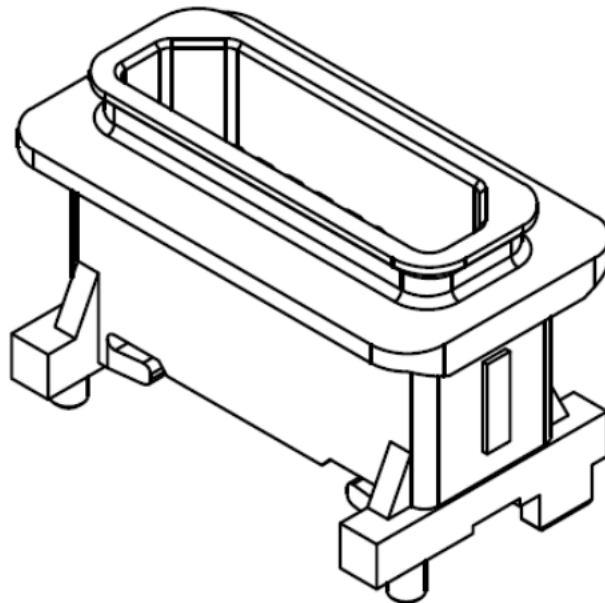
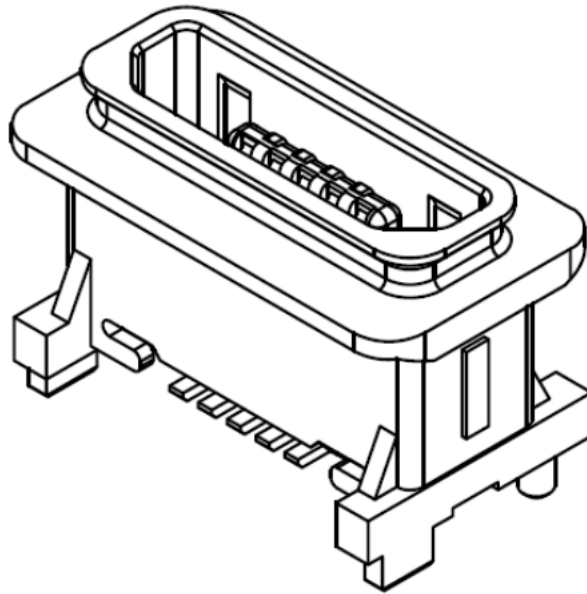


# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |                 |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|-----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |                 |           |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 1         |                 |           |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> | <b>Approved</b> | <b>PH</b> |



# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |                 |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|-----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |                 |           |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 2         |                 |           |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> | <b>Approved</b> | <b>PH</b> |

## 1.0 SCOPE

This specification covers performance, tests and quality requirements for the Micro USB Receptacle USB3510.

## 2.0 PRODUCT NAME AND PART NUMBER

Micro USB Receptacle, Type B, Vertical, IP67: USB3510.

## 3.0 PRODUCT SHAPE, DIMENSIONS AND MATERIAL

Please refer to drawing.

## 4.0 RATINGS

4.1 Current rating ..... Signal (Pins 2, 3, 4) 1.0A

..... Power (Pins1, 5) 1.8A

4.2 Voltage Rating ..... 30V AC

4.3 Operating Temperature Range ..... -30°C to +85°C

## 5.0 TEST AND MEASUREMENT CONDITIONS

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Paragraph 6.0. All tests are performed in ambient conditions unless otherwise specified.

## 6.0 PERFORMANCE

| Item                   | Test Condition   | Requirement   |
|------------------------|--|---|
| Examination of Product | Visual, dimensional and functional inspection as per quality plan. | Product shall meet requirements of product drawing and specification. |

# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |                 |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|-----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |                 |           |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 3         |                 |           |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> | <b>Approved</b> | <b>PH</b> |

## 6.1 Electrical Performance

| Item                            | Test Condition   | Requirement  |
|---------------------------------|--|--------------|
| Contact Resistance              | When measured at 20mV maximum open circuit at 100mA. Mated test contacts must be in a connector housing In accordance with EIA-364-23. | 30 mΩ Max.   |
| Insulation Resistance           | Mate/Un-mate connectors, apply 100V DC for 1 minute at sea level between adjacent terminal or ground. In accordance with EIA-364-21.   | 1000 MΩ Min. |
| Dielectric Withstanding Voltage | Mate/Un-mate connectors, apply 100V AC for 1 minute at sea level. In accordance with EIA-364-20.                                       | No Breakdown |

## 6.2 Mechanical Performance

| Item                   | Test Condition  | Requirement   |
|------------------------|---|---|
| Mating/Un-mating Force | Mate/Un-mated at a rate of 12.5mm/min. In accordance with EIA-364-13.   | Mating force: 35N Max.<br>Un-Mating force: 8N Min. to 25N Max.  |
| Durability             | 10,000 cycles at a cycle rate of 500 cycles per hour if done automatically and 200 if manual cycles. In accordance with EIA-364-09.   | Appearance: No Damage<br>Mating force: 35N Max.<br>Un-Mating force: 8N Min. to 25N Max<br>Contact Resistance: 40mΩ Max. |
| Vibration              | Mate connectors and subject to 5.35 Gs RMS. For a period of 15 minutes in each of the 3 mutually perpendicular axes. In accordance with EIA-364-28 Test condition V test letter A.  | Appearance: No Damage<br>Contact Resistance: 40 mΩ Max.<br>Discontinuity: 1.0 μ second Max.                             |
| Mechanical Shock       | Mate connectors and subject to the following shock conditions, 3 shocks shall be applied along 3 mutually perpendicular axis (Total of 18 shocks).<br>Test Pulse at Half Sine Peak Value:<br>294 m/s <sup>2</sup> (30G)<br>Duration: 11ms.<br>In accordance with EIA-364-27.<br>Test condition H. | Appearance: No Damage<br>Contact Resistance: 40 mΩ Max.<br>Discontinuity: 1.0 μ second Max.                             |

# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |                 |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|-----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |                 |           |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 4         |                 |           |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> | <b>Approved</b> | <b>PH</b> |

## 6.3 Environmental Performance and Others

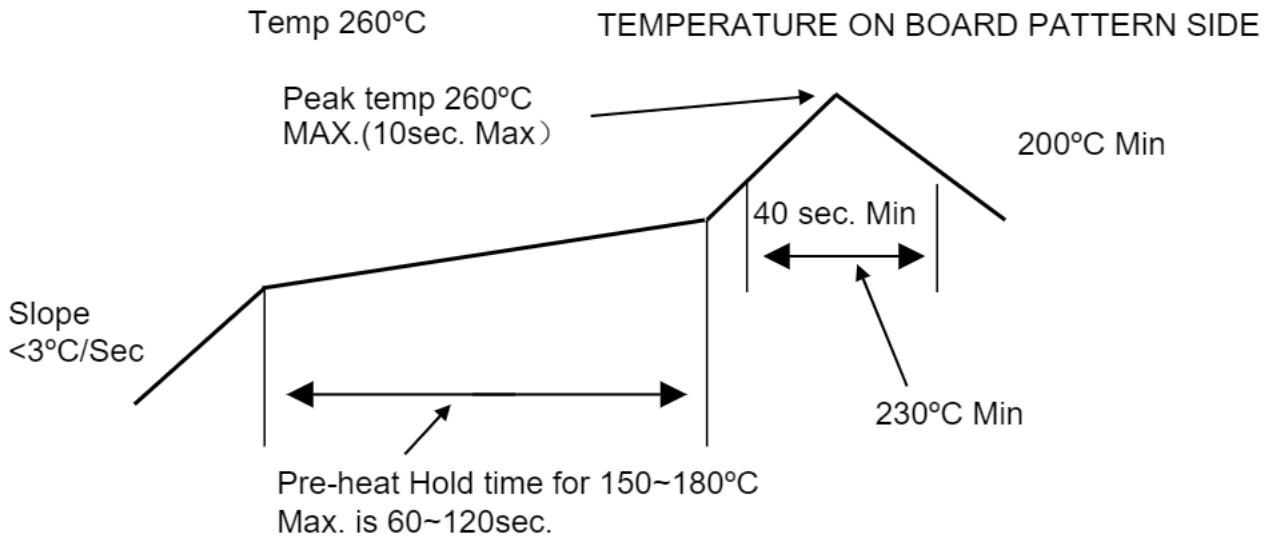
| Item  | Test Condition  | Requirement  |
|---|---|--|
| Humidity Test                                   | Subject mated connectors to Duration: 168 hours temperature between +25°C to +65°C with 90 to 95% RH. In accordance with EIA-364-31. Test condition A method III  | Appearance: No Damage<br>Contact Resistance: 40 mΩ Max.<br>Insulation Resistance: 100 MΩ Min.<br>Dielectric Strength: No Breakdown |
| Salt Spray                                      | Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours. In accordance with EIA-364-26, Test Condition B.   | Contact Resistance: 40mΩ Max.<br>No visible rust on contact area   |
| Temperature Life                                | Subject mated connectors to temperature life at +85°C for 500hours. In accordance with EIA-364-17. Test condition 4 Method A.   | Appearance: No Damage<br>Contact Resistance: 40 mΩ Max.  |
| Temperature Rise                                | Mate connector and measure the temperature rise of contact when the maximum rated current is passed and in accordance with EIA-364-70.  | No more than 30°C increase   |
| Thermal Shock                                   | Mate module and subject to follow condition for 10 cycles. At -55°C to +85°C. In accordance with EIA-364-32, test condition I.  | No Damage<br>Contact Resistance: 40 mΩ Max.<br>Insulation Resistance: 100 MΩ Min.<br>Dielectric Strength: No Breakdown             |
| Solderability                                   | Dip solder-tails in flux then immerse in solder bath at 245 ±5°C up to 0.5mm from the bottom of the housing for 4~5 seconds. In accordance with EIA-364-52, category 2.   | 95% of immersed area must show no voids, pin holes.  |
| Resistance to Soldering Heat (Reflow Soldering) | Sample mounted on PCB and subject to solder bath method, Temperature:260°C for 10±1 sec In accordance with EIA-364-56.  | Without deformation of shell or excessive looseness of the terminals (pin)   |
| Resistance to Soldering Heat (Hand Soldering)   | Sample mounted on PCB and subject to hand iron soldering, Temperature:350±10°C for 3±1 sec  | Without deformation of shell or excessive looseness of the terminals (pin)   |
| Waterproof Test                                 | Immerse the sample that be mounted in the specified enclosure in water as following conditions:<br>Water depth:1m, Time: 1hour<br>In accordance with IEC60529:2013  | No leakage, water seepage, no obvious water mark in the test fixture.  |
| Dust-tight Test                                 | Put sample in a closed chamber with suspended talcum powder as following conditions:<br>Pump speed:40-60 times of the shell volume per hour<br>Amount of talcum powder:2kg/m³<br>Time:2 hours<br>In accordance with IEC60529:2013 | No ingress of dust   |

# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 5         |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> |
|                            |  | <b>Approved</b> | <b>PH</b> |                |           |

## 7.0 RESISTANCE TO INFRARED REFLOW SOLDERING HEAT

7.1 Lead Free Process: Reflow soldering cycles limited to one time.



## 8.0 PRODUCT QUALIFICATION AND TEST SEQUENCE

| Test Item                         | Test Group |     |     |     |     |     |     |     |     |     |
|-----------------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                   | 1          | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Examination of Product            | 1,9        | 1,8 | 1,5 | 1,5 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 |
| Contact Resistance                | 3,7        |     | 2,4 | 2,4 |     |     |     |     |     |     |
| Insulation Resistance             |            | 2,6 |     |     |     |     |     |     |     |     |
| Dielectric Withstanding Voltage   |            | 3,7 |     |     |     |     |     |     |     |     |
| Mating / Unmating Forces          | 2,8        |     |     |     |     |     |     |     |     |     |
| Durability                        | 4          |     |     |     |     |     |     |     |     |     |
| Vibration                         | 6          |     |     |     |     |     |     |     |     |     |
| Mechanical Shock                  | 5          |     |     |     |     |     |     |     |     |     |
| Humidity                          |            | 5   |     |     |     |     |     |     |     |     |
| Salt Spray                        |            |     | 3   |     |     |     |     |     |     |     |
| Temp Life                         |            |     |     | 3   |     |     |     |     |     |     |
| Temp Rise                         |            |     |     |     | 2   |     |     |     |     |     |
| Thermal Shock                     |            | 4   |     |     |     |     |     |     |     |     |
| Solderability                     |            |     |     |     |     | 2   |     |     |     |     |
| Resistance to Wave Soldering Heat |            |     |     |     |     |     | 2   |     |     |     |
| Resistance to Hand Soldering Heat |            |     |     |     |     |     |     | 2   |     |     |
| Waterproof Test                   |            |     |     |     |     |     |     |     | 2   |     |
| Dust-tight Test                   |            |     |     |     |     |     |     |     |     | 2   |

# PRODUCT SPECIFICATION

|                            |  |                 |           |                |           |                 |           |
|----------------------------|--|-----------------|-----------|----------------|-----------|-----------------|-----------|
| <b>Part Number</b>         | USB3510                                      | <b>Rev</b>      | A         | <b>Date</b>    | 21/07/23  |                 |           |
| <b>Product Description</b> | Micro USB Receptacle, Type B, Vertical, IP67 |                 |           | <b>Page</b>    | 6         |                 |           |
| <b>Doc Number</b>          | USB3510                                      | <b>Prepared</b> | <b>CC</b> | <b>Checked</b> | <b>YR</b> | <b>Approved</b> | <b>PH</b> |

## Revision details:

| Revision | Information             | Page | Release Date |
|----------|-------------------------|------|--------------|
| 0.8      | Draft for formal review | -    | 20/06/2023   |
| A        | Specification released  | -    | 21/07/2023   |
|          |                         |      |              |
|          |                         |      |              |