



PRODUCT SPECIFICATION

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			APPROVED	CHECKED	WRITTEN
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A1	REVISE	2021.08.17			
A0	NEW RELEASE	2005.06.01			
REV.	DESCRIPTION	DATE	DOCUMENT NO: PS-A2501-004		

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## 1.SCOPE:

This specification covers the requirements for product performance of 2.50 mm pitch wire to wire and wire to board connector series.

## 2.PART NAME &amp; PART NUMBERS

Part name	Part number
Housing	A2501H A2501HWV/HWR A2501HM
Terminal	A2501-T A2501M-T
Wafer	A2501WV/WVA/WVB/WVT A2501WR/WRA/WRB/WRR

## 3. CONSTRUCTION. DIMENSIONS . MATERIAL &amp; SURFACE FINISH

Construction and dimensions shall be in accordance with the referenced drawings.  
Material and surface finish shall be as specified below.

Part name		Material	Surface finish
Housing		Nylon 66/PBT	UL94V-0
Terminal		Phosphor bronze	Tin over Nickel/Gold over Nickel
Wafer	Post	Brass	Tin over Nickel/Gold over Nickel
	Body	Nylon 66/PBT/LCP	UL94V-0

## 4. RATINGS &amp; APPLICABLE WIRES

Item	Standard	
Rated Voltage (Max.)	250V AC DC	
Rated Current (Max.) and Applicable Wires	AWG #22	3.0A AC DC
	AWG #24	2.5A AC DC
	AWG #26	2.0A AC DC
	AWG #28	1.5A AC DC
	AWG #30	1.0A AC DC
Ambient Temperature Range	-40℃~105℃*	

\*: Including terminal temperature rise

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**5. CONDITIONS:**

The conditions shall be in accordance with the referenced data of next table.

Number	Item	Requirement
(1)	Bend up	3°Max.
	Bend down	3°Max.
	Twisting	4°Max.
	Rolling	5°Max.
(2)	Bell mouth (flare)	0.1-0.4 mm
(3)	Cut-off tab length	0.3 mm Max.
(4)	Extruded wire length	0.3-0.8 mm
(5)	Seam	Seam shall not be opened and no wire allowed out of crimping area
(6)	Wire strip length	2.1-2.6 mm ref.
(7)	Lance height	0.3 mm ref.

After crimping, the crimped areas [ (5)、(6) ] should be as follows.

Wire Size (AWG)	Terminal Part Number	Conductor(mm)		Insulation(mm)		Crimp Strength (kgf)
		Crimp Width	Crimp Height	Crimp Width	Crimp Height	
# 22	A2501-T A2501M-T	1.50±0.15	0.70~0.80	1.90(Max.)	2.20(max)	4.00(Min.)
# 24			0.65~0.75		2.10(max)	3.00(Min.)
# 26			0.60~0.70		2.00(max)	2.00(Min.)
# 28			0.60~0.65		1.90(max)	1.00(Min.)
# 30			0.57~0.62		1.80(max)	0.80(Min.)

**6. PERFORMANCE**
**6.1 ELECTRICAL PERFORMANCE**

Test Description		Procedure	Requirement
6-1-1	Contact Resistance	Mate connectors, measure by dry circuit, 20mV Max. 10mA. (Based upon JIS C5402 5.4)	10mΩ Max.
6-1-2	Insulation Resistance	Mate connectors, apply 500V DC between adjacent terminal or ground. (Based upon JIS C5402 5.2/MIL-STD-202 Method 302 Cond. B)	1000MΩ Min.
6-1-3	Dielectric Withstanding Voltage	Mate connectors, apply 1000V AC (rms) for 1 minute between adjacent terminal or ground. (Based upon JIS C5402 5.1/MIL-STD-202 Method 301)	No Breakdown
6-1-4	Contact Resistance on Crimped Portion	Crimp the applicable wire to the terminal, measured by dry circuit, 20mV MAX, 10 mA MAX.	5mΩ max.

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## 6.2 MECHANICAL PERFORMANCE

Test Description		Procedure		Requirement
6-2-1	Insertion & Withdrawal Force	Insert and withdraw connectors at the speed rate of $25 \pm 3$ mm/minute.		Refer to section 7
6-2-2	Crimping Pull Out Force	Fix the crimped terminal, apply axial pull out force on the wire at the speed rate of $25 \pm 3$ mm/minute. (Based upon JIS C5402 6.8)	AWG #22	39.2N/4.0kgf Min.
			AWG #24	29.4N/3.0kgf Min.
			AWG #26	19.6N/2.0kgf Min.
			AWG #28	9.8N/1.0kgf Min.
			AWG #30	7.8N/0.8kgf Min.
6-2-3	Terminal/Housing Retention Force	Apply axial pull out force at the speed rate of $25 \pm 3$ mm/minute on the terminal assembled in the housing.		2.0kgf Min.
6-2-4	Header Terminal Retention Force	Apply axial push force at the speed rate of $25 \pm 3$ mm/minute.		2.0kgf Min.
6-2-5	Durability	When mated up to 50 cycles repeatedly by the rate of 10 cycles per minute.	Contact Resistance	20mΩ Max.
6-2-6	Vibration	Amplitude: 1.52mm P-P Sweep time: 10-55-10 Hz in 1 minute Duration: 2 hours in each X.Y.Z. axes (Based upon JIS C 60068-2-6/MIL-STD-202 Method 201)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
			Discontinuity	1μsec. Max.

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**6.3 ENVIRONMENTAL PERFORMANCE AND OTHERS**

Test Description		Procedure		Requirement
6-3-1	Temperature Rise	Carrying rated current load. (Based upon UL 498)	Temperature Rise	30°C Max.
6-3-2	Heat Resistance	85 ± 2°C, 250 hours (Based upon JIS C0021/MIL-STD-202 Method 108A Cond. A)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-3	Humidity	Temperature: 40 ± 2°C Relative Humidity: 90 ~ 95% Duration: 240 hours (Based upon JIS C0022/MIL-STD-202 Method 103B Cond. B)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
			Insulation Resistance	500MΩ Min.
			Dielectric Withstandin	Must meet 6-1-3
6-3-4	Temperature Cycling	25 cycles of: a) - 55°C 30 minutes b) +85°C 30 minutes (Based upon MIL-STD-202 Method 107 Cond. A-1)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-5	Salt Spray	24 hours exposure to a salt spray from the 5 % solution at 35 ± 2°C. (Based upon JIS C0023/MIL-STD-202 Method 101D Cond. B)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-6	Hydrogen Sulfide Gas	Concentration: 3 ± 1ppm. Temperature: 40 ± 2°C Relative Humidity: 80±5% 96 hours	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-7	Solderability	Soldering Time: 3~5 sec. Solder Temperature: 245 ± 5°C	Solder Wetting	95% of immersed area must show no voids, pin holes
6-3-8	Resistance to Soldering Heat	<u>Normal materials</u> Soldering Time:3~5 sec. Solder Temperature: 250± 5°C  <u>High temperature resistant materials</u> Soldering Time:3~5 sec. Solder Temperature: 260 ± 5°C  <u>Iron soldering</u> Soldering Time:3 sec. Solder Temperature: 340 ± 5°C	Appearance	No Damage

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### 7. INSERTION AND WITHDRAWAL FORCE

unit: N

Number of Circuits (W-B)	Insertion (Max.)	Withdrawal (Min.)	
	1 th	1 th	50 th
2P	24.50	7.80	5.90
3P	29.40	9.80	7.80
4P	34.30	11.80	8.80
5P	39.20	11.80	8.80
6P	44.10	13.70	9.80
7P	49.00	13.70	9.80
8P	53.90	15.70	11.80
9P	58.80	15.70	11.80
10P	63.70	17.60	13.70
11P	68.60	17.60	13.70
12P	73.50	19.60	15.70
13P	78.40	19.60	15.70
14P	83.30	21.60	17.60
15P	83.30	33.80	19.60
20P	98.00	29.40	25.50