

2.0 MODU REC 43P RIGHT ANGLE (SMT)**1. SCOPE**

This specification covers performance, tests and quality requirements for 2.0 MODU REC 43P RIGHT ANGLE (SMT) Connectors.

2. APPLICABLE DOCUMENTS

In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification takes precedence.

TEST REPORT: 501-57464

3. REQUIREMENTS**3.1 DESIGN AND CONSTRUCTION**

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 MATERIALS AND FINISH

A. Contact: PHOS-BRONZE C5210,
8u" Au min plating on contact area, 80u" Tin-100% min plating on solder tail,
50u" Nickel under plated all over.

B. Housing: LCP (ZENITE 6130L), UL94V-0, Black.

C. NUT: SUS 430

3.3 RATINGS

A. Voltage Rating: 200V AC per Contact

B. Current Rating: 1A/1 Contact

C. Temperature Rating: -40°C to 105°C

The upper limit of the temperature includes the temperature rising resulted by the energized electrical current

3.4 PERFORMANCE REQUIREMENTS AND TEST DESCRIPTIONS

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig 1

All tests shall be performed in the room temperature, unless otherwise specified

DR	DATE	APVD	DATE
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3.5 TEST REQUIREMENT AND PROCEDURES SUMMARY

TEST DESCRIPTION	REQUIREMENTS	PROCEDURE
Examination of product	Product shall meet requirements of applicable product drawing and specification	Visual inspection No physical damage
ELECTRICAL		
Terminal Resistance (Low Level)	20mΩ Max initial for 4.3H 30mΩ Max initial for 5.8H ΔR=20mΩ Max final.	Subject mated contacts assembled in housing to 20 mV Max open circuit at 100 mA AMP Spec:109-5311-1 Reference to Fig 3
Insulation Resistance	1000 MΩ Min. Initial 1000 MΩ Min. final	Apply 500V DC between adjacent circuit of mated connectors for 1 minute. MIL-STD-202, Method 302, Condition B
Dielectric Withstanding Voltage	Neither creeping discharge, nor flashover shall occur. Current leakage: 0.5mA maximum	650V AC for 1 minute Test between adjacent circuit of mated connectors. MIL-STD-202, Method 301
MECHANICAL		
Connector Mating Force	1.96N(200g)max per contact(initial)	After applying 3 cycles of mating/unmating preconditioning, using autograph measure the force required to unmate connector, by operating at 100mm a minute. Calculate value for a contact. AMP Spec.109-5206
Connector Unmating Force	0.098N(10g)max.Per contact(Initial)	After applying 3 cycles of mating/unmating preconditioning, using autograph measure the force required to unmate connector, by operating at 100mm a minute. Calculate value for a contact. AMP Spec. 109-5206.
Contact Mating Force	2.94N (300g)Max. per contact Fig.4 (1) gage pin.	Measure the force mating using gage(1) as indicated Fig.4. AMP Spec.109-5206
Contact Unmating Force	0.098N (10g)Max. per contact Fig.4(2) gage pin.	Measure the force mating using gage(1) as indicated Fig.4. AMP Spec.109-5206
Durability (Repeated Mate/Unmating)	No abnormalities shall be present. Termination Resistance:ΔR=20 mΩ Max. (Final) 2.94N(300g) Max. per contact Fig.4(1)gage pin. 0.098N (10g) Max per contact Fig.4(2) gage pin.	Repeat mating/unmating of connector for the following cycles at a rate of 500-600 cycles an hour. No. of Cycles: 20 cycles.
Vibration (Low Frequency)	No electrical discontinuity greater than 1 μ sec. Shall occur. Termination Resistance: ΔR=20 mΩ Max. (Final)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. MIL-STD-202 Test method 201, condition A

Physical Shock	No electrical discontinuity greater than 1 μ sec. shall occur. Termination Resistance: $\Delta R=20\text{ m}\Omega$ Max. (Final)	Accelerated Velocity: 490m/s ² (50 G). Wave form: Halfsine shock pluses. Duration: 11m sec. Velocity Change: 3.44m/s. Number of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes. Totally 18 drops. MIL-STD-202 Test Method 213, condition A.
ENVIRONMENTAL		
Resistance to Reflow Soldering Heat	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10X for No physical damage such as cracks, chips or melting.	Pre-Heat:160-180°C 160sec. Min. Heat: 220°C 70sec. Peak Temp.:245°C
Thermal Shock	No abnormalities shall be present. Termination Resistance: $\Delta R=20\text{ m}\Omega$ Max. (Final)	Subject mated connectors to 5 cycles between -40°C and 105°C/ each 30 min. MIL-STD-202 Test Method107, condition A
Humidity-Temperature Cycling	No abnormalities shall be present. Termination resistance: $\Delta R=20\text{ m}\Omega$ Max. (Final) Insulation Resistance: 1000 m Ω Min. (Final) No creeping discharge nor flashover shall occur, Current leakage:0.5mA Max.	Subject mated connectors to 10 cycles of humidity-temperature changes between 25°C and 65°C at 95% R.H. MIL-STD-202 Test Method106.(without low frequency vibration and cold shock at -10°C)
Salt Spray	Termination Resistance: $\Delta R=20\text{ m}\Omega$ Max.(Final)	Subject mated connectors to 5% salt concentration for 48 hours. MIL-STD-202 Test Method101, condition B
Solderability	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10X for any damage such as pinholes, void or rough surface. Solderable area shall have a solder coverage of 95% minimum.	Subject contacts to melted 60% tin/40% lead solder tub at 230 \pm 5°C for 3 \pm 0.5 seconds, after immersing into flux.(Alpha-100, non-active rosin base)
Sulfurous Acid Gas Exposure	Termination Resistance: $\Delta R=20\text{ m}\Omega$ Max.(Final)	Subject mated connectors to sulfurous Acid gas test exposure under the following condition. Su sulfurous Acid gas:10 \pm 3ppm 90% min. RH. Room Temperature. Duration:24 hours. Recondition for 1 hours in the room temperature before measurement.

Note (a): Shall meet visual requirements, show no physical damage.

Fig 1

3.6 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

Test or Examination	Test Group										
	A	B	C	D	E	F	G	H	I	J	K
	Test Sequence (a)										
Examination of Product	1,5	1,9	1,4	1,5	1,5	1,2	1,3	1,5	1,5,7,9	1,5	1,5
Terminal Resistance (low level)	2	2,8		2,4	2,4			2,4	2,4	2,4	2,4
Insulation Resistance	4								6		
Dielectric Withstanding Voltage	3								8		
Connector Mating Force		3,6									
Connector Unmating Force		4,7									
Contact Mating Force			2								
Contact Unmating Force			3								
Durability		5									
Vibration				3							
Physical Shock					3						
Resistance to Reflow Soldering Heat						3					
Thermal Shock								3			
Humidity-Temperature Cycling									3		
Salt Spray										3	
Solderability							2				
Sulfurous Acid Gas Exposure											3

(a) Numbers indicate sequence in which tests are performed.

Fig.2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Connector and contact shall be prepared in accordance with applicable Instruction Sheet.

They shall be selected at random from current production.

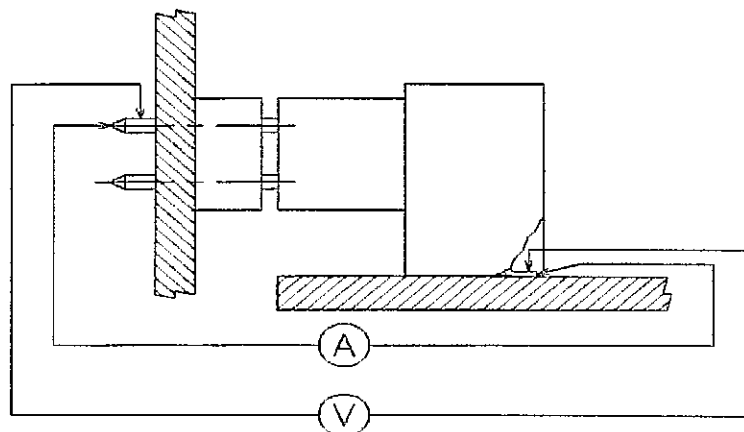
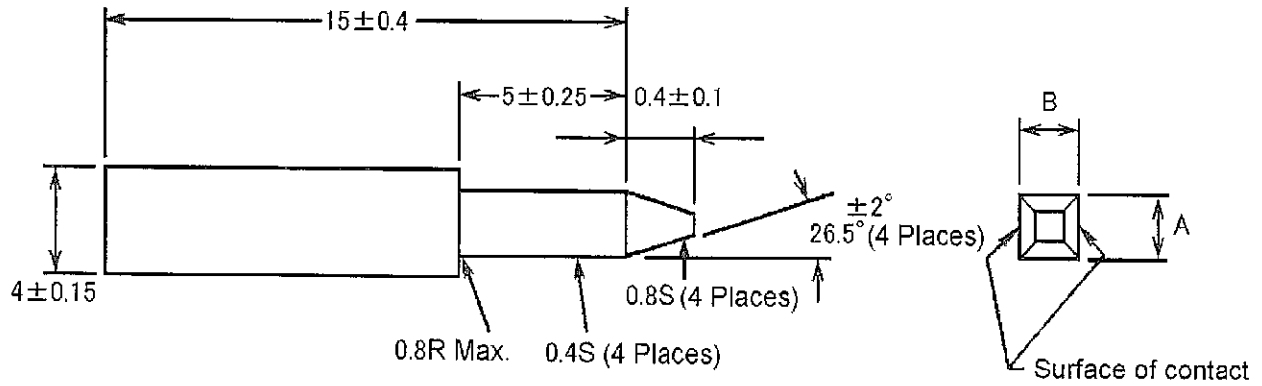


Fig.3 Method of Termination Resistance Measuring

B. Gage Pin Design



Gage	A	B
(1)	0.5 ± 0.005	$0.56 \begin{matrix} +0 \\ -0.003 \end{matrix}$
(2)	0.5 ± 0.005	$0.44 \begin{matrix} +0.003 \\ -0 \end{matrix}$

Notes: 1. Material: Tool Steel

Hardness: RC50-55

2. Before applying for measurement, remove Lubrication oil from the surfaces of working area

Fig.4 Mating/unmating Force Measurement Gage