# 0.4mm PITCH BTB 2.0H SINGLE TOUCH TYPE CONNECTOR

## 1. SCOPE

The specification covers performance, tests and quality requirements for 0.4mm PITCH BOARD TO BOARD 2.0H SINGLE TOUCH TYPE CONNECTOR.

## 2. APPLICABLE DOCUMENT

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.
MIL-STD-202, EIA-364, UL-498, JIS C0020.

## 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

A. Housing: Thermoplastic, UL94V-0, Color: Black;
B. Terminal: Copper alloy, Au plating on Ni plating all over.

### 3.3. Ratings

A. Operating temperature: -40℃ to 85℃
Operating Humidity Range: 20%~85%
B. Current Rating: 0.3A
C. Voltage Rating: 30VAC
D. Storage Temperature Range: -25℃ to 85℃
Storage Humidity Range: 30%~70%

## 4. TEST REQUIREMENT AND PROCEDURES SUMMARY

| TEST DESCRIPTION | REQUIREMENTS | PROCEDURES |
|---|---|---|
| Examination of product | Meet requirements of product drawing | Visual, dimensional and functional Per applicable quality inspection plan |
| **ELECTRICAL** | | |
| Termination resistance (Low Level) | 60mΩ Max Initial<br>80mΩ Max. Final. | Mated connector, 20 mV Max. Open circuit at 10 mA Max.(See Fig. 3)<br>EIA 364-23B |
| Dielectric withstanding Voltage | No creeping discharge or flash over shall occur, Current leakage: 2mA Max. | 100V AC 1 minute. Test between adjacent circuits and contact.<br>EIA 364-20B |
| Insulation Resistance | 100 MΩ Min | 100V DC for 1 minute. Test between adjacent circuits and contact.<br>EIA 364-21C |
| **MECHANICAL** | | |
| Solderability. | Wet solder coverage: 95%Min | Solderability temperature: 240℃±3℃.<br>Immersion duration: 3 seconds.<br>MIL-STD-202G Method 208H |
| Vibration | No discontinuities 1 microsecond or longer duration.<br>Terminal Resistance: 60mΩ Max Initial and 80mΩ Max Final | Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes, passing DC 5mA current during the test.<br>MIL-STD-202, Method 201, Condition A |
| Physical shock | No discontinuities 1 microsecond or longer duration. See Note (a)<br>Terminal Resistance:<br>60 mΩ Max Initial<br>80mΩ Max Final | Accelerated Velocity: 490 $m/s^2$ (50g)<br>waveform: half-sine shock pulse<br>Duration: 11msec.<br>Number of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 100m A current during the test.<br>MIL-STD-202, Method 213B, Condition A |
| Durability | Terminal Resistance:<br>60mΩ Max Initial<br>80mΩ Max Final | Manually mate and unmate samples for 50 cycles at a speed of 10times/min.<br>EIA-364-09C |

| | | |
|---|---|---|
| Mating and Unmating Force | (See Fig. 4)<br>See Note (c) | Measure the force required to mate and unmate the connector.<br>Speed: 25±3mm/min. |
| **ENVIRONMENTAL** | | |
| Thermal shock | Terminal Resistance<br>60 mΩ Max Initial<br>80mΩ Max Final | Subject mated samples to 5 cycles between -55℃ and 85℃<br>MIL-STD-202G, Condition A<br>EIA 364-32C Condition I |
| Resistance to Reflow Solder Heat | No loose contacts or deformation. | For Lead free plating type: Preheat 100~150 ℃ 60Seconds min, Heat 210 ℃ min for 30 Seconds max. Peak 260 ℃ (See Fig. 5) |
| Salt Spray | No evident corrosion.<br>Terminal Resistance<br>60mΩMax Initial<br>80mΩ Max Final | Subject mated samples.<br>35℃±2℃, 5±1% Salt condition,<br>24 hours.<br>EIA 364-26B condition B |
| Humidity | Terminal Resistance:<br>60 mΩ Max Initial<br>80mΩ Max Final Insulation Resistance:100MΩ Min<br>Dielectric Strength: test ok | Mated connectors shall be subjected to the following condition.<br>Temperature: 40℃<br>Relative humidity: 90~95%<br>Duration: 96h<br>MIL-STD-202 Method 103B Condition B |
| Cold Resistance | Terminal Resistance:<br>60 mΩ Max Initial<br>80mΩ Max Final<br>Insulation Resistance: 100MΩ Min. | Mated connector.<br>-40℃±2℃, 96 Hours.<br>After test, recondition under standard atmospheric condition for 2 hours.<br>JIS C0020 |
| Temperature Life | Terminal Resistance:<br>60 mΩ Max Initial<br>80mΩ Max Final | Subject mated samples to temperature life at 85℃ for 96 hours.<br>EIA 364-17B Condition A |

**Figure 1**

**NOTE (a): All meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.**

## 5. PRPDUCT QUALIFICATION AND TEST SEQUENCE

| Test of Examination | Test Group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J |
| | Test Sequence (b) | | | | | | | | | |
| Examination of product | 1,5 | 1,7 | 1,9 | 1,3 | 1,6 | 1,5 | 1,3 | 1,5 | 1,7 | 1,7 |
| Termination resistance (Low Level) | 2,4 | | 2,8 | | 2,5 | 2,4 | | 2,4 | 2,5 | 2,5 |
| Insulation resistance | | 2,5 | | | | | | | 3,6 | 3,6 |
| Dielectric Withstanding Voltage | | 3,6 | | | | | | | | |
| Solderability | | | | 2 | | | | | | |
| Vibration | | | | | 3 | | | | | |
| Physical shock | | | | | 4 | | | | | |
| Durability | | | 5 | | | | | | | |
| Mating Force | | | 3,6 | | | | | | | |
| Unmating Force | | | 4,7 | | | | | | | |
| Thermal shock | | | | | | 3 | | | | |
| Resistance to Reflow Solder Heat | | | | | | | 2 | | | |
| Salt Spray | | | | | | | | 3 | | |
| Humidity | 3 | 4 | | | | | | | | |
| Cold Resistance | | | | | | | | | 4 | |
| Temperature Life | | | | | | | | | | 4 |

**Figure 2**

**NOTE (b): Numbers indicate sequence in which tests are performed.**

**NOTE (c): Please mate and unmate the connector with parallel manner.**

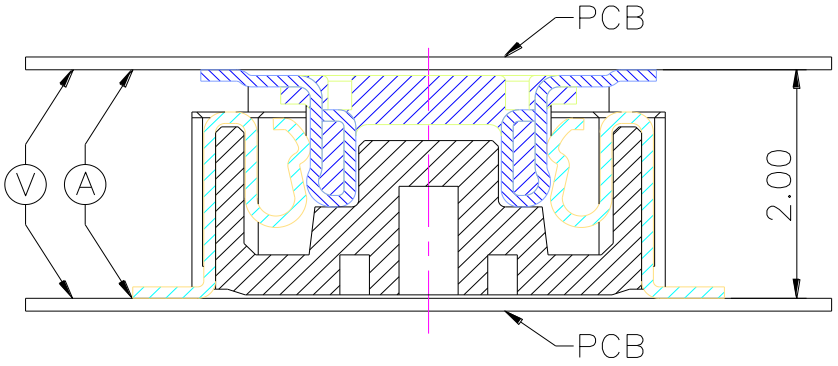


**Figure 3**

**Termination resistance (Low Level)**

| Pin No. | Mating Force (Kgf Max.) | Unmating Force (Kgf Min) | |
|---|---|---|---|
| | | First | After 50 Cycles |
| 20 | 2.40 | 0.30 | 0.25 |
| 24 | 2.80 | 0.35 | 0.30 |
| 30 | 3.30 | 0.40 | 0.35 |
| 40 | 4.40 | 0.50 | 0.45 |
| 50 | 5.00 | 0.60 | 0.50 |
| 60 | 6.00 | 0.65 | 0.60 |

**Figure 4**

**Mating and Unmating Force**

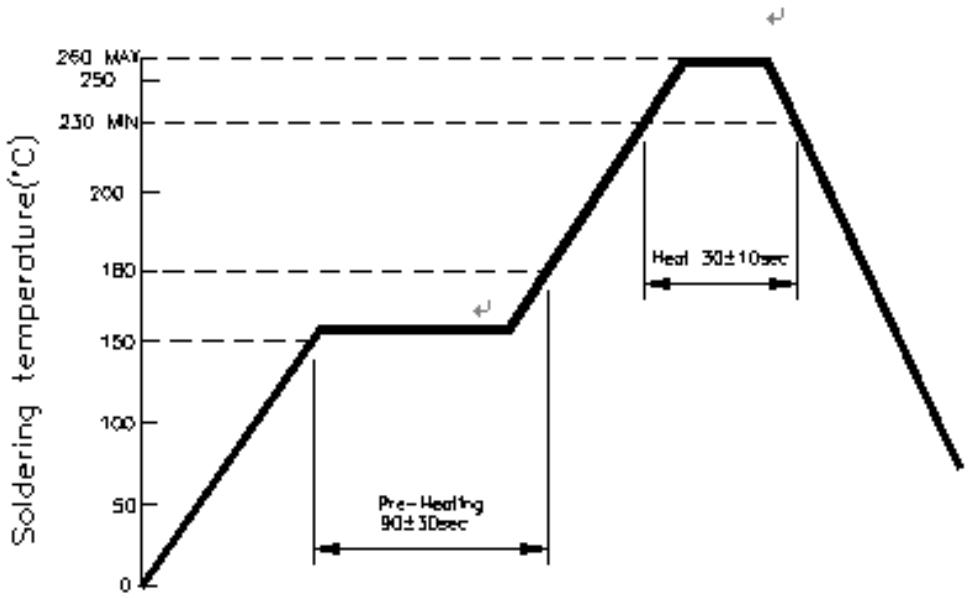


Figure 5

TEMPERATURE PROFILE OF REFLOW SOLDERING

| RAV. | EC NO. | DESCRIPTION | DATE | WRITTEN |
|---|---|---|---|---|
| A | N/A | RELEASED | 2011.03.28 | 谭林红 |
| | | | | |