PRODUCT SPECIFICATION

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1.SCOPE:

This specification covers the requirements for product performance of 1.25 mm pitch wire to wire or wire to board connector series.

2.PART NAME & PART NUMBERS

Part name	Part number
Housing	A1251H A1251HM
Terminal	A1251-T A1251M-T
Wafer	A1251WV/WR A1251WV-S/WR-S A1251WVA-S/WRA-S

3. CONSTRUCTION. DIMENSIONS . MATERIAL & 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	Gold over Nickel/Tin over Nicke
Wafer	Post	Phosphor bronze	Gold over Nickel/Tin over Nicke
	Body	Nylon 46/Nylon 66/Nylon 6T/Nylon 9T/LCP	UL94V-0

4. RATINGS & APPLICABLE WIRES

Item	Standard		
Rated Voltage (max.)	125V AC DC		Insulation O.D. 1.20mm (max.)
Rated Current (max.) and Applicable Wires	AWG #28	1.0A AC DC	
	AWG #30	1.0A AC DC	
	AWG #32	0.8A 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	4°max.
	Bend down	4°max.
	Twisting	3°max.
	Rolling	8°max.
(2)	Bell mouth (flare)	0.2-0.4 mm
(3)	Cut-off tab length	0.15 mm max.
(4)	Extruded wire length	0-0.5 mm
(5)	Seam	Seam shall not be opened and no wire allowed out of crimping area
(6)	Wire strip length	1.1-1.15 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	
#28	A1251-T A1251M-T	0.80±0.15	0.50~0.60	1.00(Max)	1.15(max)	1.00(min)
#30			0.45~0.55		1.05(max)	0.50(min)
#32			0.40~0.50		1.00(max)	0.30(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)	20mΩ 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)	100MΩ min.
6-1-3	Dielectric Withstanding Voltage	Mate connectors, apply 500V 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 ± 3mm/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 ± 3mm/minute. (Based upon JIS C5402 6.8)	AWG #28	9.8N/1.0kgf min.
			AWG #30	4.9N/0.5kgf min.
			AWG #32	3.0N/0.3kgf min.
6-2-3	Crimp Terminal Insertion Force	Insert the crimped terminal into the housing.		0.5kgf max.
6-2-4	Terminal/Housing Retention Force	Apply axial pull out force at the speed rate of 25 ± 3mm/minute on the terminal assembled in the housing		0.5kgf min.
6-2-5	Header Terminal Retention Force	Apply axial push force at the speed rate of 25 ± 3mm/minute.		0.5kgf min.
6-2-6	Durability	When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute	Contact Resistance	40mΩ max.
6-2-7	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 MIL-STD-202 Method 201A)	Appearance	No Damage
			Contact Resistance	40mΩ max.
			Discontinuity	1μsec. max.
6-2-8	Physical Shock	490m/s² {50G}, 3 strokes in each X.Y.Z. axes. (Based upon JIS C0041/MIL-STD-202 Method 213B Cond. A)	Appearance	No Damage
			Contact Resistance	40mΩ 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	105 ± 2°C, 96 hours (Based upon JIS C0021/MIL-STD-202 Method 108A Cond. A)	Appearance	No Damage
			Contact Resistance	40mΩ max.
6-3-3	Cold Resistance	-40 ± 3°C, 96 hours (Based upon JIS C0020)	Appearance	No Damage
			Contact Resistance	40mΩ max.
6-3-4	Humidity	Temperature: 40 ± 2°C Relative Humidity: 90 ~ 95% Duration: 96 hours (Based upon JIS C0022/MIL-STD-202 Method 103B Cond. B)	Appearance	No Damage
			Contact Resistance	40mΩ max.
			Insulation Resistance	100MΩ min.
			Dielectric Withstanding	Must meet 6-1-3
6-3-5	Temperature Cycling	5 cycles of: a) - 55°C 30 minutes b) +85°C 30 minutes (Based upon JIS C0025)	Appearance	No Damage
			Contact Resistance	40mΩ max.
6-3-6	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	40mΩ max.
6-3-7	SO_2 Gas	24 hours exposure to 50 ± 5ppm. SO_2 gas at 40 ± 2°C.	Appearance	No Damage
			Contact Resistance	40mΩ max.
6-3-8	NH_3 Gas	40 minutes exposure to NH_3 gas evaporating from 28% Ammonia solution.	Appearance	No Damage
			Contact Resistance	40mΩ max.
6-3-9	Solderability	Soldering Time: 3~5 sec. Solder Temperature: 240 ± 5°C	Solder Wetting	95% of immersed area must show no voids, pin holes
6-3-10	Resistance to Soldering Heat	High temperature resistant materials Soldering Time:3~5 sec. Solder Temperature: 260 ± 5°C	Appearance	No Damage

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7. INSERTION AND WITHDRAWAL FORCE

unit: kgf

Number of Circuits		Insertion (MAX.)			Withdrawal (MIN.)		
		1 th	6 th	30 th	1 th	6 th	30 th
Single Row	2	2.00	1.80	1.60	0.28	0.23	0.18
	3	2.50	2.30	2.10	0.30	0.25	0.20
	4	3.00	2.80	2.60	0.33	0.28	0.23
	5	3.50	3.30	3.10	0.38	0.33	0.28
	6	4.00	3.80	3.60	0.43	0.38	0.33
	7	4.50	4.30	4.10	0.48	0.43	0.38
	8	5.00	4.80	4.60	0.53	0.48	0.43
	9	5.50	5.30	5.10	0.56	0.51	0.46
	10	6.00	5.80	5.60	0.59	0.54	0.49
	11	6.50	6.30	6.10	0.62	0.57	0.52
	12	7.00	6.80	6.60	0.65	0.60	0.55
	13	7.50	7.30	7.10	0.68	0.63	0.58
	14	8.00	7.80	7.60	0.71	0.66	0.61
	15	8.50	8.30	8.10	0.74	0.69	0.64