## 1.0 OBJECTIVE

This specification defines the performance test and quality requirements of SD card reader connector with push-push type.

## 2.0 SCOPE

This product specification is applied for SD card reader connector, which provides the interconnection between PCB to card.

## 3.0 GENERNAL REQUIREMENTS

3.1 **Drawing :** 10067847

### 3.2 Operation and Storage:

3.2.1 Current Rating: 0.5A.

3.2.2 Voltage Rating : 17V

3.2.3 Operating temperature : -40℃ to 105℃

3.2.4 Storage temperature: -40℃ to 105℃

### 3.3 Material :

**3.3.1** Housing: LCP, GF30, UL94V-0, color: black.

**3.3.2** SD Contact: Phosphor Bronze.

**3.3.3** WP Contact: Copper Alloy.

3.3.4 CD Contact: Copper Alloy.

3.3.5 Shield : Stainless

3.3.6 Slider Cam: PA9T or LCP

3.3.7 Locking Arm: Stainless

**3.3.8** Positioning Pin :Stainless

**3.3.9** Spring: SWP-B

### 3.4 Finish:

3.4.1 SD/CD/WP Contact:(a) Contact area: Au plated (or equivalent palladium nickel)

(b) Solder area: Mate Tin plated

(c) Under plated: Nickel plated overall.

3.4.2 Shield :(a) Solder area: Gold flash plated

(b) Under plated: Nickel plated overall

3.5 **Commercial Standard Specification**

**3.5.1** EIA 364 Test methods for electrical connectors

3.5.2 UL-STD-94 Flammability

3.5.3 ASTM B422-90 High strength copper alloy

**3.6 FCI Specifications:**

**3.6.1** BUS-15-002M Nickel Plating

**3.6.2** BUS-15-005 Gold Plating

**3.6.3** GES-31-002 Workmanship STD & Insp. Instruction

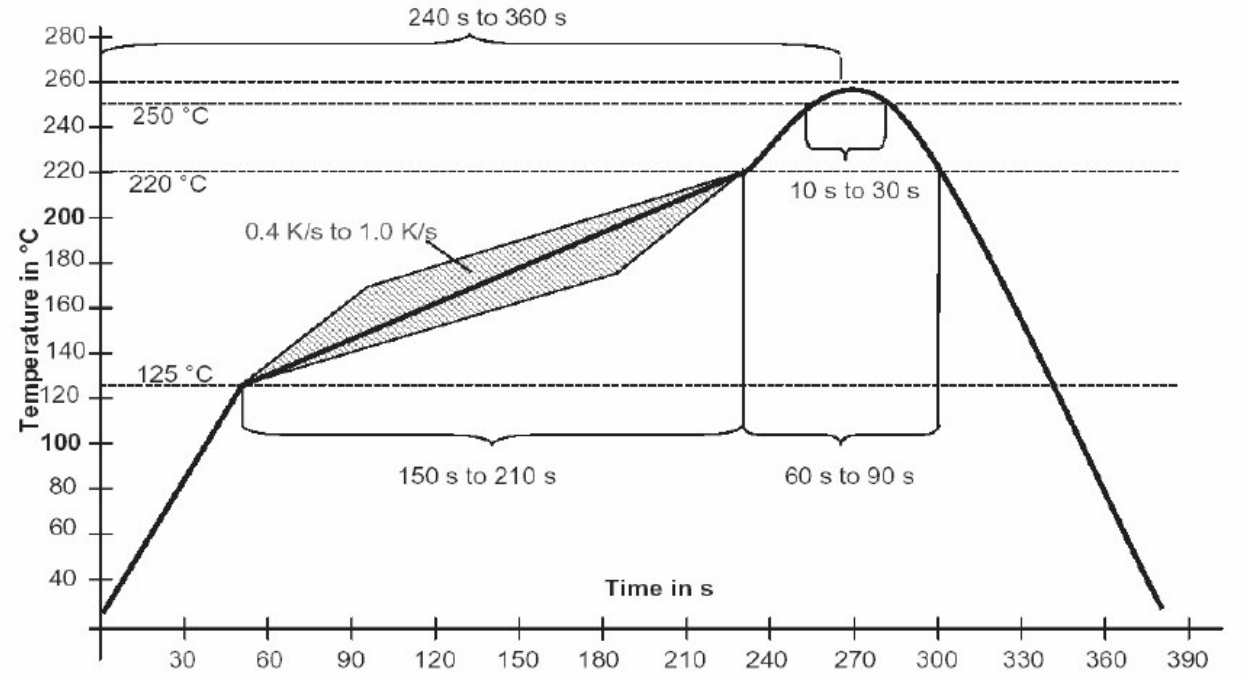
**3.6.4** GS-14-1253 Package Specification

## 4.0 TEST REQUIREMENTS AND PROCEDURES

| TEST DESCRIPTION | REQUIREMENTS | TEST METHOD & CONDITION |
|---|---|---|
| Examination of product | Meet requirements of product drawing | Visual inspection<br>No physical damage |
| **ELECTRICAL REQUIREMENTS** | | |
| Contact Resistance | 100mΩ Max. | 20 mV maximum open circuit voltage<br>EIA 364-06 |
| Insulation Resistance | 1000M Ω Min. | 500V DC. 1 minute,<br>EIA 364-21 |
| Dielectric Withdrawing Voltage Resistance | No creeping discharge or flashes occur<br>Current leakage 1mA Max. | 500V AC rms., 1 minute, test between adjacent contacts of unmated sample<br>EIA-364-20 |
| **MECHANICAL REQUIREMENTS** | | |
| Total ejection and insertion Force | Total ejection Force: 8N Min.<br>Total Insertion Force: 12N Max. | EIA 364-13<br>speed:25 mm/minute |
| Vibration | No physical damage | Duration :3 axis, 8 hours per |

| | | |
|---|---|---|
| | Discontinuity:1u sec. max. | spatial axis<br>Frequency:10-1000 Hz – 0.35mm amplitude<br>Acceleration :2G<br>Sweep rate : 1 octave/min. |
| Shock | No physical damage<br>Discontinuity:1u sec. max. | Shock acceleration 50G<br>Duration of individual shock=6 ms, half-wave sinusoidal<br>No of shocks : 50 shocks per spatial axis |
| Contact Force | 0.2N~0.4N. | |
| Wrestling (Flapping) Strength | No physical damage | Applied force 10N to SD card for Front direction. (The card should be inserted 15mm into the connector from the head of card) |
| Durability cycling | No physical damage.<br>Push-push function must be workable. | Operation Cycles: 12,000 cycles, (500 cycles at -40℃; 10500 cycles at 23℃; 1000 cycles at 85℃). Mated and unmated connector with cycles time about 45sec/cycle, see Figure 3. |
| **ENVIRONMENTAL REQUIREMENTS** | | |
| Humidity heat cycles | No physical damage | Number of cycles: 6<br>Relative humidity : 90~100 %<br>Cycle period : 24 hours<br>See FIG 2. |
| Dust test | No physical damage | With SD CARD mated.<br>Begin dust concentration of 300 g/cm*cm*cm of chamber volume, flow rate =300 m/s and exposure time of 1 hr. |
| High temperature operation | No physical damage | The test samples shall be soaked at 70c for 2 hours,unpowered |
| Low temperature operation | No physical damage | The test samples shall be soaked at -30c for 2 hours,unpowered |
| Salt Spray | No harmful corrosion | Temperature: 35℃±2℃<br>Concentration: 5%<br>Period : 48 hours<br>EIA 364-26 |
| Temperature shock test | No physical damage | Number of cycles: 100<br>Test cycle:<br>Temp at start of test: room temp;<br>Acclimatization period to 70c: <=10s |

| | | |
|---|---|---|
| | | Condition at 70c : 30 min<br>Acclimatization period to -30c : <= 10s<br>Condition at -30c : 45 min |
| **PHYSICAL** | | |
| Solderability | The test area shall be covered more than 95% of immersed area with flash solder. | Solder temperature: 260 +0/-5℃<br>Period: 10±0.5sec<br><br>Recommended reflow profile: Fig1 (Refer to J-STD-020). |




| | |
|---|---|
| Preheat | 125 °C to 220 °C<br>150 s to 210 s @ 0.4 K/s to 1.0 K/s |
| Time at T> 217 °C | 60 s to 90 s |
| Peak temperature | 260 °C -5/+0 °C |
| Peaktime | 10 s to 30 s (≥ 250 °C) |
| Cooling rate | ≤ 6 K/s |
| Time from 25 °C to peak | 240 s to 360 s |

**Figure 1**

Number of Cycles: 6

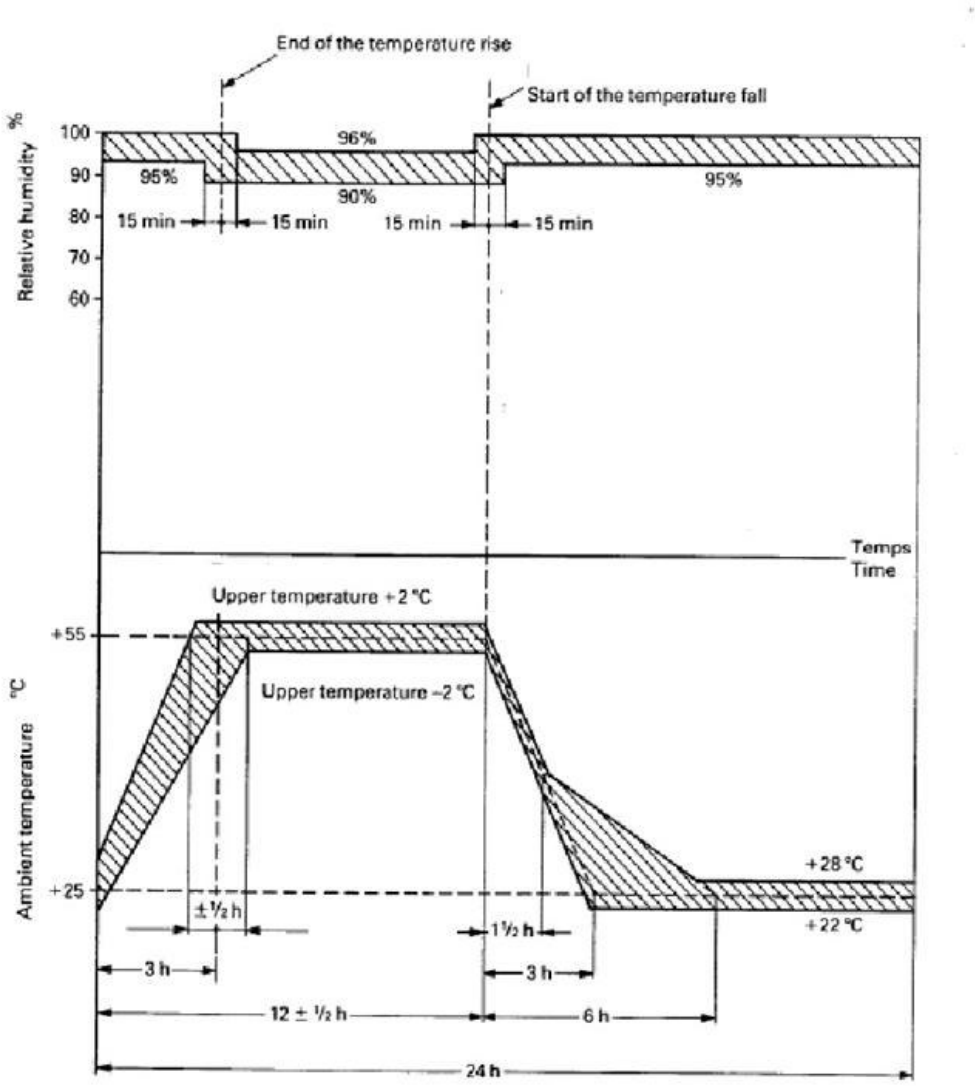



**Figure 2**

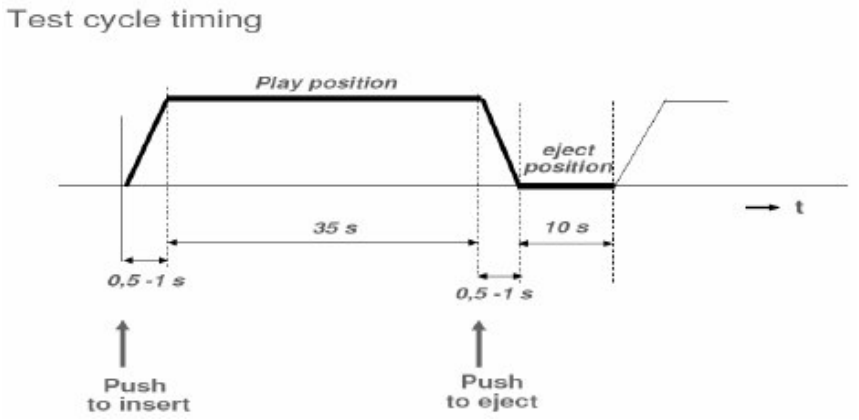



**Figure 3**

## 5.0 PRODUCT QUALIFICATION TEST SEQUENCE

| Test or Examination | Test Group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | | | | |
| | Test Sequence (a) | | | | | | | | | | | |
| Examination of Product | 1,10 | 1,6 | 1,7 | 1,5 | 1,5 | 1,9 | 1 | 1,3 | | | | |
| Contact Resistance | 2,7 | 2,5 | 2,6 | 2,4 | 2,4 | 2,6 | | | | | | |
| Insulation Resistance | 3,8 | | | | | 3,7 | | | | | | |
| Dielectric Withstanding Voltage Resistance | 4,9 | | | | | 4,8 | | | | | | |
| Total Pulling and Insertion Force | | | | | | | 3 | | | | | |
| Vibration | 5 | | | | | | | | | | | |
| Physical Shock | 6 | | | | | | | | | | | |
| Contact Force | | | | | | | 2 | | | | | |
| Wrestling Strength | | | | 3 | | | | | | | | |
| Durability Cycling | | | 3 | | | | | | | | | |
| Humidity heat cycles(6 cycles) | | 3 | 5 | | | | | | | | | |
| Salt Spray | | | | | 3 | | | | | | | |
| Solderability | | | | | | | | 2 | | | | |
| Temperature Shock test | | 4 | | | | | | | | | | |
| High/LowTemperature operation | | | | | | 5 | | | | | | |
| Dust test | | | 4 | | | | | | | | | |

**NOTE:** Numbers indicated sequence in which tests are performed.

## REVISION RECORED

| REV | PAGE | DESCRIPTION | ECR | DATE |
|---|---|---|---|---|
| A | ALL | New Release | DG07-0495 | 12/21/2007 |
| B | 1 | Change operating temperature (3.2.3) | DG08-0034 | 02/05/2008 |
| C | 1 | PA9T has global supply shortage issue | DG08-0141 | 05/29/2008 |
| D | 1, 2 | Change storage temperature range; Revise packing spec. No. mistake. | DG08-0185 | 07/23/2008 |
| E | 3, 6 | Change durability cycling test method and condition. | DG09-0258 | 08/10/2009 |
| F | 4, 5 | Revise reflow profile mistake | DG09-0387 | 12/14/2009 |
| G | ALL | Change confidential form to unrestricted form | DG09-0403 | 12/26/2009 |