



PRODUCT SPECIFICATION

1.0 SCOPE

This specification covers the performance requirements for Milli-Grid 2mm Dual Row Shrouded Headers.

2.0 PRODUCT DESCRIPTION

2.1 Product covered by this specification are for series number

<u>Product Name</u>	<u>Part Number</u>
MGrid Headers (Vertical)	87831 Series
MGrid Headers (SMT)	87832 Series
MGrid Headers (R/A)	87833 Series

These series mate with Molex :

- a. Milli-Grid 2mm Grid Wire to Board Connector, Crimp Receptacle Housing, 51110 series and Crimp Terminal, 50394 series.
- b. 2mm Milli-Grid Dual Row IDT, 87568 series.

2.2 For dimensions, materials & plating, refer to the appropriate product drawings.

2.3 Safety Agency Approvals:

UL File Number : E29179
 CSA File Number : LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents are part of this specification to the extent specified herewith. 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 reference documents, this specification shall take the precedence.

MIL-STD-202	Test Methods for Electrical and Electronic Component Parts.
MIL-STD-1344	Test Methods of Electrical Connector
Reference Product Specifications	
PS-51110-001	Milli-Grid 2mm Grid Wire to Board Connector
PS-87568-004	2mm Milli-Grid Dual Row IDT Receptacle

<u>REVISION:</u> A3	<u>ECR/ECN INFORMATION:</u> EC No: S2014-0174 DATE: 2013/07/18	<u>TITLE:</u> MILLIGRID 2MM DUAL ROW SHROUDED HEADERS	<u>SHEET No.</u> 1 of 4
<u>DOCUMENT NUMBER:</u> PS-87831-027	<u>CREATED / REVISED BY:</u> AT SEE 2013/07/18	<u>CHECKED BY:</u> SK Ang 2013/08/16	<u>APPROVED BY:</u> ML Ong 2013/08/16



PRODUCT SPECIFICATION

4.0 RATINGS

- 4.1 Voltage : 125
- 4.2 Current : 2.00 Amp MAXIMUM
- 4.3 Operating Temperature : -55°C to +105°C
Non-operating Temperature : -55°C to +105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Insulation Resistance	Apply 500 VDC for 1 minute per MIL-STD-1344A, METHOD 3003.1	1000 Megaohms Minimum
2	Dielectric Strength	1000 Vrms for 1 minute between adjacent terminals.	No breakdown

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
3	Pin/ Terminal Retention Force (in Housing)	Apply an axial load on the terminal in the housing to dislodge the terminals from the connector at a rate of 0.50 inch per minute	Retention Force: 850 g Min per pin. (Before heat soldering)

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A3	EC No: S2014-0174 DATE: 2013/07/18	MILLIGRID 2MM DUAL ROW SHROUDED HEADERS	2 of 4
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
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PRODUCT SPECIFICATION

5.3 ENVIROMENT REQUIREMENTS

4.	Solderability	Solder Time: 5 +/-0.5 secs. Solder Temperature: 260+/- 5°C	95% of the immersed area must show no voids, pin holes.
5.	Resistance to Soldering Heat (Through Hole)	Solder tail to be dipped in flux as per MIL-STD-202F method 210 condition B. Solder Temperature: 260 +/- 5°C Solder Time: 10 +/- 1 secs	No damage in appearance of the connector
6.	Resistance to IR reflow heat (SMT)	Pass product through IR machine for 3 cycles of the following reflow profile: Average Ramp Rate 3°C/sec max. Preheat Temp. (Min.) 150°C Preheat Temp. (Max.) 200°C Preheat Time 60 – 180 sec Ramp to Peak 3°C/sec max. Time over liquidus (217°C) 60 – 150 sec Peak Temperature 260 +0/-5°C Time within 5°C of peak 20 – 40 sec. Ramp – Cool Down 6°C/sec max. Time 25°C to Peak 8 mins max.	No damage in appearance of the connector
	<u>Reflow Temperature Profile</u> 		

6.0 Packaging

Product shall be packed in either Tube or Tape & Reel and protected against damage during handling, transportation and storage.

REVISION: A3	ECR/ECN INFORMATION: EC No: S2014-0174 DATE: 2013/07/18	TITLE: MILLIGRID 2MM DUAL ROW SHROUDED HEADERS	SHEET No. 3 of 4
DOCUMENT NUMBER: PS-87831-027	CREATED / REVISED BY: AT SEE 2013/07/18	CHECKED BY: SK Ang 2013/08/16	APPROVED BY: ML Ong 2013/08/16



PRODUCT SPECIFICATION

7.0 Special Instructions for High-temperature Reflow Processing Only

Background

The products covered in this specification are molded with a high-temperature thermoplastic resin that can withstand the effects of elevated temperatures as seen in today's reflow soldering processes. This high temperature resin, like many used in the electronics industry, is hygroscopic in nature, meaning it can absorb/desorb moisture readily.

Depending on the degree of elevated ambient temperature and relative humidity, the connectors may absorb an increased percentage of moisture. This increase in percentage of absorption is also dependent on the exposure time once connectors are removed from the sealed moisture barrier bags. Higher levels of moisture absorption are typically non-detrimental in most situations but when combined with the elevated peak temperatures and dwell times seen in reflow solder processes trapped gasses and moisture can sometimes result in blistering of the plastic housing.

Floor Life

In view of the hygroscopic nature of the resin, proper handling and storage are required if connectors will be processed or exposed to the higher temperatures of reflow soldering. Storage exposure time begins once connectors have been removed from sealed moisture barrier bags. Greater exposure time, storage and processing temperatures, ambient humidity and part geometry are influencing factors. As such, if connectors are used in a reflow soldering environment, it is recommended that upon removal from the moisture barrier bag, they should be consumed within 48 hours with a temperature and humidity level of not more than 30°C and 60% RH respectively. For unused quantity, it is recommended to repack within 24 hours into the moisture barrier bag and vacuum sealed prior to storage for future use.

Precautions and Remedy

To minimize moisture absorption, connectors are supplied in sealed moisture barrier bags with desiccant pouches. It is recommended that the connectors remain sealed in moisture barrier bags until they are ready to be consumed, following the above storage guideline. However, in the event the connectors are removed from the moisture barrier bag and have been exposed to conditions beyond the storage guideline, it is recommended that the connectors to be baked to remove moisture. Exposed connectors may be baked at 125°C for 3 to 5 hours and thereafter, they should be good for reflow soldering.

REVISION: A3	ECR/ECN INFORMATION: EC No: S2014-0174 DATE: 2013/07/18	TITLE: MILLIGRID 2MM DUAL ROW SHROUDED HEADERS	SHEET No. 4 of 4
DOCUMENT NUMBER: PS-87831-027	CREATED / REVISED BY: AT SEE 2013/07/18	CHECKED BY: SK Ang 2013/08/16	APPROVED BY: ML Ong 2013/08/16