PRODUCT SPECIFICATION: 110-10020
GENESIS PN: 110-10020-01

# GENESIS TECH ELECTRONICS

SPECIFICATION FOR APPROVAL

CUSTOMER:

CUSTOMER PART NO:

PART NO: **110-10020-01** REVISION: **X1**

DESCRIPTION: **HIGH SPEED B TO B 5 Gbps FEMALE INTERFACE**

| | MANUFACTURE SIGNATURE | CUSTOMER SIGNATURE |
|---|---|---|
| APPROVED BY: | | |
| DATE: | | |

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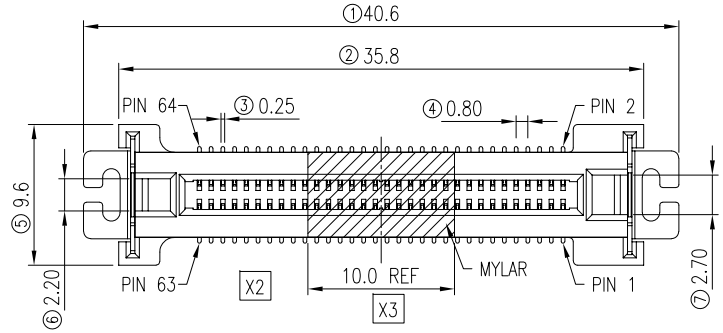
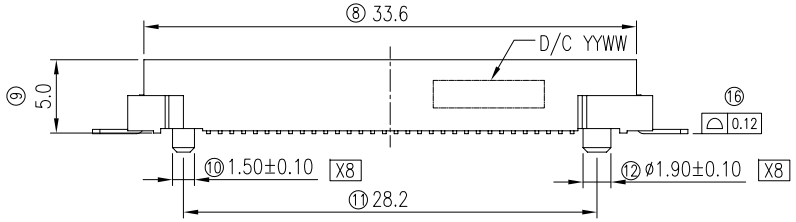
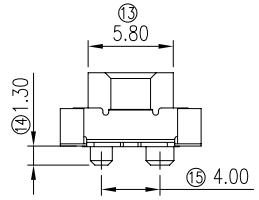
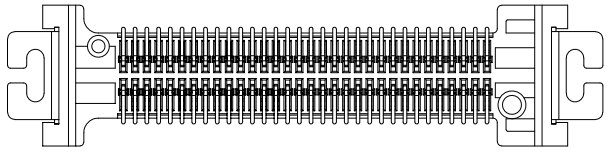
PROPRIETARY INFORMATION
COMPANY CONFIDENTIAL

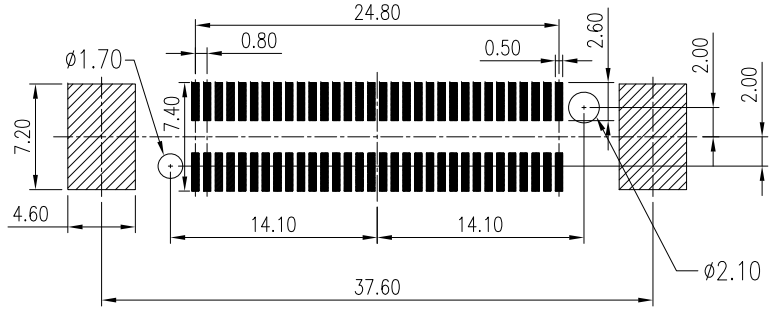
| REV. | ECN. NO. | DESCRIPTION | ENG | DATE |
|---|---|---|---|---|
| X1 | | INITIAL | MIKE | 2/10/2017 |
| X2 | | REVISED DRAWING | MIKE | 4/18/2017 |
| X3 | | MODIFY PACKAGING | MIKE | 4/20/2017 |
| X4 | | MODIFY MYLAR | MIKE | 4/24/2017 |
| X5 | | MODIFY PACKAGING | MIKE | 4/25/2017 |
| X6 | | ADD SPEC | YIN | 9/18/2018 |
| X7 | | ADD NOTE | YIN | 2/14/2019 |
| X8 | | CHANGE THE TOLERANCE | TERRY | 6/8/2020 |
| X9 | | ADD SPEC | Leo | 8/13/2020 |






RECOMMENDED PCB LAYOUT
TOLERANCE:±0.05mm

NOTES :
1. MATERIAL
   HOUSING: LCP, UL94V-0, BLACK
   TERMINAL: PHOSPHOR BRONZE
   BOARDLOCK: BRASS
2. PLATING:
   TERMINAL:
   CONTACT AREA: GOLD PLATING
   SOLDER TAIL: 80u" TIN PLATING
   UNDER PLATING: 30u" NICKEL OVERALL
   BOARDLOCK: 30u" NICKEL PLATING
3. CURRENT RATING: 0.5A
4. VOLTAGE RATING: 30V DC Max
5. CONTACT RESISTANCE: 50mohm Max
6. DIELECTRIC WITHSTANDING VOLTAGE: 500VAC FOR 1 MINUTE.
7. INSULATION RESISTANCE: 100Mohms min.
8. 5Gbps min. COMPLIANT.
9. DESIGN TO MATE WITH 110-10007 & 110-10019.

X7

PART. NUMBER
110-10020-XX

| X3 | X5 | X6 | X9 |
|---|---|---|---|

| |
|---|
| 01: TAPE REEL<br>CONTACT AREA: GOLD FLASH PLATING |
| 02: TAPE REEL<br>CONTACT AREA: 30u" Au PLATING |
| 03: TAPE REEL<br>CONTACT AREA: 4u" Au PLATING |

| GENERAL TOLERANCE | ANGLE TOLERANCE |
|---|---|
| X.± 0.50 | X°± 5.0° |
| .X± 0.40 | .X°± 3.0° |
| .XX± 0.30 | .XX°± 2.0° |
| .XXX± 0.20 | .XXX°± 1.0° |

MATL SEE BOM
FINISH SEE NOTES
SCALE N/A UNIT mm
SHEET 1 OF 1

DRAWN RYAN DATE 2/14/19'
CHECKED DATE
APPROVED DATE

GENESIS TECHNOLOGY, INC

TITLE. HIGH SPEED B TO B 5Gbps FEMALE INTERFACE

PART NUMBER. 110-10020-XX

DRAWING NO. 110-10020

SIZE A4

REV. X9

## 1 SCOPE

This specification covers the performance requirements of the High Speed 5Gbps Female Interface.

## 2 APPLICATION DOCUMENT

This following documents form a part of this specification to this extent specified herein. In the event of conflict between the requirements of the 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.

- EIA-364
- UL-94

## 3 REQUIREMENTS

### 3.1 DESIGN AND CONSTRUCTION

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing 110-10020 and Mates with 110-10007-01.

### 3.2 MATERIAL

A. Housing： LCP+Glass Filled, UL94V-0,Black.
B. Terminal：Phosphor bronze , gold plated on contact area, Tin plated on solder tails, nickel Underplated over all
C. Board lock ： Brass, Tin plated on solder tails, nickel Underplated over all

### 3.3 RATINGS

| | | |
|---|---|---|
| A. | Current rating | ： 0.5 Amperes |
| B. | Voltage rating | ： 30V DC Max. |
| C. | Operating temperature | ： -30℃ to 85℃. |
| D. | Humidity | ： 20% - 80% |

### 3.4 STORAGE CONDITIONS

Temperature： 25±5℃; Humidity ： 50% - 70%
Storage time：Should not exceed 90 days.

### 3.5 CONDITION OF WAVE SOLDERING AND BY HAND

Hand solder: 350±10°C, 3±1 sec.
Reflow: Max 260°C 5 sec, 230°C 60 sec (pre-heat at 130~180°C,60~120 sec) 2 times
Tested to profile shown below. Recommended to use fixture for soldering stability.

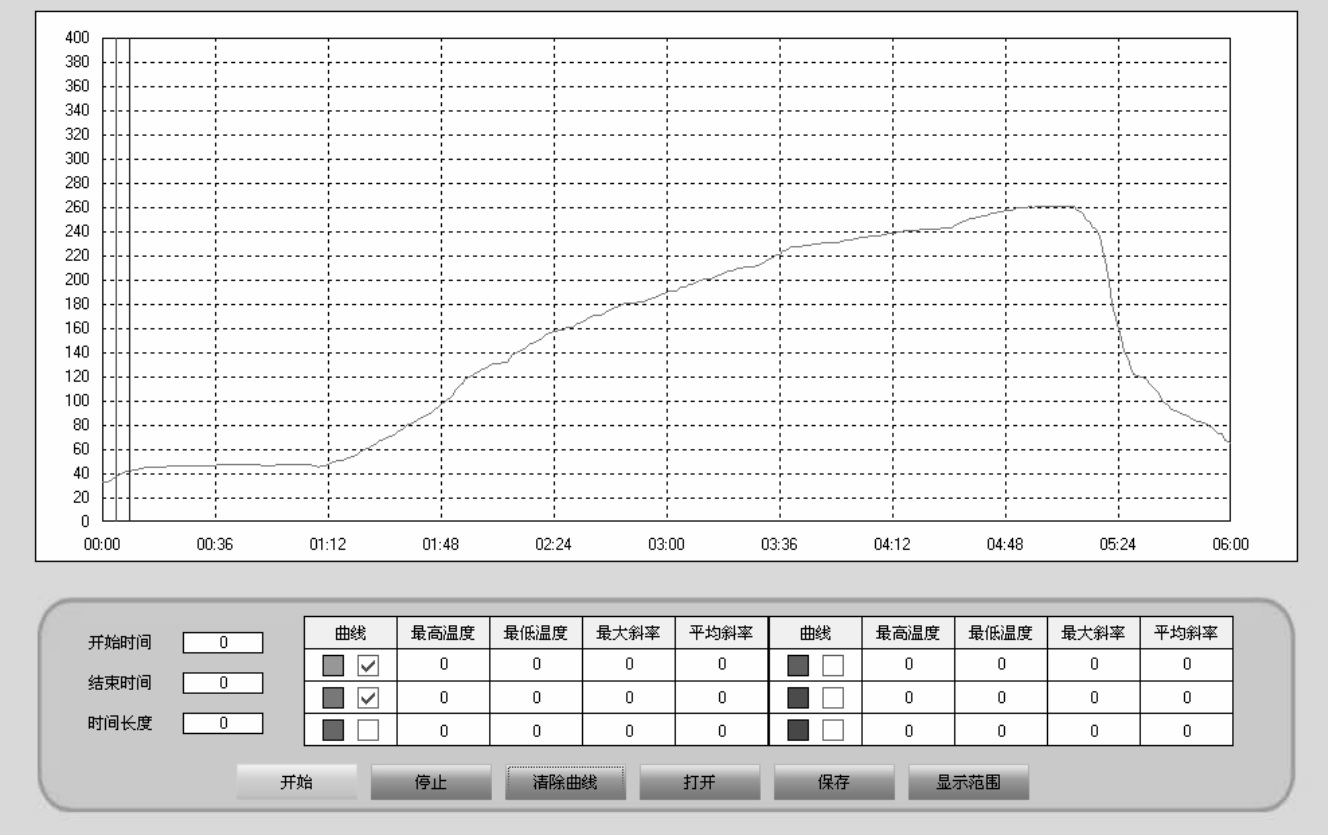



**Figure 1 – Solder Reflow Profile Tested**

## 3.6 TEST CONDITIONS

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 2.

## 3.7 ELECTRICAL PERFORMANCE

| Parameter | Procedure | Requirement |
|---|---|---|
| Insulation resistance | EIA 364-21<br>Test between adjacent contacts of mated and unmated connector assemblies. | 100 MΩ minimum |
| Dielectric withstanding voltage | EIA 364-20<br>Test between adjacent contacts of mated and unmated connector assemblies.500 VAC for 1 minute. | The dielectric shall withstand 500VAC for 1 minute at sea level. |

| | | |
|---|---|---|
| Low level contact resistance(LLCR) | EIA 364-23<br>Subject mated contacts assembled in housing to 20mV Max. open circuit at 100mA Max.<br>Test setup per Genesis Spec. – GTI-Q-SOP0019 | Initial: 50mΩ maximum<br>Resistance increase to 65mΩ maximum after stress |

## 3.8 MECHANICAL PERFORMANCE

| Parameter | Procedure | Requirement |
|---|---|---|
| Insertion Force | EIA 364-13<br>Measure force necessary to mate connector assemblies at Max. rate of 12.5mm/min. | 45N max |
| Removal Force | EIA 364-13<br>Measure force necessary to unmate connector assemblies at Max. rate of 12.5mm/min. | 4N min |
| Durability | EIA 364-09<br>Mate and unmate connector assemblies for 50 cycles at Max. rate of 200 cycles per hour. | No physical damage. Meet requirements of additional tests as specified in the test sequence |

## 3.9 ENVIRONMENTAL PERFORMANCE

| Parameter | Procedure | Requirement |
|---|---|---|
| Physical shock | EIA 364-27<br>Subject mated connectors to 30 g's half-sine shock pulses of 11 msec duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks. | No discontinuities of 1μs or longer duration. No physical damage. |
| Random vibration | EIA 364-28 Condition V Test letter A<br>Subject mated connectors to 5.35 g's RMS. 30 minutes in each of three mutually perpendicular planes. (See NOTE 2) Test setup per Genesis Spec. – GTI-Q-SOP0020 | No discontinuities of 1 μs longer duration. |
| Humidity | EIA 364-31 Method III Test Condition A.<br>Subject mated connectors to 96 hours at 40°C with 90% RH to 95% RH. | See NOTE 1. |

| | | |
|---|---|---|
| Temperature life | EIA 364-17 Test Condition III Method A.<br>Subject mated connectors to temperature life at +85°C for 500 hours. | See NOTE 1. |
| Thermal shock | EIA 364-32 Test Condition 1.<br>Subject mated connectors to 10 cycles between –55°C and +85°C | See NOTE 1. |
| Salt Spray | Subject connector to salt solution concentration shall be 5% and air supply 35℃ for 4 hours per EIA-364-26B. | 1. No obvious cosmetic difference.<br>2. Contact Resistance: 65 milliohms maximum. |
| | Subject connector to salt solution concentration shall be 5% and air supply 35℃ for 48 hours per EIA-364-26B. | 1. Probably obvious cosmetic difference.<br>2. Contact Resistance: 65 milliohms maximum. |
| Solder-ability | EIA 364-52<br>At a temperature of 245+5℃ for 5+0.5 seconds. Dip tails into flux for 5 second, drain, and then dip into the solder pot and keep for 5 seconds. | More than 95% of the Solder-able area shall be covered with solder |
| Resistance to Solder reflow Heat | 1). Reflow part<br>Max 260℃ ± 5°C for 10sec.<br>2). Pre-heat part<br>130~180℃,60~120 sec<br>*The number of times through reflow oven is 2 times<br>Per EIA-364-56 | Tested housing shall show no evidence of deformation and no physical damage. |

Figure 2

NOTE -

1. Shall meet EIA 364-18 Visual Examination requirements, show no physical damage, and shall meet requirements of additional tests as specified in the test sequence.
2. Vibration test fixture is to be determined by each user with connector vendors.

## 4.0 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

| Test Group ⇨ | A | B | C | D | E | F | |
|---|---|---|---|---|---|---|---|
| Test or examination ⇩ | | | | | | | |
| Examination of product | 1,9 | 1,9 | 1,5 | 1,8 | 1,3 | 1,5 | |
| Insulation resistance | | | | 2,6 | | | |
| Dielectric withstanding voltage | | | | 3,7 | | | |
| Low level contact resistance(LLCR) | 2,8 | 3,7 | 2,4 | | | 2,4 | |
| Insertion Force | 3,6 | 2 | | | | | |
| Removal Force | 4,7 | 8 | | | | | |
| Durability | 5 | 4 | | | | | |
| Physical shock | | 6 | | | | | |
| Random vibration | | 5 | | | | | |
| Humidity | | | | 5 | | | |
| Temperature life | | | 3 | | | | |
| Thermal shock | | | | 4 | | | |
| Salt Spray | | | | | | 3 | |
| Solder-ability | | | | | 2 | | |
| | | | | | | | |

Figure 3

## 5.0 PRODUCT PACKAGE DRAWINGS

5.1 Product to be supplied in tray as shown in product drawing unless otherwise specified.

5.2 Test packaging according to standard ISTA shipping specifications.

## 6.0 QUALITY ASSURANCE PROVISIONS

**6.1** Test Conditions:

A. Sample Selection

Connector housings and contact shall be prepared in accordance with applicable instruction sheets and shall be selected from current production. All test groups shall each consist of a minimum of 5 connectors.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

## 6.2 Requalification Testing:

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate qualification testing, consisting of all or original testing sequence as determined by development/product, quality and reliability engineering.

## 6.3 Acceptance:

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify. When a product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before submittal.