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|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 1 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

1.0 SCOPE

This specification covers performance, test, and quality requirement for terminal block pluggable plug, socket and fixed plug. Centerline spacing are 3.50, 3.81, 5.00, 5.08, and 7.62mm.

2.0 APPLICABLE DOCUMENTS

2.1 Drawing


| Pitch | Type | FCI series name | Drawing number | FCI part number | Poles |
|--------|--------|-----------------|----------------|--------------------|--------|
| 3.50mm | Plug | 01-350 | 20020004 | 20020004-CxxxxxxLF | 02~24p |
| | | 01-350 | 20020000 | 20020000-CxxxxxxLF | 02~24p |
| | | 02-350 | 20020009 | 20020009-CxxxxxxLF | 02~24p |
| | | 02-350 | 20020008 | 20020008-CxxxxxxLF | 02~24p |
| | Socket | 06-350 | 20020107 | 20020107-CxxxxxxLF | 02~24p |
| | | 06-350 | 20020108 | 20020108-CxxxxxxLF | 02~24p |
| | | 06-350 | 20020111 | 20020111-CxxxxxxLF | 02~24p |
| 3.81mm | Plug | 01-381 | 20020004 | 20020004-DxxxxxxLF | 02~24p |
| | | 01-381 | 20020000 | 20020000-DxxxxxxLF | 02~24p |
| | | 02-381 | 20020009 | 20020009-DxxxxxxLF | 02~24p |
| | | 02-381 | 20020008 | 20020008-DxxxxxxLF | 02~24p |
| | Socket | 06-381 | 20020107 | 20020107-DxxxxxxLF | 02~24p |
| | | 06-381 | 20020108 | 20020108-DxxxxxxLF | 02~24p |
| | | 06-381 | 20020111 | 20020111-DxxxxxxLF | 02~24p |
| 5.00mm | Plug | 01-500 | 20020006 | 20020006-GxxxxxxLF | 02~24p |
| | | 01-500 | 20020003 | 20020003-GxxxxxxLF | 02~24p |
| | | 02-500 | 20020009 | 20020009-GxxxxxxLF | 02~24p |
| | | 02-500 | 20020008 | 20020008-GxxxxxxLF | 02~24p |
| | Socket | 06-500 | 20020107 | 20020107-GxxxxxxLF | 02~24p |
| | | 06-500 | 20020108 | 20020108-GxxxxxxLF | 02~24p |
| | | 06-500 | 20020111 | 20020111-GxxxxxxLF | 02~24p |
| 5.08mm | Plug | 01-508 | 20020003 | 20020003-HxxxxxxLF | 02~24p |
| | | 01-508 | 20020006 | 20020006-HxxxxxxLF | 02~24p |
| | | 02-508 | 20020009 | 20020009-HxxxxxxLF | 02~24p |
| | | 06-508 | 20020108 | 20020108-HxxxxxxLF | 02~24p |
| | | 06-508 | 20020111 | 20020111-HxxxxxxLF | 02~24p |

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| | | | |
|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 2 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

| | | | | | |
|--------|------------|--------|----------|--------------------|--------|
| | Socket | 02-508 | 20020008 | 20020008-HxxxxxxLF | 02~24p |
| | | 06-508 | 20020107 | 20020107-HxxxxxxLF | 02~24p |
| | | 06-508 | 20020110 | 20020110-HxxxxxxLF | 02~24p |
| 7.62mm | Plug | 04-762 | 20020516 | 20020516-MxxxxxxLF | 02~16p |
| | | 04-762 | 20020517 | 20020517-MxxxxxxLF | 02~16p |
| | Socket | 07-762 | 20020618 | 20020618-MxxxxxxLF | 02~16p |
| | | 07-762 | 20020619 | 20020619-MxxxxxxLF | 02~16p |
| | | 07-762 | 20020620 | 20020620-MxxxxxxLF | 02~16p |
| | | 07-762 | 20020621 | 20020621-MxxxxxxLF | 02~16p |
| | | 07-762 | 20020622 | 20020622-MxxxxxxLF | 02~16p |
| 3.50mm | Fixed Plug | 26-350 | 20020327 | 20020327-CxxxxxxLF | 02~24p |
| 3.81mm | | 26-381 | 20020327 | 20020327-DxxxxxxLF | 02~24p |
| 5.00mm | | 21-500 | 20020316 | 20020316-GxxxxxxLF | 02~24p |
| 5.08mm | | 21-508 | 20020316 | 20020316-HxxxxxxLF | 02~24p |
| | | 21-508 | 20020336 | 20020336-HxxxxxxLF | 04~05p |
| 7.62mm | | 12-762 | 20020705 | 20020705-MxxxxxxLF | 02~03p |

2.2 Other Standard and Specification

- 4.2.1 IEC 60998-1: Connecting Devices for Low Voltage Circuits for Household and Similar Purposes. Part 1: General Requirements.
- 4.2.2 IEC 60998-2-1: Connecting Devices for Low Voltage Circuits for Household and Similar Purposes. Part 2-1: Particular Requirements for Connecting Device as Separate Entities with Screw-type Clamping Units.
- 4.2.3 UL 1059: Terminal Blocks
- 4.2.4 EIA-364:


Electrical Connector/Socket Test Procedure Including Environmental Classifications

2.3 FCI SPECIFICATIONS

- 4.3.1 GES-03-601 Current Rating
- 4.3.2 GS-14 -1394 Package Specification

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| | | | |
|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 3 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

3.0 REQUIREMENTS

3.1 Design and Construction

Connectors shall be of the design, construction and physical dimensions specified on the applicable product drawings and shall consider the requirements mentioned on IEC 998-2-1 paragraph 10, relevant to clamping units.

3.2 Materials, Dimensions, Plating and Markings

All of these items are described on the individual drawings.

3.3 Ratings

Voltage rating, current rating, operation temperature and rated screw torque are described on the individual drawings.

3.4 Performance and Test Description

Product is designed to meet the electrical, mechanical and environment performance requirement list in section 3.5.

Unless otherwise specified, all tests shall be performed at ambient environmental conditions per IEC 160.

3.5 Test Requirements and Procedures Summary

| 3.5.1 ELECTRICAL REQUIREMENTS | | |
|--|--|---|
| DESCRIPTION | TEST CONDITION | REQUIREMENT |
| 3.5.1.1 Product Examination | Visual, dimensional and functional | Meet requirements of product drawing. |
| 3.5.1.2 Low Level Contact Resistance | Mated connectors, apply a maximum voltage of 0.2 V between wire pole and terminated terminal. | 20 milliohms maximum. |
| 3.5.1.3 Insulation resistance | IEC 60998-1, paragraph 13e 13.3. Initial 1000Volts DC, or 500Volts DC after environment test applied between two adjacent contact with measurements made 1 minute after the application of the voltage. | 1) 5000 MΩ Min. initial. 2) 5 MΩ minimum after environment test. |
| 3.5.1.4 Dielectric Withstanding Voltage | IEC 60998-1, paragraph 13e 13.4. Apply 1.6K VAC, Test between adjacent contacts of connector assemblies. | No breakdown; Current leakage < 5 mA |

PDS: Rev E

STATUS: Released

Printed: Mar 05, 2012

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| | | | |
|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 6 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

TABLE 1: QUALIFICATION TESTING SEQUENCE for Pluggable Plug


| TEST | PARA | Test Group | | | | | | | |
|-----------------------------------|--------------------|---------------|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H |
| | | Test Sequence | | | | | | | |
| Product examination | 3.5.1.1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| LLCR | 3.5.1.2 | 2 | | | | | | 3 | |
| Insulation Resistance | 3.5.1.3 | 3 | | | 3 | 3 | 3 | 4 | |
| Dielectric withstanding voltage | 3.5.1.4 | 4 | | 4 | 4 | 4 | 4 | | |
| Mating/Un-mating force | 3.5.2.1 3.5.2.2 | | 2 | | | | | | |
| Torque | 3.5.2.5 | | 3 | | | | | | |
| Wire Pull Strength | 3.5.2.4 | | | 2 | | | | | |
| Temperature rise | 3.5.1.5 | | | 3 | | | | | |
| humidity test | 3.5.3.3 | | | | 2 | | | | |
| Heat resistance | 3.5.3.1 | | | | | 2 | | | |
| Cold resistance | 3.5.3.2 | | | | | | 2 | | |
| Salt Spray | 3.5.3.4 | | | | | | | 2 | |
| Fire Test (Glow wire test) | 3.5.3.5 | | | | | | | | 2 |
| Qualification connector per group | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

TABLE 2: QUALIFICATION TESTING SEQUENCE-Pluggable Socket

| TEST | PARA | Test Group | | | | | | | |
|---------------------------------|---------|---------------|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H |
| | | Test Sequence | | | | | | | |
| Product examination | 3.5.1.1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Insulation Resistance | 3.5.1.3 | 2 | | 3 | 3 | 3 | | | |
| Dielectric withstanding voltage | 3.5.1.4 | 3 | | 4 | 4 | 4 | | | |
| Pin Retention (Pull force) | 3.5.2.6 | | 2 | | | | | | |
| Humidity | 3.5.3.3 | | | 2 | | | | | |
| Heat resistance | 3.5.3.1 | | | | 2 | | | | |
| Cold resistance | 3.5.3.2 | | | | | 2 | | | |
| Salt Spray | 3.5.3.4 | | | | | | 2 | | |
| Fire Test (Glow wire test) | 3.5.3.5 | | | | | | | 2 | |
| Solder ability | 3.5.2.7 | | | | | | | | 2 |

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| | | | |
|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 7 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

| | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|
| Qualification connector per group | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|-----------------------------------|---|---|---|---|---|---|---|---|---|

TABLE 3: QUALIFICATION TESTING SEQUENCE-Fixed Plug

| TEST | PARA | Test Group | | | | | | | | | |
|-----------------------------------|---------|---------------|---|---|---|---|---|---|---|---|--|
| | | A | B | C | D | E | F | G | H | J | |
| | | Test Sequence | | | | | | | | | |
| Product examination | 3.5.1.1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| LLCR | 3.5.1.2 | 2 | | | | | | 3 | | | |
| Insulation Resistance | 3.5.1.3 | 3 | | | 3 | 3 | 3 | 4 | | | |
| Dielectric withstanding voltage | 3.5.1.4 | 4 | | 4 | 4 | 4 | 4 | | | | |
| Torque | 3.5.2.5 | | 2 | | | | | | | | |
| Wire Pull Strength | 3.5.2.4 | | | 2 | | | | | | | |
| Temperature rise | 3.5.1.5 | | | 3 | | | | | | | |
| humidity test | 3.5.3.3 | | | | 2 | | | | | | |
| Heat resistance | 3.5.3.1 | | | | | 2 | | | | | |
| Cold resistance | 3.5.3.2 | | | | | | 2 | | | | |
| Salt Spray | 3.5.3.4 | | | | | | | 2 | | | |
| Solder ability | 3.5.2.7 | | | | | | | | 2 | | |
| Fire Test (Glow wire test) | 3.5.3.5 | | | | | | | | | 2 | |
| Qualification connector per group | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |

| | | | |
|--|-------------------------------|---|--------------------------------------|
| NUMBER GS-12-625 | TYPE Product Specification |  | |
| TITLE Terminal block- Plug and Socket, Fixed Plug | | PAGE 8 of 8 | REVISION D |
| | | AUTHORIZED BY Jason Hsu | DATE Nov. 11 th , 2009 |
| | | CLASSIFICATION Unrestricted | |

REVISION RECORD

| REV | PAGE | DESCRIPTION | ECR# | DATE |
|-----|------|---|-----------|-----------------------------|
| A | All | Initial Release | DG09-0204 | Nov 11 th , 2009 |
| B | 3 | 3.5.2.7 solderability test, Temperature change form 260 +/- 5 °C to 250 +/- 10°C | T09-1162 | Dec 17 th , 2009 |
| C | All | Add phase-2 product series | T10-0079 | Jun 15 th , 2010 |
| D | 2 | Add p/n 20020336 | | Jan 31 th , 2010 |

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