

SPECIFICATION AND PERFORMANCE

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|--------|-------------|------|---------------------|------|------------|
| Series | 123A Series | File | 123A-XXX00_SPEC_1.1 | Date | 2019/12/06 |
|--------|-------------|------|---------------------|------|------------|

Scope:

This specification covers the requirements for product performance, test methods and quality assurance provisions of below

| P/ N | Descriptions |
|------------|---|
| 123A-21A00 | M.2 Socket, H2.1 A Key 0.5 Pitch G/F, Black, Reel |
| 123A-21B00 | M.2 Socket, H2.1 B Key 0.5 Pitch G/F, Black, Reel |
| 123A-21E00 | M.2 Socket, H2.1 E Key 0.5 Pitch G/F, Black, Reel |
| 123A-21M00 | M.2 Socket, H2.1 M Key 0.5 Pitch G/F, Black, Reel |
| 123A-30A00 | M.2 Socket, H3.0 A Key 0.5 Pitch G/F, Black, Reel |
| 123A-30B00 | M.2 Socket, H3.0 B Key 0.5 Pitch G/F, Black, Reel |
| 123A-30E00 | M.2 Socket, H3.0 E Key 0.5 Pitch G/F, Black, Reel |
| 123A-30M00 | M.2 Socket, H3.0 M Key 0.5 Pitch G/F, Black, Reel |
| 123A-40A00 | M.2 Socket, H4.0 A Key 0.5 Pitch G/F, Black, Reel |
| 123A-40B00 | M.2 Socket, H4.0 B Key 0.5 Pitch G/F, Black, Reel |
| 123A-40E00 | M.2 Socket, H4.0 E Key 0.5 Pitch G/F, Black, Reel |
| 123A-40M00 | M.2 Socket, H4.0 M Key 0.5 Pitch G/F, Black, Reel |

Performance and Descriptions:

The product is designed to meet the electrical, mechanical and environmental performance requirements specification. Unless otherwise specified, all tests are performed at ambient environmental conditions.

RoHS:

All material in according with the RoHS environment related substances list controlled.

| MATERIALS | | |
|-----------|---------------|--|
| NO. | PART NAME | DESCRIPTION |
| 1 | Insulator | LCP, UL94V-0, Black |
| 2 | Upper contact | Phosphor Bronze C5210, contact area gold flash, solder area gold flash, all under plating 50u" nickel. |
| 3 | Lower contact | Phosphor Bronze C5210, contact area gold flash, solder area gold flash, all under plating 50u" nickel. |
| 4 | Hold down | Brass C2680, 100u" matte tin over 50u" nickel plating |

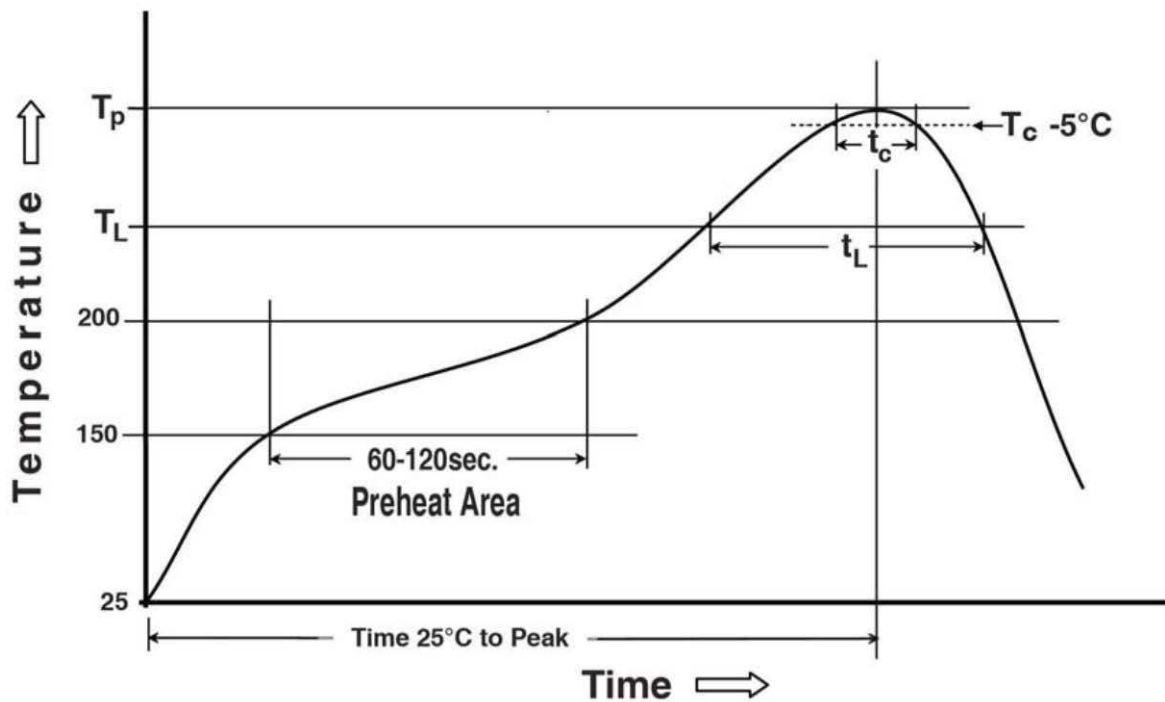
| RATING | |
|-----------------------|------------------|
| Rated Voltage | 50VAC |
| Rated Current | 0.5A |
| Operating Temperature | -40°C~ +85°C |
| Storage Temperature | -40°C~ +85°C |
| Durability | 60 mating cycles |

| ELECTRICAL | | |
|---------------------------------|---|--|
| Item | Requirement | Test Condition |
| Low Level Contact Resistance | Initial: 55mΩ max. After: Δ20mΩ max. | Solder connectors on PCB and mate them together, measure by applying closed circuit current of 100mA maximum at open circuit voltage of 20mV (max). (JIS C5402 5.4) |
| Dielectric withstanding Voltage | No breakdown | Mate connectors; apply 300V AC at 60 Hz(rms.) between two adjacent for 1 minute. (Trip current:0.5mA) (MIL-STD-202 METHOD 301) |
| Insulation Resistance | 500 MΩ Min. | Apply 500V DC between adjacent contacts, or contact and ground. (MIL-STD-202 METHOD 302) |
| Temperature Rating | 30°C Max. | Mate connector: measure the temperature rise at rated current after 0.5A/Power contact. (EIA-364-70 Method 2.) |

| MECHANICAL | | |
|------------------------|---|--|
| Item | Requirement | Test Condition |
| Mating/ Unmating Force | Mating: 20N Max. Unmating: 25N Max. | Card mating/unmating sequence: a) Insert the card at the angle specified by the manufacturer b) Rotate the card into position c) Reverse the installation sequence to unmated Operation Speed:25mm/ min. Measure the force required to mating/unmating connector. (EIA-364-13, Method A.) |
| Durability | Finish 1.Contact Resistance: 20mΩ Max. change 2.No Damage | After 60 mating and unmating cycles with 1.0mm thick board at the rate of 25±3mm/min. The connector shall be of no damage to the housing or contacts. The connector shall also meet the requirements of contact resistance in the paragraph 5.1. (EIA364-09) |
| Vibration | Finish 1. No electrical discontinuity more than 0.1μs. 2 .No Damage 3 .Contact Resistance: 20mΩ Max. change | Mate dummy card and subject to the following vibration conditions, for a period of 30 minutes in each of 3 mutually perpendicular axis, passing DC 1 mA during the test. Amplitude: 1.52 mm P-P or 19.6 m/s ² Frequency: 10-55-10Hz Shall be traversed in 1minute. (MIL-STD-202 METHOD 201) |
| Shock | Finish 1. No electrical discontinuity more than 0.1μs. 2 .No Damage 3 .Contact Resistance: 20mΩ Max. change | Solder connectors on PCB and mate them together, subject to he following shock conditions, 3 shocks shall be period along 3 mutually perpendicular axis, passing DC 1mA current during the test. A (50G,11ms Half-sine) (MIL-STD-202 METHOD 213) |

| ENVIRONMENTAL | | | | |
|---|---|---|-------------------------------|---------------|
| Item | Requirement | Test Condition | | |
| Thermal Shock | Finish 1. Contact Resistance: 20mΩ Max change 2. No abnormality | Stage | Temp. $\pm 5^{\circ}\text{C}$ | Time (Minute) |
| | | t1 | -55°C | 30 |
| | | t2 | -55°C~ +85°C | 5 |
| | | t3 | +85°C | 30 |
| | | t4 | +85°C~ -55°C | 5 |
| Test time: 5 cycles (MIL-STD-202 METHOD 107) | | | | |
| Temperature Life | Contact Resistance: 20mΩ Max. change | Mated Connector 105°C, 120 hours, (EIA-364-17, Method A.) | | |
| Cold Resistance | Contact Resistance: 20mΩ Max. change | Solder connectors on PCB and mate them together, expose to -55 for 96hrs. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 of 2hrs, after which the specified measurements shall be performed.(EIA364-59) | | |
| Humidity | Contact Resistance: 20mΩ Max change Insulation Resistance: 100MΩ (Min) | Humidity storage at $+40\pm 3^{\circ}\text{C}$ with $90\pm 5\%$ RH for 96 hours. (EIA364-31) | | |
| Salt Spray | Contact Resistance: 20mΩ Max change No Damage | $5\pm 1\%$ salt solutions, at $35\pm 2^{\circ}\text{C}$ duration 24 hours. Connectors detached (MIL-STD-1344) | | |

| SOLDER ABILITY | | |
|------------------------------|--|---|
| Item | Requirement | Test Condition |
| Solder ability | 95% of immersed area must show no voids , pin holes. | Dip solder tails into the molten solder(held at $245\pm 5^{\circ}\text{C}$) up to 0.5mm from the tip of tails for 3 ± 0.5 seconds. (MIL-STD-202 METHOD 208) |
| Resistance to soldering heat | No melting, cracks or functional damage allowed | All connectors designed for PCB soldering within this specification must be able to withstand the heat from solder oven according to the graph below. The cycle should be repeated twice. (MIL-STD-202 METHOD 210) |



Preheating temperature: 150 ~ 200°C, 60~ 120 seconds

Liquidus temperature (T_L): 217°C, 60~ 150 seconds

Peak temperature: 260°C 5 seconds

Time within 5 °C of peak temperature (T_c): 255°C, 30seconds

Table: Products Qualification Test Sequence

| No. | Test item | Test Group and Sequence | | | | | | | | | | |
|-----------------|---------------------------------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 1 | Contact Resistance | 1,6 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 | 1,4 | 1,3 | | |
| 2 | Insulation Resistance | | | | | | | | 2,5 | | | |
| 3 | Dielectric Withstanding Voltage | 2 | | | | | | | | | | |
| 4 | Temperature Rise | | 2 | | | | | | | | | |
| 5 | Mating/ Unmating Force | 3,5 | | | | | | | | | | |
| 6 | Durability | 4 | | | | | | | | | | |
| 7 | Vibration | | | 2 | | | | | | | | |
| 8 | Shock | | | | 2 | | | | | | | |
| 9 | Thermal Shock | | | | | 2 | | | | | | |
| 10 | Temperature Life | | | | | | 2 | | | | | |
| 11 | Cold Resistance | | | | | | | 2 | | | | |
| 12 | Humidity | | | | | | | | 3 | | | |
| 13 | Salt Spray | | | | | | | | | 2 | | |
| 14 | Solder Ability | | | | | | | | | | 1 | |
| 15 | Resistance to Soldering Heat | | | | | | | | | | | 1 |
| Sample Quantity | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |