. (@6GHz), VSWR 1.3 max. (DC to 6GHz)
4. Connector durability is 500 cycles with probe.



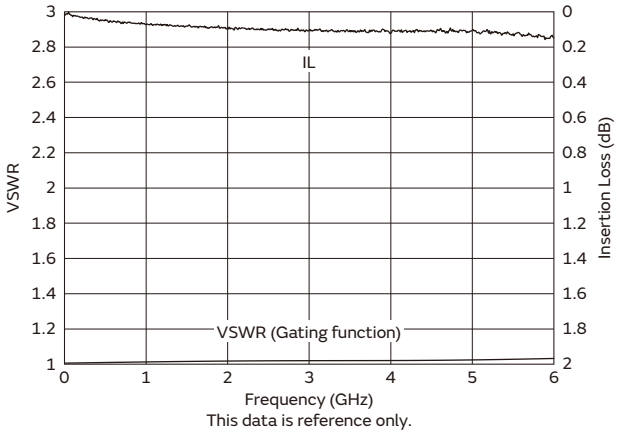
Applications

PC, Tablet, Cellular phone, and Other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8430-2610	50	300	500	500	up to 6	1.2 (DC to 3GHz) 1.3 (3GHz to 6GHz)	0.1 (DC to 3GHz) 0.2 (3GHz to 6GHz)	20 (DC to 3GHz) 15 (3GHz to 6GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)

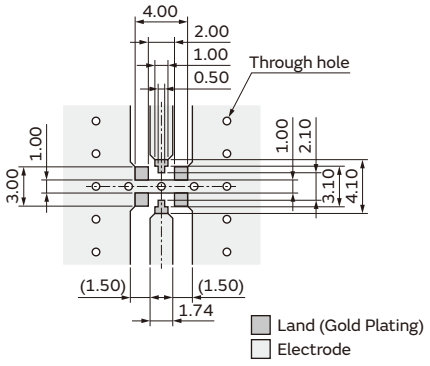


Measurement system: Refer to Electrical performance measurement system (p. 25)

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 1.0mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

Standard Pattern Dimensions



(in mm)

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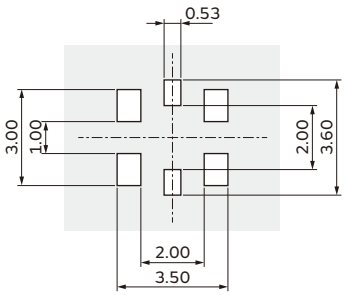
- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

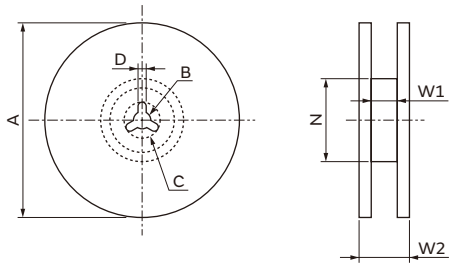


(Thickness: 0.1mm)

The standard solder cream stencil mask drawing

(in mm)

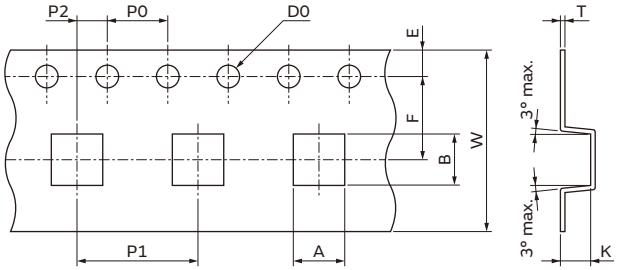
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8430-2610RA1	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+2/-0	13+2/-0	17±2
MM8430-2610RB3	330±2.0	13±0.5	21±0.8	2±0.5	Dia. (110)	13.4±2	17.4±2

(in mm)

Dimensions of Taping



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

P0	P1	P2	T
4±0.1	8±0.1	2±0.1	0.3±0.05

(in mm)

Minimum Quantity

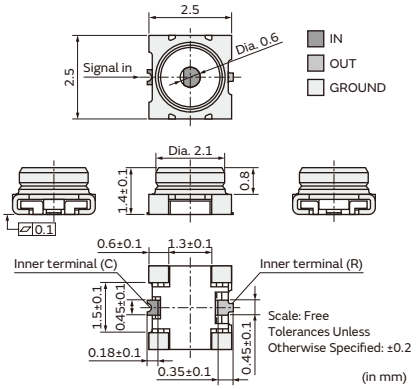
MM8430-2610RA1: 180 mm dia. reel/1000 pcs.
MM8430-2610RB3: 330 mm dia. reel/3000 pcs.

Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWF Type

Features

1. The microwave coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuit for PC, tablet and cellular phone.
2. Size 2.5x2.5x1.4mm (LxWxH), Occupation area 6.25mm^2
3. Excellent characteristics, low IL 0.2dB max. (@6GHz) V.S.W.R. 1.3 max. (DC to 6GHz)
4. Connector durability is 100 cycles with probe.



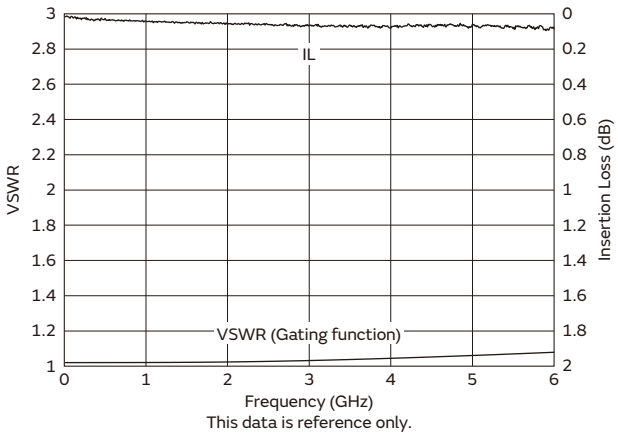
Applications

PC, Tablet, Cellular phone and other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8130-2600	70	300	500	100	up to 6	1.2 (DC to 3GHz) 1.3 (3GHz to 6GHz)	0.1 (DC to 3GHz) 0.2 (3GHz to 6GHz)	20 (DC to 3GHz) 15 (3GHz to 6GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)

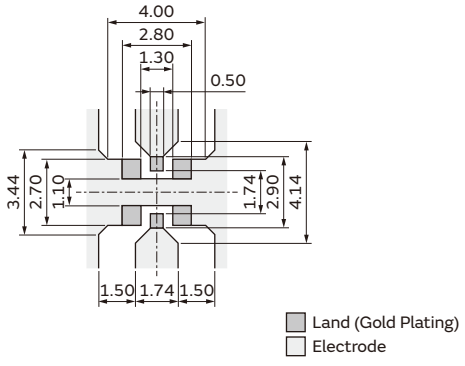


Measurement system: Refer to Electrical performance measurement system (p. 25)

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 1.0mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

Standard Pattern Dimensions



(in mm)

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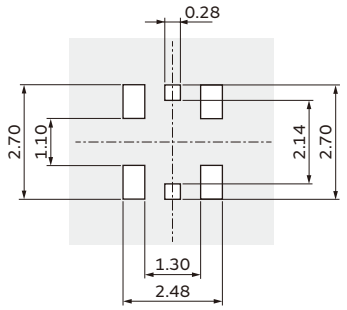
- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

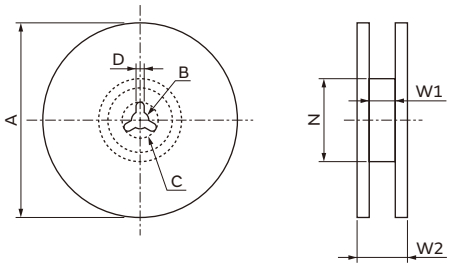


(Thickness: 0.12mm)

The standard solder cream stencil mask drawing

(in mm)

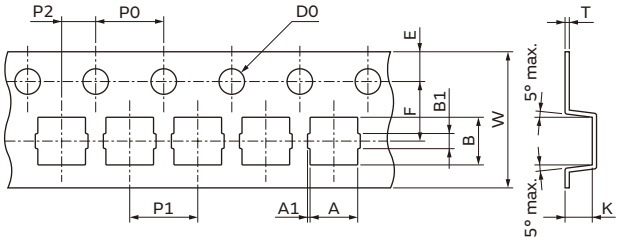
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8130-2600RA2	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+1/-0	9±0.3	11.4±1.0
MM8130-2600RB8	330±2.0	13±0.5	21±0.8	2±0.5	Dia. 100±1.0	9.4±1.0	13.4±1.0

(in mm)

Dimensions of Taping



A	A1	B	B1	W	D0
2.8±0.1	0.15±0.1	2.8±0.1	0.85±0.1	8±0.2	Dia. 1.5±0.1

E	F	K	P0	P1	P2	T
1.75±0.1	3.5±0.1	1.6±0.1	4±0.1	4±0.1	2±0.1	0.25±0.05

(in mm)

Minimum Quantity

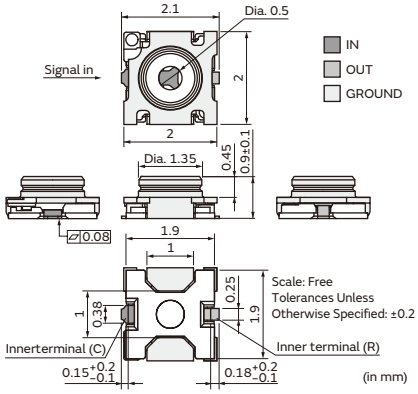
MM8130-2600RA2: 180 mm dia. reel/2000 pcs.
MM8130-2600RB8: 330 mm dia. reel/8000 pcs.

Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWG Type

Features

1. The microwave coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuit for PC, tablet and cellular phone.
2. Nominal Frequency Range is DC to 11GHz.
3. Size 2x2x0.9mm (LxWxH), Occupation area 4mm^2
4. Excellent characteristics, low IL 0.2dB max. (@6GHz) and 0.5dB max. (@11GHz) V.S.W.R. 1.3 max. (DC to 6GHz) and 1.5 max. (6GHz to 11GHz)
5. Connector durability is 100 cycles with probe.



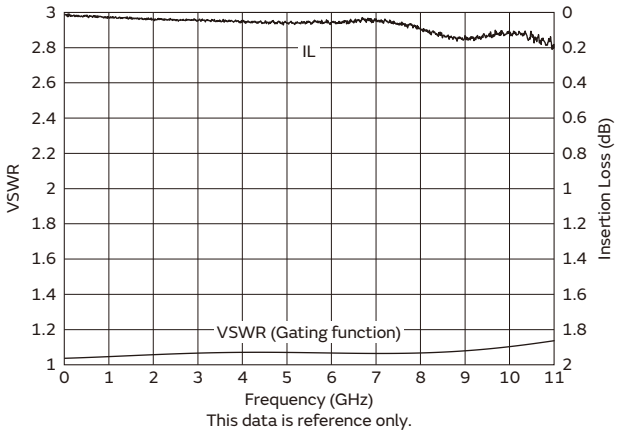
Applications

PC, Tablet, Cellular phone and other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8030-2610	70	300	500	100	up to 11	1.2 (DC to 3GHz) 1.3 (3GHz to 6GHz) 1.5 (6GHz to 11GHz)	0.1 (DC to 3GHz) 0.2 (3GHz to 6GHz) 0.5 (6GHz to 11GHz)	20 (DC to 3GHz) 15 (3GHz to 6GHz) 10 (6GHz to 11GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)



This data is reference only.

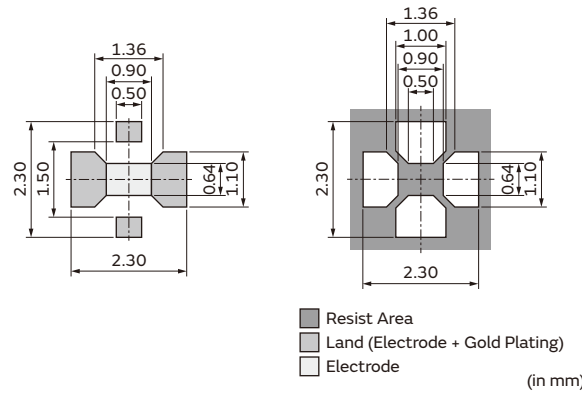
Measurement system: Refer to Electrical performance measurement system (p. 25)

1

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 1.0mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

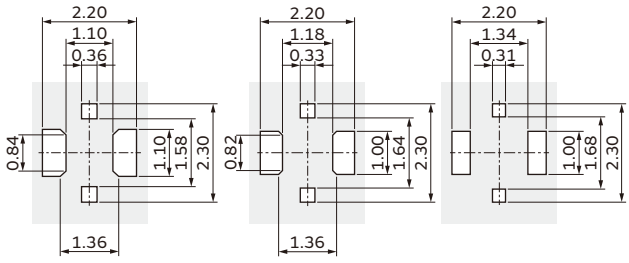
Standard Pattern Dimensions



(in mm)

- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

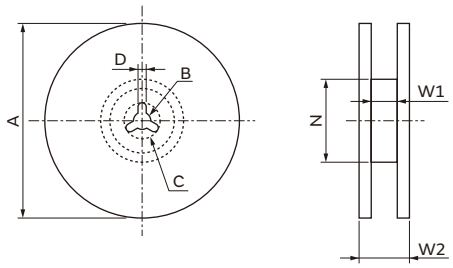


(Thickness: 0.08mm) (Thickness: 0.10mm) (Thickness: 0.12mm)

The standard solder cream stencil mask drawing

(in mm)

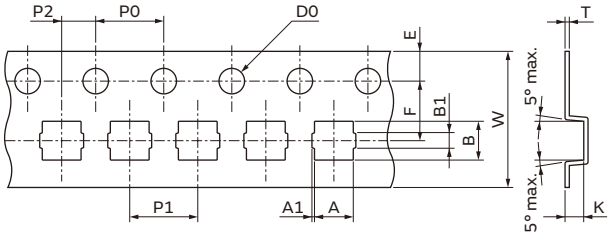
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8030-2610RJ3	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+1/-0	9±0.3	11.4±1.0
MM8030-2610RK0	330±2.0	13±0.5	21±0.8	2±0.5	Dia. 100±1.0	9.4±1.0	13.4±1.0

(in mm)

Dimensions of Taping



A	A1	B	B1	W	D0
2.28±0.1	0.15±0.1	2.28±0.1	0.85±0.1	8±0.2	Dia. 1.5±0.1

E	F	K	P0	P1	P2	T
1.75±0.1	3.5±0.1	1.1±0.1	4±0.1	4±0.1	2±0.1	0.25±0.05

(in mm)

Minimum Quantity

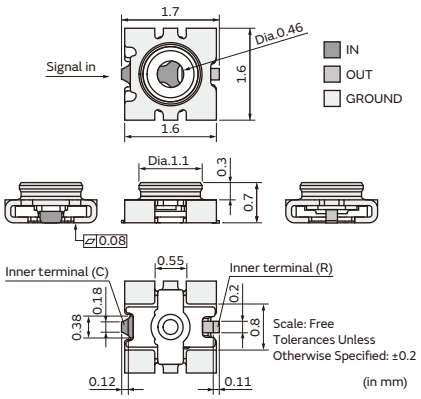
MM8030-2610RJ3: 180 mm dia. reel/3000 pcs.
MM8030-2610RK0: 330 mm dia. reel/10000 pcs.

Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWH Type

Features

1. The microwave coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuit for cellular phone and small wireless equipment such as wearable equipment.
2. Size 1.6x1.6x0.7mm (LxWxH), Occupation area 2.56mm^2
3. Excellent characteristics, low IL 0.2dB max. (@6GHz) V.S.W.R. 1.3 max. (DC to 6GHz)
4. Connector durability is 50 cycles with probe.



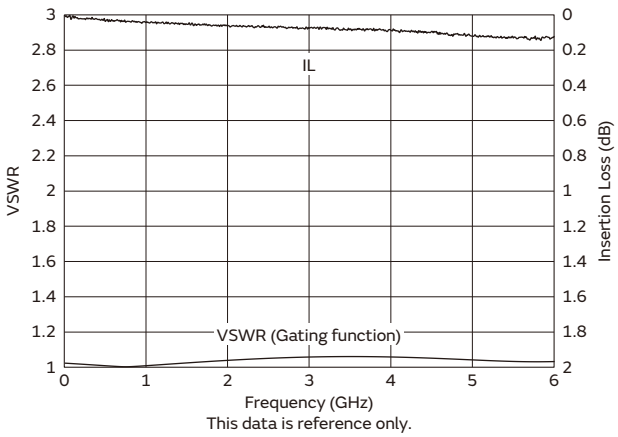
Applications

Cellular phone, Wearable equipment and other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8930-2600	70	200	500	50	up to 6	1.2 (DC to 3GHz) 1.3 (3GHz to 6GHz)	0.1 (DC to 3GHz) 0.2 (3GHz to 6GHz)	20 (DC to 3GHz) 15 (3GHz to 6GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)



This data is reference only.

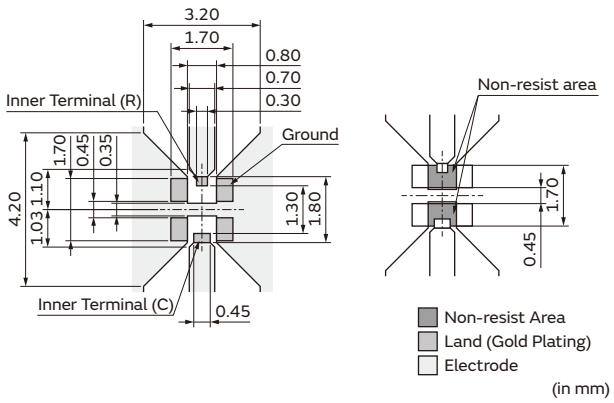
Measurement system: Refer to electrical performance measurement system (p. 25)

1

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 0.4mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

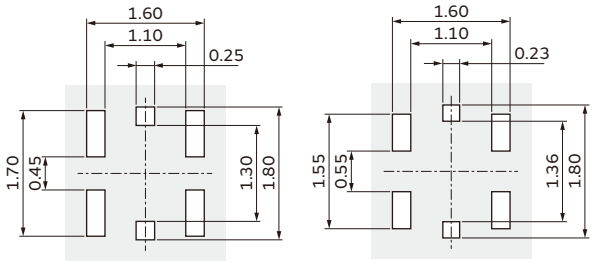
Standard Pattern Dimensions



(in mm)

- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

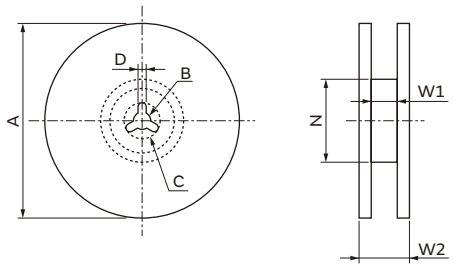


(Thickness: 0.08mm) (Thickness: 0.10mm)

The standard solder cream stencil mask drawing

(in mm)

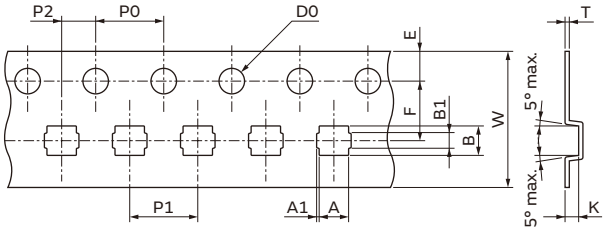
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8930-2600RJ4	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+1/-0	9±0.3	11.4±1.0
MM8930-2600RK0	330±2.0	13±0.5	21±0.8	2±0.5	Dia. 100±1.0	9.4±1.0	13.4±1.0

(in mm)

Dimensions of Taping



A	A1	B	B1	W	D0
1.73±0.1	0.14±0.1	1.73±0.1	0.8±0.2	8±0.2	Dia. 1.5±0.1

E	F	K	P0	P1	P2	T
1.75±0.1	3.5±0.1	0.8±0.1	4±0.1	4±0.1	2±0.1	0.25±0.05

(in mm)

Minimum Quantity

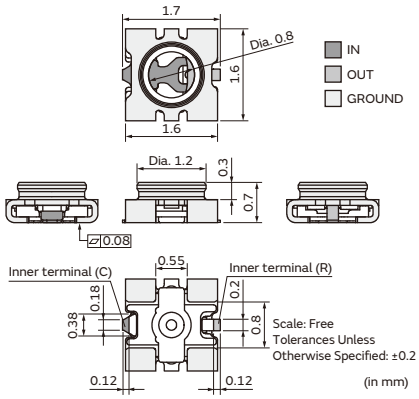
MM8930-2600RJ4: 180 mm dia. reel/4000 pcs.
MM8930-2600RK0: 330 mm dia. reel/10000 pcs.

Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWH-2Way Type

Features

1. The microwave 2way (bi-directional) coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuit for cellular phone and small wireless equipment such as wearable equipment.
2. It is possible to measure ANT circuit and RF circuit with designated probe.
3. Size 1.6x1.6x0.7mm (LxWxH), Occupation area 2.56mm^2
4. Excellent characteristics, low IL 0.2dB max. (@6GHz) V.S.W.R. 1.3 max. (DC to 6GHz)
5. Connector durability is 50 cycles with probe.



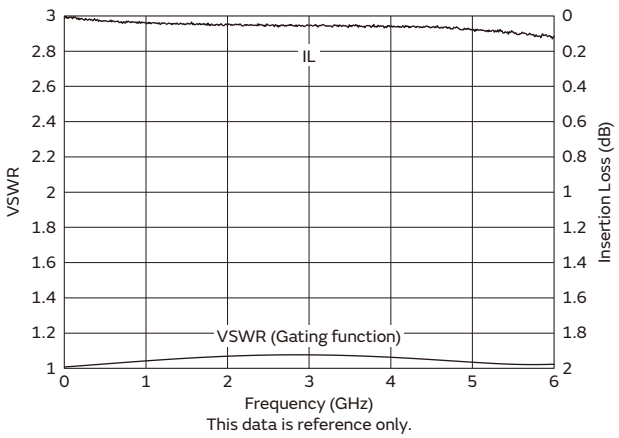
Applications

Cellular phone, Wearable equipment and other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8930-2620	70	200	500	50	up to 6	1.2 (DC to 3GHz) 1.3 (3GHz to 6GHz)	0.1 (DC to3GHz) 0.2 (3GHz to 6GHz)	RF: 20 (DC to 3GHz) RF: 15 (3GHz to 6GHz) ANT: 18 (DC to 3GHz) ANT: 13 (3GHz to 6GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)



This data is reference only.

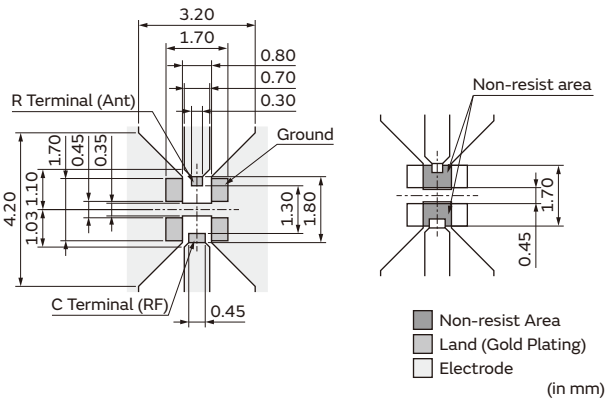
Measurement system: Refer to electrical performance measurement system (p. 25)

1

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 0.4mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

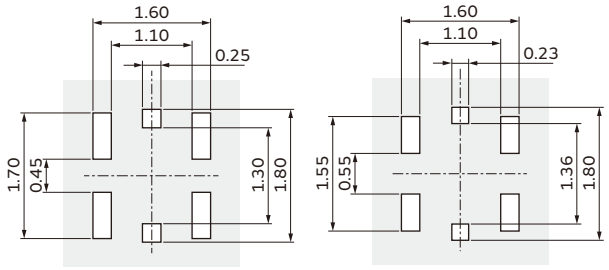
Standard Pattern Dimensions



(in mm)

- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

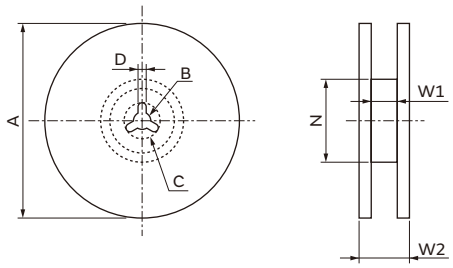


(Thickness: 0.08mm) (Thickness: 0.10mm)

The standard solder cream stencil mask drawing

(in mm)

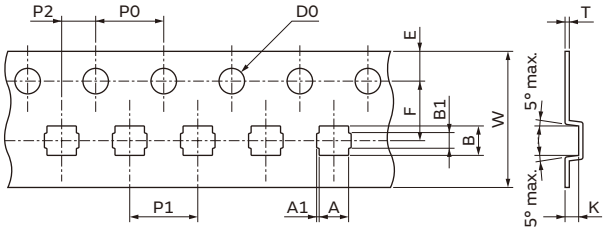
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8930-2620RJ4	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+1/-0	9±0.3	11.4±1.0
MM8930-2620RK15	330±2.0	13±0.5	21±0.8	2±0.5	Dia. 100±1.0	9.4±1.0	13.4±1.0

(in mm)

Dimensions of Taping



A	A1	B	B1	W	D0
1.73±0.1	0.14±0.1	1.73±0.1	0.8±0.2	8±0.2	Dia. 1.5±0.1

E	F	K	P0	P1	P2	T
1.75±0.1	3.5±0.1	0.8±0.1	4±0.1	4±0.1	2±0.1	0.25±0.05

(in mm)

Minimum Quantity

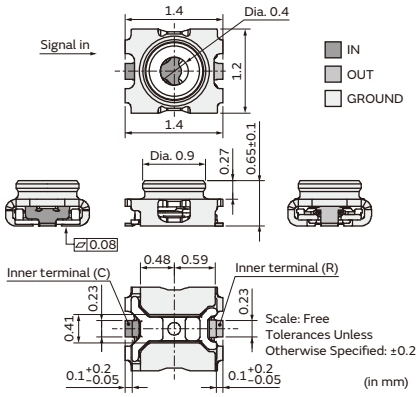
MM8930-2620RJ4: 180 mm dia. reel/4000 pcs.
MM8930-2620RK15: 330 mm dia. reel/15000 pcs.

Microwave Coaxial Connectors with Switch

Microwave Coaxial Connectors with Switch SWJ Type

Features

1. The worlds smallest level microwave coaxial connector with switch is very useful for electrical characteristics measurement of microwave circuit for cellular phone and small wireless equipment such as wearable equipment.
2. Size 1.4x1.2x0.65mm (LxWxH), Occupation area 1.68mm^2
3. Excellent characteristics, low IL 0.2dB max. (@6GHz), 0.7dB max. (@9GHz) V.S.W.R. 1.2 max. (DC to 8GHz), 1.3 max. (8GHz to 9GHz)
4. Connector durability is 50 cycles with probe.



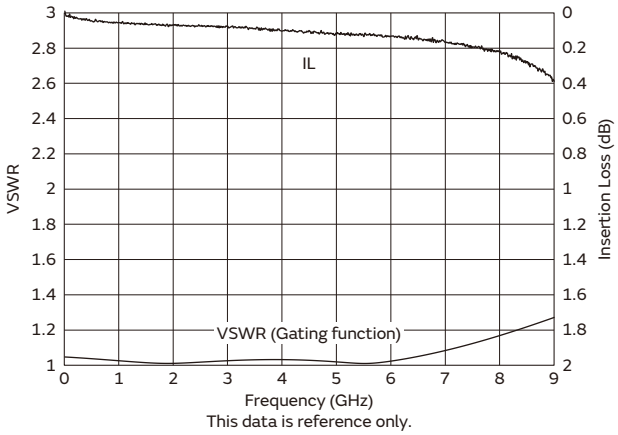
Applications

Cellular phone, Wearable equipment and other wireless equipment

Part Number	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Nominal Frequency Range (GHz)	VSWR (dB max.)	Insertion Loss (On) (dB max.)	Isolation (Off) (dB min.)
MM8830-2600	70	200	500	50	up to 9	1.2 (DC to 8GHz) 1.3 (8GHz to 9GHz)	0.1 (DC to 3GHz) 0.2 (3GHz to 6GHz) 0.7 (6GHz to 9GHz)	20 (DC to 3GHz) 15 (3GHz to 6GHz) 11 (6GHz to 9GHz)

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification (Insertion Loss & VSWR)



This data is reference only.

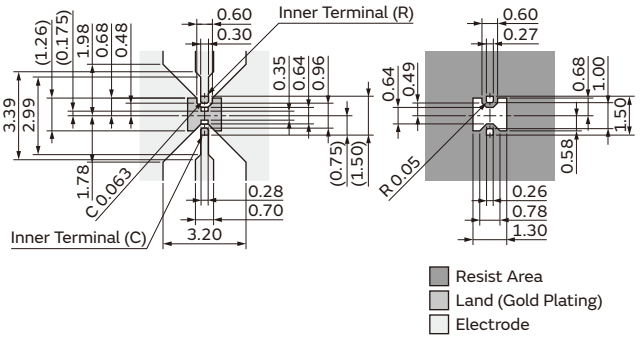
Measurement system: Refer to electrical performance measurement system (p. 25)

1

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=4.3@1GHz). Thickness is 0.4mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

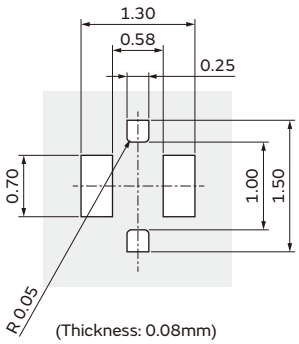
Standard Pattern Dimensions



(in mm)

- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

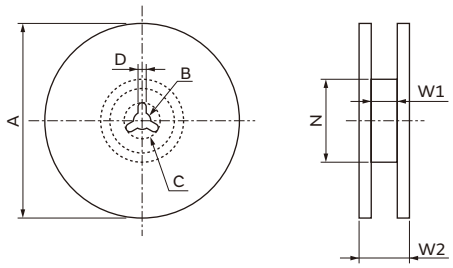
Standard Stencil Mask Pattern



The standard solder cream stencil mask drawing

(in mm)

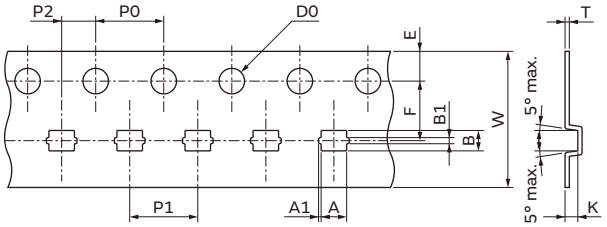
Dimensions of Reel



Part Number	A	B	C	D	N	W1	W2
MM8830-2600RJ4	180+0/-3	13±0.5	21±0.8	2±0.5	Dia. 60+1/-0	9±0.3	11.4±1.0
MM8830-2600RK15	330±2.0	13±0.5	21±0.8	2±0.5	Dia. 100±1.0	9.4±1.0	13.4±1.0

(in mm)

Dimensions of Taping



A	A1	B	B1	W	D0
1.5±0.1	0.14±0.1	1.3±0.1	0.29±0.1	8±0.2	Dia. 1.5±0.1

E	F	K	P0	P1	P2	T
1.75±0.1	3.5±0.1	0.75±0.1	4±0.1	4±0.1	2±0.1	0.25±0.05

(in mm)

Minimum Quantity

MM8830-2600RJ4: 180 mm dia. reel/4000 pcs.
MM8830-2600RK15: 330 mm dia. reel/15000 pcs.

Microwave Multi Line Connectors

Multi Line Connectors MLF Type

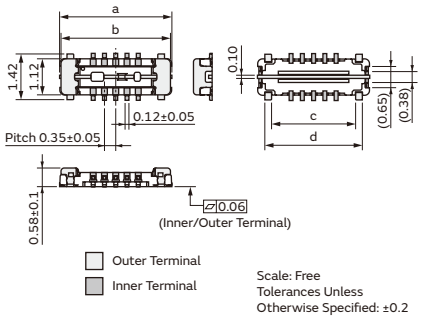
Features

1. The multi line connector is small, thin and suitable for internal wiring such as celler phone and wearable device.
2. The connectors transmit not only digital signals but also RF signals. It can contribute to save the space.
3. Male (Plug) (10 pin type) size 3.49x1.42mm (LxW), Occupation area 4.96mm^2, Female (Plug Receptacle) (10 pin type) size 4.48x2.28mm (LxW), Occupation area 10.21mm^2
4. Mating height is 0.60mm (typ.), which is the world lowest profile level, with Male (Plug) and Female (Plug Receptacle).
5. VSWR 1.65 max. (DC to 20GHz)
6. This has good lock feeling when Male (Plug) and Female (Plug Receptacle) are mated.

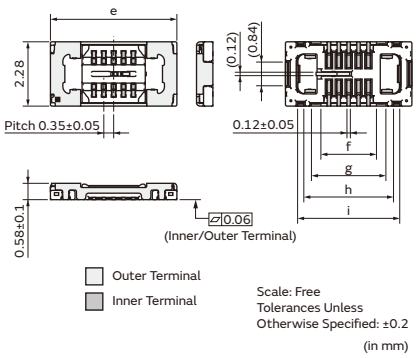
Applications

Cellular phone, Wearable device, and other wireless equipment

Male (Plug)



Female (Plug Receptacle)

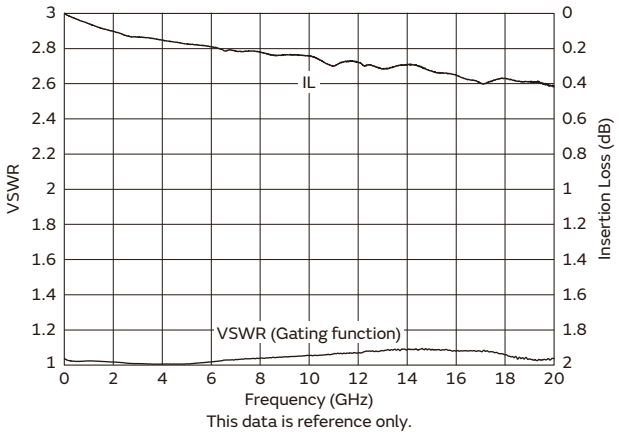


	Male (Plug)				Female (Plug Receptacle)				
Type	a	b	c	d	e	f	g	h	i
MLF06	2.79±0.15	2.70	(1.91)	(2.33)	3.78±0.15	(1.27)	(1.94)	(2.48)	(2.92)
MLF10	3.49±0.15	3.40	(2.61)	(3.03)	4.48±0.15	(1.97)	(2.64)	(3.18)	(3.62)
MLF12	4.00±0.15	3.98	(3.12)	(3.54)	5.23±0.15	(2.22)	(3.39)	(3.93)	(4.37)
MLF14	4.35±0.15	4.33	(3.47)	(3.89)	5.58±0.15	(2.57)	(3.74)	(4.28)	(4.72)
MLF18	5.05±0.15	5.03	(4.17)	(4.59)	6.28±0.15	(3.27)	(4.44)	(4.98)	(5.42)
MLF20	5.40±0.15	5.38	(4.52)	(4.94)	6.63±0.15	(3.62)	(4.79)	(5.33)	(5.77)
MLF22	5.75±0.15	5.73	(4.87)	(5.29)	6.98±0.15	(3.97)	(5.14)	(5.68)	(6.12)

Type	Male (Plug) Part Number	Female (Plug Receptacle) Part Number (Mating Height (mm))	Center Contact Resistance (mΩ max.)	Withstanding Voltage (Vrms)	Insulation Resistance (MΩ)	Durability (Cycle)	Pitch (mm)	Nominal Frequency Range (GHz)	VSWR (dB max.)
MLF06	**MM3529-2700A06**	**MM3531-270*A06** (0.60 typ.)	50	150	500	30	0.35 typ.	up to 20	1.2 (DC to 3GHz) 1.2 (3GHz to 6GHz) 1.3 (6GHz to 9GHz) 1.3 (9GHz to 12GHz) 1.35 (12GHz to 15GHz) 1.5 (15GHz to 18GHz) 1.65 (18GHz to 20GHz)
MLF10	**MM3529-2700A10**	**MM3531-270*A10** (0.60 typ.)							
MLF12	**MM3529-2700A12**	**MM3531-2700A12** (0.60 typ.)							
MLF14	**MM3529-2700A14**	**MM3531-2700A14** (0.60 typ.)							
MLF18	**MM3529-2700A18**	**MM3531-2700A18** (0.60 typ.)							
MLF20	**MM3529-2700A20**	**MM3531-2700A20** (0.60 typ.)							
MLF22	**MM3529-2700A22**	**MM3531-2700A22** (0.60 typ.)							

Nominal Impedance: 50Ω
Rated Voltage: 30Vrms
Temperature Rating: -40 to 85°C

Specification: MLF10 (Insertion Loss & VSWR)



This data is reference only.

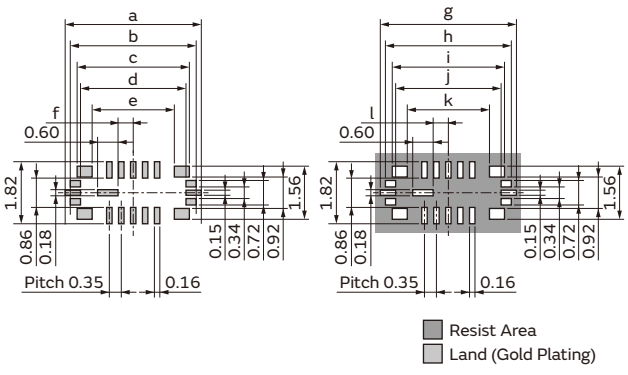
Measurement system: Refer to electrical performance measurement system (p. 25)
Measurement condition: Male (Plug) + Female (Plug Receptacle)

Standard Pattern Dimension, Stencil Mask Pattern

- I/O pattern should be designed to be the impedance match 50 ohm.
- The material of PWB is the epoxy resin of glass fabric base. (εr=3.4@1GHz). Thickness is 0.1mm.
- The solder resist should be printed except for the land pattern on the PWB
- Land pattern and solder resist pattern must be followed to avoid soldering defects.

Standard Pattern Dimensions

MLF06/MLF10 Male (Plug)
(Below is MLF10 Male (Plug) for reference.)



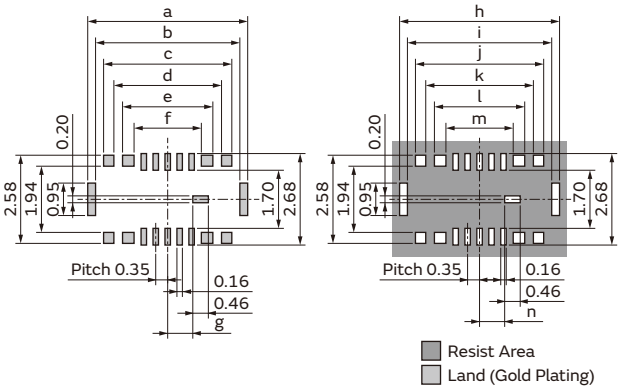
(in mm)

Male (Plug)

Type	a	b	c	d	e	f
MLF06	3.29	2.99	2.59	2.39	1.71	0.10
MLF10	3.99	3.69	3.29	3.09	2.41	0.45

Type	g	h	i	j	k	l
MLF06	3.29	2.99	2.59	2.39	1.71	0.10
MLF10	3.99	3.69	3.29	3.09	2.41	0.45

MLF06/MLF10 Female (Plug Receptacle)
(Below is MLF10 Female (Plug Receptacle) for reference.)



(in mm)

Female (Plug Receptacle)

Type	a	b	c	d	e	f	g
MLF06	3.98	3.52	3.05	2.45	1.94	1.27	0.39
MLF10	4.68	4.22	3.75	3.15	2.64	1.97	0.74

Type	h	i	j	k	l	m	n
MLF06	3.98	3.52	3.05	2.45	1.94	1.27	0.39
MLF10	4.68	4.22	3.75	3.15	2.64	1.97	0.74

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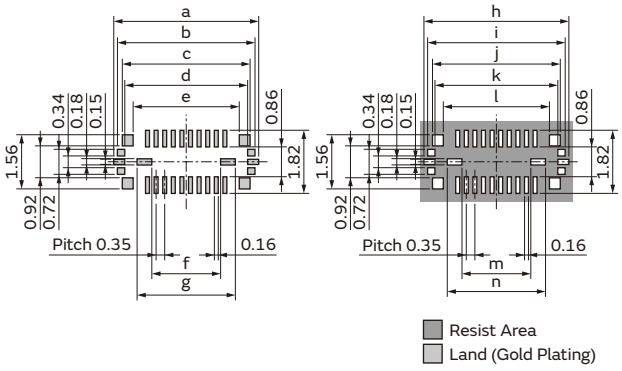
MLF12/MLF14/MLF18/MLF20/MLF22 Male (Plug)
(Below is MLF20 Male (Plug) for reference.)

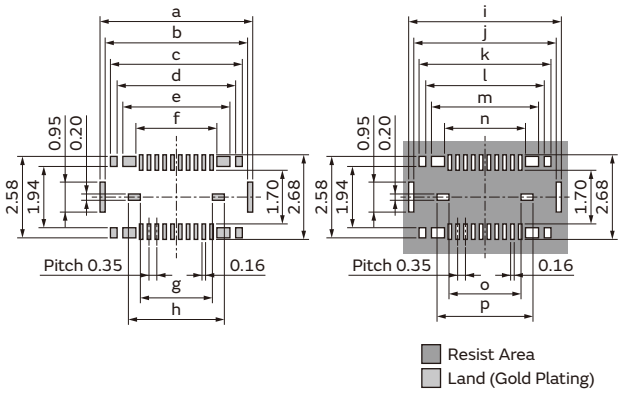


Male (Plug) (in mm)

Type	a	b	c	d	e	f	g
MLF12	4.50	4.20	3.80	3.60	2.92	1.40	2.60
MLF14	4.85	4.55	4.15	3.95	3.27	1.75	2.95
MLF18	5.55	5.25	4.85	4.65	3.97	2.45	3.65
MLF20	5.90	5.60	5.20	5.00	4.32	2.80	4.00
MLF22	6.25	5.95	5.55	5.35	4.67	3.15	4.35

Type	h	i	j	k	l	m	n
MLF12	4.50	4.20	3.80	3.60	2.92	1.40	2.60
MLF14	4.85	4.55	4.15	3.95	3.27	1.75	2.95
MLF18	5.55	5.25	4.85	4.65	3.97	2.45	3.65
MLF20	5.90	5.60	5.20	5.00	4.32	2.80	4.00
MLF22	6.25	5.95	5.55	5.35	4.67	3.15	4.35

MLF12/MLF14/MLF18/MLF20/MLF22 Female (Plug Receptacle)
(Below is MLF20 Female (Plug Receptacle) for reference.)



Female (Plug Receptacle) (in mm)

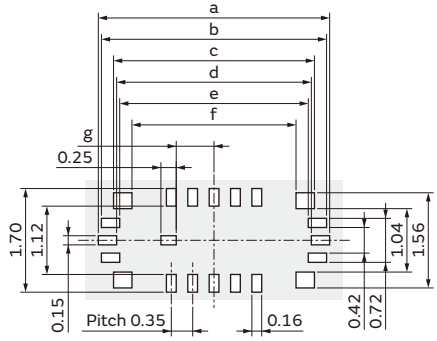
Type	a	b	c	d	e	f	g	h
MLF12	5.43	4.97	4.50	3.90	3.39	2.22	1.82	2.89
MLF14	5.78	5.32	4.85	4.25	3.74	2.57	2.17	3.24
MLF18	6.48	6.02	5.55	4.95	4.44	3.27	2.87	3.94
MLF20	6.83	6.37	5.90	5.30	4.79	3.62	3.22	4.29
MLF22	7.18	6.72	6.25	5.65	5.14	3.97	3.57	4.64

Type	i	j	k	l	m	n	o	p
MLF12	5.43	4.97	4.50	3.90	3.39	2.22	1.82	2.89
MLF14	5.78	5.32	4.85	4.25	3.74	2.57	2.17	3.24
MLF18	6.48	6.02	5.55	4.95	4.44	3.27	2.87	3.94
MLF20	6.83	6.37	5.90	5.30	4.79	3.62	3.22	4.29
MLF22	7.18	6.72	6.25	5.65	5.14	3.97	3.57	4.64

- There is the possibility to have the contact failure by flux shifting into contact point, if the excess solder is used by non-standard stencil mask pattern. Stencil mask pattern must be followed to avoid soldering defects.

Standard Stencil Mask Pattern

MLF06/MLF10 Male (Plug)
(Below is MLF10 Male (Plug) for reference.)



(Thickness: 0.08mm)

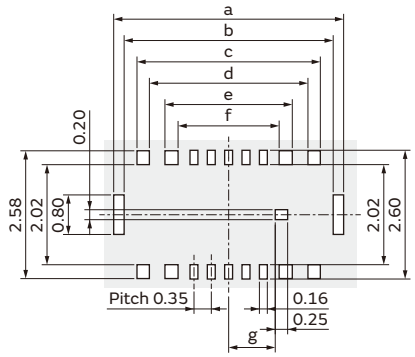
The standard solder cream stencil mask drawing

(in mm)

Male (Plug)

Type	a	b	c	d	e	f	g
MLF06	3.09	2.99	2.59	2.49	2.39	1.99	0.27
MLF10	3.79	3.69	3.29	3.19	3.09	2.69	0.62

MLF06/MLF10 Female (Plug Receptacle)
(Below is MLF10 Female (Plug Receptacle) for reference.)



(Thickness: 0.08mm)

The standard solder cream stencil mask drawing

(in mm)

Female (Plug Receptacle)

Type	a	b	c	d	e	f	g
MLF06	3.94	3.52	3.00	2.50	1.87	1.34	0.59
MLF10	4.64	4.22	3.70	3.20	2.57	2.04	0.94

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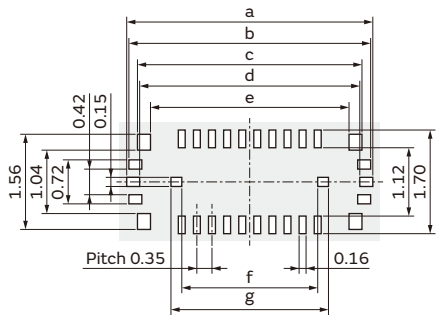
MLF12/MLF14/MLF18/MLF20/MLF22 Male (Plug)
(Below is MLF20 Male (Plug) for reference.)



(Thickness: 0.08mm)

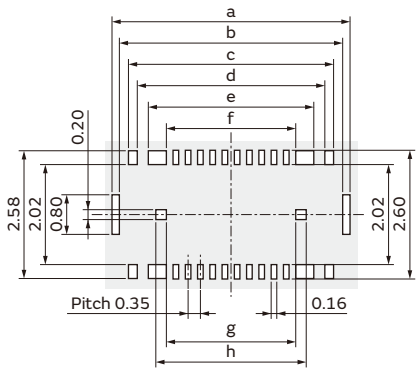
The standard solder cream stencil mask drawing

(in mm)

Male (Plug)

Type	a	b	c	d	e	f	g
MLF12	4.30	4.20	3.80	3.70	3.20	1.75	2.25
MLF14	4.65	4.55	4.15	4.05	3.55	2.10	2.60
MLF18	5.35	5.25	4.85	4.75	4.25	2.80	3.30
MLF20	5.70	5.60	5.20	5.10	4.60	3.15	3.65
MLF22	6.05	5.95	5.55	5.45	4.95	3.50	4.00

MLF12/MLF14/MLF18/MLF20/MLF22 Female (Plug Receptacle)
(Below is MLF20 Female (Plug Receptacle) for reference.)



(Thickness: 0.08mm)

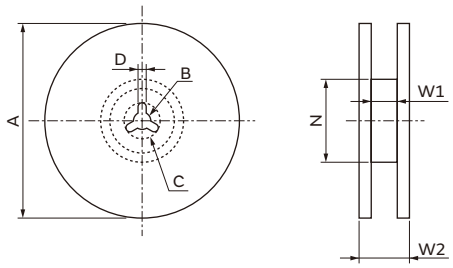
The standard solder cream stencil mask drawing

(in mm)

Female (Plug Receptacle)

Type	a	b	c	d	e	f	g	h
MLF12	5.39	4.97	4.45	3.95	3.32	2.29	2.29	2.89
MLF14	5.74	5.32	4.80	4.30	3.67	2.64	2.64	3.24
MLF18	6.44	6.02	5.50	5.00	4.37	3.34	3.34	3.94
MLF20	6.79	6.37	5.85	5.35	4.72	3.69	3.69	4.29
MLF22	7.14	6.72	6.20	5.70	5.07	4.04	4.04	4.64

Dimensions of Reel

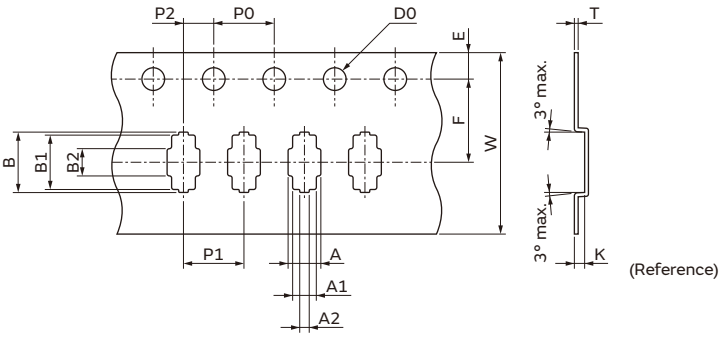


Part Number	A	B	C	D	N	W1	W2
MM3529-2700A**RA5	180+0/-3.0	13±0.2	21±0.8	2±0.5	Dia. 60+1.0/-0	13+1.0/-0	15.4±1.0
MM3531-270*A**RA5							
MM3531-2700A**RE5							
MM3529-2700A22RA5						17±1.0	19.4±1.0
MM3531-2700A22RG5							
MM3529-2700A**RB18	330±2.0	13±0.2	21±0.8	2±0.5	Dia. 100±1.0	13.4±1.0	17.4±1.0
MM3531-270*A**RB18							
MM3529-2700A22RB18						17.4±1.0	21.4±1.0
MM3531-2700A22RH18							

(in mm)

Dimensions of Taping

Male (Plug)



(Reference)

Type	A	A1	A2	B	B1	B2	W	D0	E	F	K	P0	P1	P2	T
MLF06	2.17±0.1	1.57±0.05	0.63±0.1	3.29±0.05	2.90±0.05	1.10±0.2	12±0.2	Dia.1.5+0.1/-0	1.75±0.1	5.5±0.05	0.68±0.05	4±0.1	4±0.1	2±0.05	0.25±0.05
MLF10				3.99±0.05	3.6±0.05	1.8±0.2									
MLF12	2.22±0.1	1.62±0.05	0.68±0.1	4.50±0.05	4.11±0.05	2.51±0.2									
MLF14				4.85±0.05	4.46±0.05	2.68±0.2									
MLF18				5.55±0.05	5.16±0.05	3.56±0.2									
MLF20				5.9±0.05	5.51±0.05	3.91±0.2									
MLF22		1.66±0.05	0.50±0.1	6.26±0.1	5.86±0.05	4.14±0.2	16±0.2			7.5±0.05					

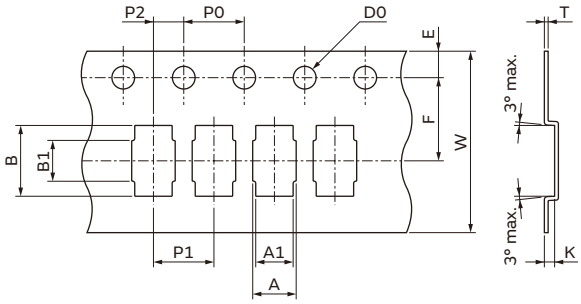
(in mm)

Continued on the following page.↗

Continued from the preceding page.↘

Dimensions of Taping

Female (Plug Receptacle)



(Reference)

Type	A	A1	B	B1	W	D0	E	F	K	P0	P1	P2	T
MLF06	2.88±0.1	2.48±0.05	3.98±0.05	1.98±0.2	12±0.2	Dia.1.5+0.1/-0	1.75±0.1	5.5±0.05	0.68±0.05	4±0.1	4±0.1	2±0.05	0.25±0.05
MLF10			4.68±0.05	2.68±0.2									
MLF12			5.43±0.05	3.43±0.2									
MLF14			5.78±0.05	3.78±0.2									
MLF18			6.48±0.05	4.48±0.2									
MLF20			6.83±0.05	4.83±0.2									
MLF22			7.18±0.05	5.18±0.2	16±0.2			7.5±0.05					

(in mm)

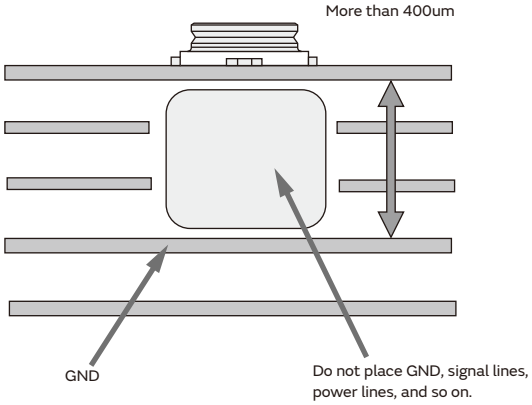
Minimum Quantity

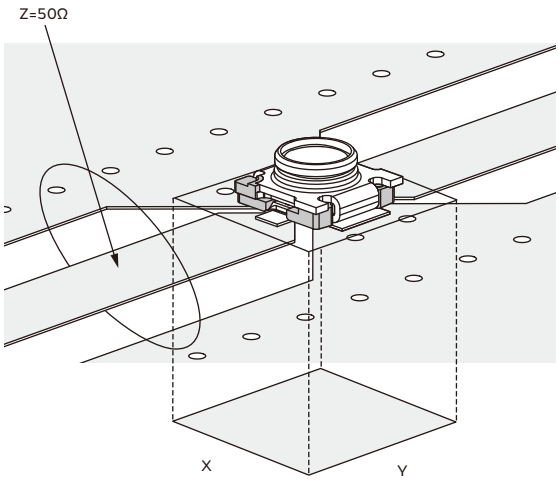
MM35**-270*A**R*5: 180 mm dia. reel/5000 pcs.
MM35**-270*A**R*18: 330 mm dia. reel/18000 pcs.

Notice (Design)

Microwave Coaxial Connectors with Switch

Connector performance is influenced by GND among inner layers of substrate.
We recommend makeing space more than 0.4mm between connectors and GND.
And please avoid placing signal lines and power lines under connectors to prevent interference with signals which pass connectors.

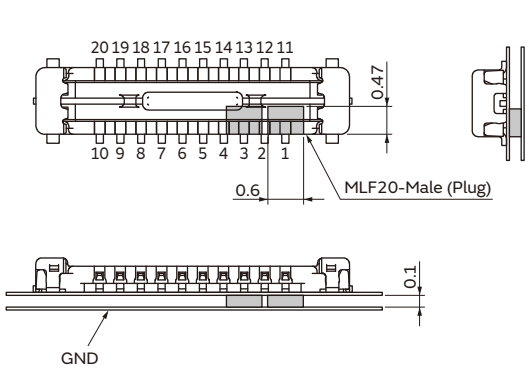


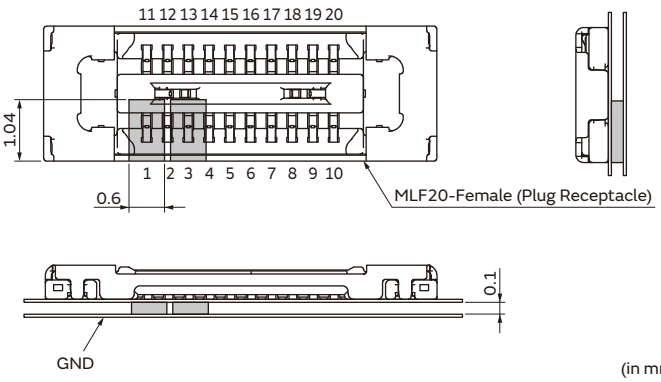


Part Number	X	Y
MM8430-2610	4.0	4.1
MM8130-2600	2.8	2.9
MM8030-2610	2.3	2.3
MM8930-2600	1.7	1.8
MM8930-2620	1.7	1.8
MM8830-2600	1.3	1.5

Microwave Multi Line Connector

Hatched space is keep out area underneath connector.
Don't put any signal lines and ground patterns in hatched space.
And put GND layer underneath connector. (Gap: 0.1mm)
RF line is Pin1 and 3 for reference.





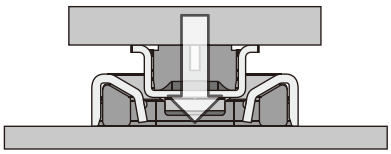
(in mm)

Notice (Engagement/Disengagement)

Microwave Multi Line Connector

Please mate to connectors when centering them and keeping parallel state.
Mating is completed when you feel the click.
Please confirm if mating height is in specification after mating is completed.
Please do not stress more than 30N when mating connectors.

Multi Line Connector



Type of Probes

We have lineup of measurement probes that are designed for Murata connecters.
Please use Murata probes for Murata connectors.

Manual probe without cable

This is used for evaluation in lab. Measurement cable is able to be attached with this probe. This probe stands itself after mating is completed, because it has claw at contact point with connectors. Any stress to probe via cable after engagement may cause that probe come off, connectors get damage, or electrode peel off.

Manual probe with cable

This is used for evaluation in lab. Measurement cable is assembled with probes. This probe stands itself after mating is completed, because it has claw at contact point with connectors. Any stress to probe via cable after engagement may cause that probe come off, connectors get damage, or electrode peel off.

Auto probe without floating mechanism

This probe is used for inspection in mass production process. Probes are built in measurement fixture, and pressed at connectors. This probe will not damage connectors because it doesn't have locking function by claw. Measurement fixture needs to have floating mechanism since the probe doesn't have floating mechanism itself.
Measurement cable is able to be attached with this probe.

Auto probe with floating mechanism

This probe is used for inspection in mass production process. Probes are built in measurement fixture, and pressed at connectors. This probe will not damage connectors because it doesn't have locking function by claw. Measurement fixture doesn't need to have floating mechanism since the probe has floating mechanism itself.

Auto probe (tension free type)

This probe is used for inspection in mass production process. It has same function as Auto probe with floating mechanism. This probe is not affected by cable tension because of its special construction. The probe makes conversion cable easy to be handled.

Calibration adapter

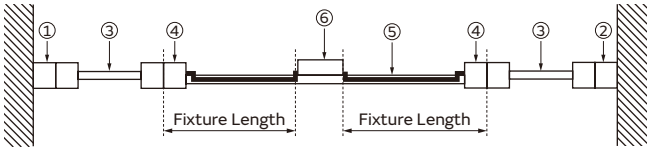
This adapter is used for calibrating probes. This has SMA connector on one side and Murata connector shape on the other side. It can connect cable from network analyzer and tip of probe.

Electrical Performance Measurement System (Insertion Loss, VSWR)

1. Measurement method of switch connectors

Insertion Loss/VSWR

Removing test fixture characteristics from the overall measured results.



①Network Analyzer Port1
②Network Analyzer Port2
③Microwave Coaxial Cable
④Interface Connector
⑤Printed Circuit Board Transmission Line
⑥Microwave Switch Connector

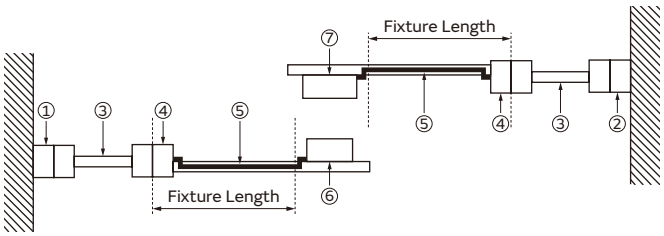
2. Measurement method of multi line connectors

[1] Insertion Loss

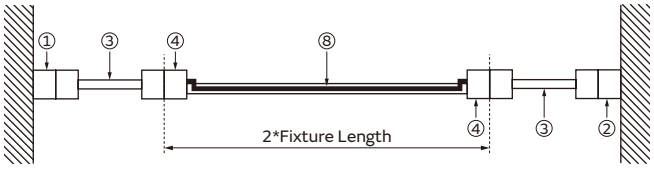
Removing fixture characteristics from the test results(1) by AFR.(Return loss)

Removing (2) from the test(1) results.

Test condition (1)



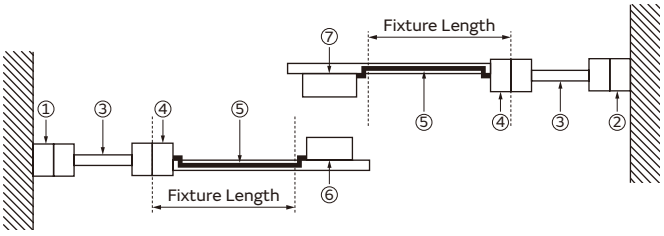
Test condition (2)



①Network Analyzer Port1
②Network Analyzer Port2
③Microwave Coaxial Cable
④Interface Connector
⑤Printed Circuit Board Transmission Line
⑥Microwave Multi Line Connector (Male (Plug))
⑦Microwave Multi Line Connector (Female (Plug Receptacle))
⑧Printed Circuit Board 2*Thru Line

[2] VSWR

Removing test fixture characteristics from the overall measured results.



①Network Analyzer Port1
②Network Analyzer Port2
③Microwave Coaxial Cable
④Interface Connector
⑤Printed Circuit Board Transmission Line
⑥Microwave Multi Line Connector (Male (Plug))
⑦Microwave Multi Line Connector (Female (Plug Receptacle))

Mechanical Performance Measurement System (Engagement/Disengagement Force)

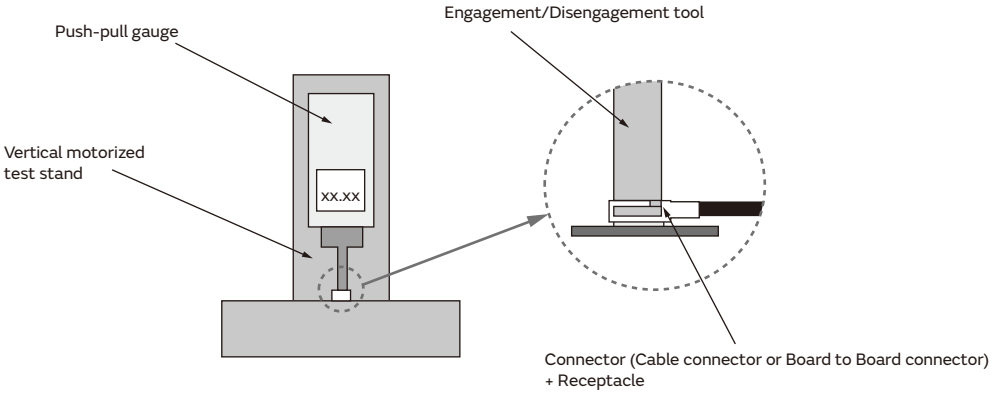
1. Engagement/Disengagement force

[1] Engagement force

To measure require force for complete engagement connectors and receptacles.
Measuring engagement maximum force by pushing down of push-pull gauge with engagement/ disengagement tool on the tip.

[2] Disengagement force

To measure require force for complete disengagement connectors and receptacles from mated state.
Measuring disengagement maximum force by pulling up of push-pull gauge with engagement/disengagement tool on the tip.



Notice

Notice (Storage and Operating Condition)

1. Environment Conditions
   (1) This product is designed for use in 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:
   (a) Ambient air containing corrosive gas (Cl_2, H_2S, NH_3, SOx, NOx etc.).
   (b) Ambient air containing volatile or combustible gas.
   (c) In liquid (water, oil, chemical solution, organic solvents, etc.).
   (d) In environments with a high concentration of airborne particles.
   (e) In direct sunlight.
   (f) Dusty conditions.
   (g) In freezing.
   (h) Other environments similar to the above conditions.
   (2) Contact the manufacturer before using the product in any of the above environments or under any of the above conditions.

2. Storage
   Store in manufacturer's package or tightly re-closed box with the following conditions. Use this product within 6 months after receipt. Check the terminal solderability before use if the product has been stored for more than 6 months.
   Temperature: -10 to +40 degree C
   Humidity: 15 to 85% RH

Notice (Soldering and Mounting)

1. Reflow soldering
   Soldering must be carried out without exceeding the allowable soldering temperature and time shown within the shaded area of Figure "Allowable Temperature and Time of Reflow Soldering".
   In case the soldering is repeated, the maximum time in Figure "Allowable Temperature and Time of Reflow Soldering" should be accumulated time. The standard soldering conditions are shown in Figure "Reflow Soldering Standard Conditions".
   Follow standard pattern dimensions.

2. Please contact us before use if concerning other soldering conditions.

3. In soldering, do not apply excessive mechanical force to terminals or leads greater than specified in the drawing.

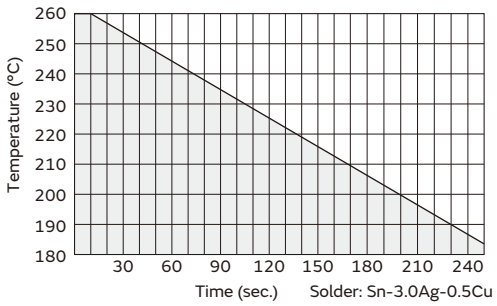
4. Please note the following in case of soldering terminals or leads of the product.
   (1) Use Rosin based flux, but not with strong acid flux (Chlorine content should be less than 0.20wt%).
   (2) Please be careful of sticking the flux inside of the product due to flux invasion.

5. Please mount this product at the position so that stress by wrap and/or bend of the PCB may not apply to it.

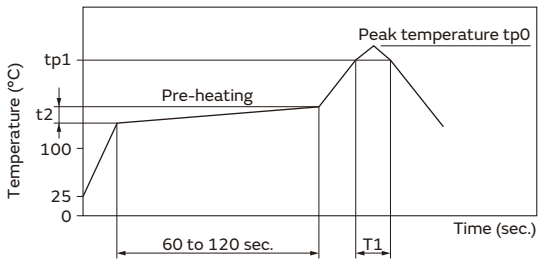
6. Please dry out this product immediately after soldering and cleaning.

7. Please avoid the cleaning of this product for Microwave Coaxial Connector with Switch.

Allowable Temperature and Time of Reflow Soldering



Reflow Soldering Standard Conditions



	tp0 (°C)	tp1 (°C)	T1 (sec.)	t2 (°C)
Standard soldering condition	240+0/-5	220	30 to 60	150 to 180
Resistance to soldering heat condition	260+5/-0	240	30max.	150 to 180

Measuring point of temperature: In-Out Terminals of the Device
Reflow Soldering: Both Convection and Infrared Rays
: Hot Air
: Hot Plate

O30E.pdf
Mar. 19,2021
Cat. No. O30E-11

Global Locations

For details please visit www.murata.com

⚠Note

1 Export Control

For customers outside Japan:

Murata requests customers to ensure that no Murata products are used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to Weapons of Mass Destruction (nuclear, chemical or biological weapons or missiles), conventional weapons, or items specially designed for them.

For customers in Japan:

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2 Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

1. *Aircraft equipment*
2. *Aerospace equipment*
3. *Undersea equipment*
4. *Power plant 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 above*

3 Product specifications in this catalog are as of February 2021. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4 Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

5 This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

6 Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

7 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

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