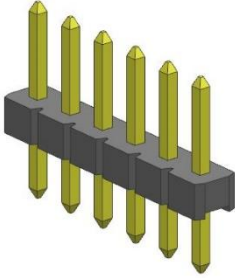


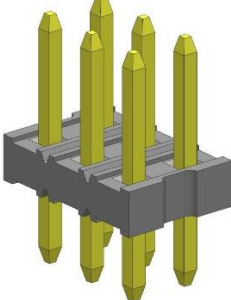


MILLIGRID

Board to Board

CONNECTOR SYSTEM

Vertical Header, Through Hole	Right Angle Header, Through Hole
	
Series: 87752	Series: 87754
PCB Header, Through Hole	Vertical Header, Through Hole
	
Series: 87755	Series: 87758

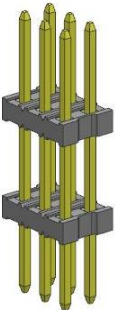
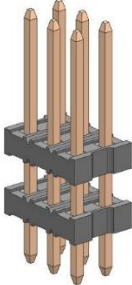
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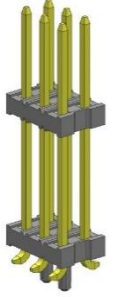
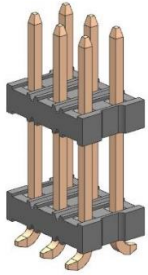
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<small>TEMPLATE FILENAME: 1703070003 REV A</small>						

Vertical Header, Surface Mount	Right Angle Header, Through Hole
	
Series: 87759	Series: 87760

Vertical Header, Through Hole (Gold Plated)	Vertical Header, Through Hole (Tin Plated)
	
Series: 87761	Series: 87761

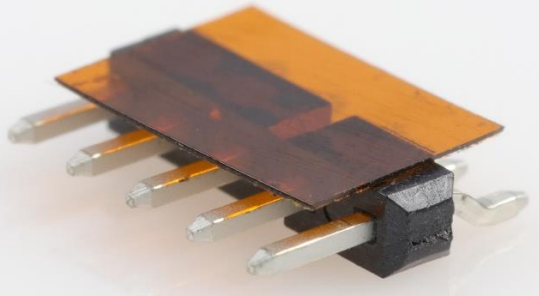
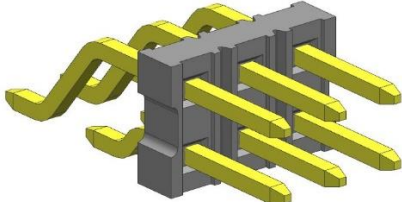
Vertical Header, Surface Mount (Gold Plated)	Vertical Header, Surface Mount (Tin Plated)
	
Series: 87762	Series: 87762

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Vertical Header, Surface Mount	Header, Horizontal Surface Mount
	
Series: 87858	Series: 87979

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1.0 SCOPE

This specification covers the performance requirements for 2 mm Dual Row or Single Row Header (SMT/ Vertical/ Right Angle).

2.0 PRODUCT DESCRIPTION

2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

DESCRIPTION	SERIES NUMBER
Vertical Header, Through Hole	87752
Single Row Single Wafer Header, SMT	87753
Right Angle Header, Through Hole	87754
PCB Header, Through Hole	87755
Single Row Header, Dual Body, SMT	87756
Vertical Header, Through Hole	87758
Vertical Header, surface Mount	87759
Right Angle Header, Through Hole	87760
Vertical Header, Through Hole	87761
Vertical Header, Surface Mount	87762
Header, Edge Mount	87239
Vertical Header, Surface Mount	87858
Header, Horizontal Surface Mount	87979
Custom Header, Dual Row	151003
Custom Header, Single Row	151011
Custom Header, Dual Row Vertical Through Hole	151017
Custom Header, Dual Row Dual Wafer SMT	151033
Custom Header, Single Row Single Wafer TH	151036
Custom Header, Single Row Single Wafer RA	151037
Single Row Single Wafer Header, SMT	151147
Custom Header, Single Row Dual Wafer Vertical TH	151148
Custom Header, Single Row Dual body SMT	151149
Custom Header, Dual Row Single Wafer Vertical TH	151150
Custom Header, Dual Row Single Wafer SMT	151151
Custom Header, Dual Row Single Wafer Horizontal SMT	151152

2.2 DIMENSIONS, MATERIALS, PLATINGS

See sales drawings for details on dimensions, materials and platings.

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2.3 ENVIRONMENTAL CONFORMANCE

To fine product compliance information:

- a. [Go to molex.com](http://molex.com)
- b. Enter the part number in the search field.
- c. At the bottom of the page go to “Environmental” to see compliance status.

2.4 SAFETY AGENCY LISTINGS

UL File Number: UL E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

MilliGrid BMI Connectors Test Summary TS

[MilliGrid BMI Connectors Application Specification 50394-0001-AS](#)

[Molex Solderability Specification SMES-152](#)

[Molex Heat Resistance Specification AS-40000-5013](#)

[Molex Moisture Technical Advisory AS-45499-001](#)

[Molex Package Handling Specification 454990100-PK](#)

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

3.2 INDUSTRY DOCUMENTS

MIL-STD-202

MIL-STD-1344

UL-60950-1

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4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

125 V AC (RMS)/ DC

4.2 CURRENT RATING (MAXIMUM AMPERES)

2.00 Amp

Ratings shown represent MAXIMUM current carrying capacity of a fully loaded connector with all circuits powered in still air. Ratings are based on a 30 °C maximum temperature rise limit over ambient (room temperature). Current rating is application dependent and below charts are intended as a guideline. Appropriate de-rating is required depending on factors such as higher ambient temperature, gross heating from adjacent modules or components and other factors that influence connector performance.

4.3 TEMPERATURE

Operating Temperature Range

: - 55 °C to + 125 °C

5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with EIA-364-1000.

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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Capacitance	Measure between adjacent terminals	1.2 pf max
6.1.2	Insulation Resistance	Test between adjacent contact at 500 V DC for 1 minute, per (MIL-STD-1344 MTD 3001.1)	1000 Megaohms minimum
6.1.3	Dielectric Strength	Test between adjacent contact at 500VAC rms and 1-minute hold time.	No breakdown
6.1.4	Temperature Rise	Apply 2 amps DC to the header and measure contact temperature rise for 48 hours	30 °C maximum temperature rise above ambient.

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6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	Pin Retention Force in Housing	Push pin axially from housing at a rate of 12.7mm/min (0.50 inch/min)	0.85 Kgf min

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6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Solderability	Solder Time: 5 ± 0.5 sec. Solder Temperature: 245 ± 5 °C	Soldertail should have 95% continuous new solder coating coverage (Apply to non-kinked Soldertail only)
6.3.2	Resistance to Soldering Heat (Wave Soldering) For Series a)87760 b)87758, 87830, 87761 c) Other series	Sample mounted on PCB and subject to wave soldering, a) Temperature: 260 ± 5 °C for 12 ± 2 Sec b) Temperature: 260 ± 5 °C for 10+2/-0 Sec c) Temperature: 245 ± 5 °C for 5 Sec	Appearance: No Damage
6.3.3	Resistance to Solder Heat (Reflow) For SMT Series 87753, 87756, 87759, 87760, 87762, 87763, 87858, 87979, 87830	Pass Jack through IR machine for 3 cycles of the following reflow profile: Refer section 7.1	Appearance: No Damage

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Individual Tests

Pin Retention Force in Housing

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TEMPLATE FILENAME: 1703070003 REV A						

7.0 SOLDER INFORMATION

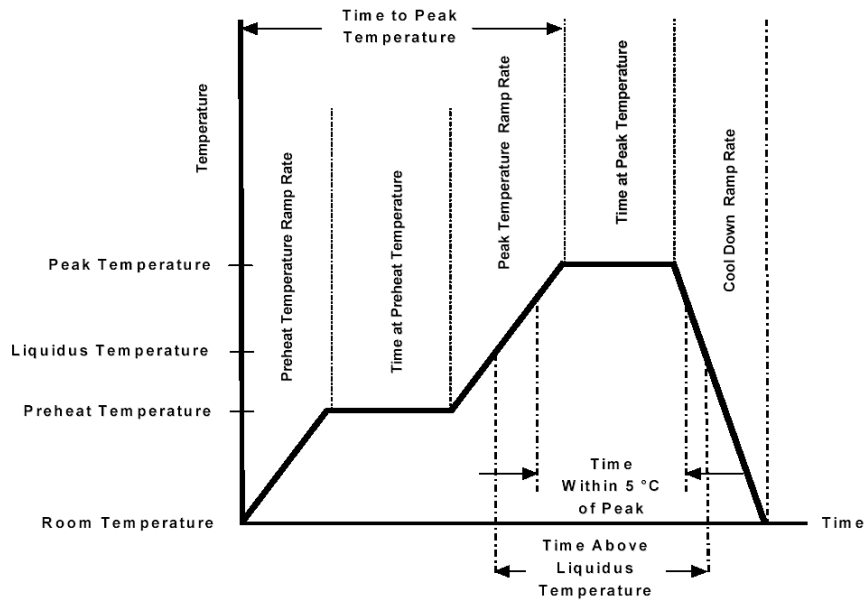
Per SMES-152 and AS-40000-5013

*These specifications establish standard solderability test methods used to evaluate a products ability to accept molten solder. Solder Process Temperatures and Reflow Solder Profiles will vary based on application, equipment, solder paste, PCB thickness, etc.

7.1 REFLOW SOLDERING PROFILE

(This profile is per AS-40000-5013 and is provided as a guideline only. Please see notes for additional information)

[Molex Connector Heat Resistance Specification AS-40000-5013 \(Click Here\)](#)



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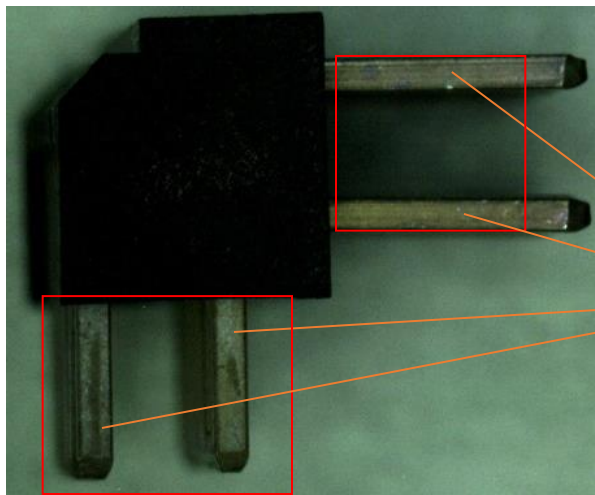
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Description	Requirement
Average Ramp Rate	3°C/sec Max
Preheat Temperature	150°C Min to 200°C Max
Preheat Time	60 to 180 sec
Ramp to Peak	3°C/sec Max
Time over Liquidus (217°C)	60 to 150 sec
Peak Temperature	260 +0/-5°C
Time within 5°C of Peak	20 to 40 sec
Ramp - Cool Down	6°C/sec Max
Time 25°C to Peak	8 min Max

NOTE:- Figure shows 87760 series connector after the reflow soldering.



Tarnish Observed on both tail and contact side, this will have no impact on the electrical performance of the connector

8.0 PACKAGING

Parts shall be packaging to protect the parts from damage during standard shipping, storage, and handling. Refer Molex.com specific part number webpage to get the exact packaging document for that item.

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9.0 SPECIAL INSTRUCTIONS

For High-Temperature Nylon Material packed in MBB reflow processing.

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.

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10.0 POLARIZATION AND KEYING OPTIONS

10.1 VERTICAL HEADER, THROUGH HOLE (Series: [87752](#))



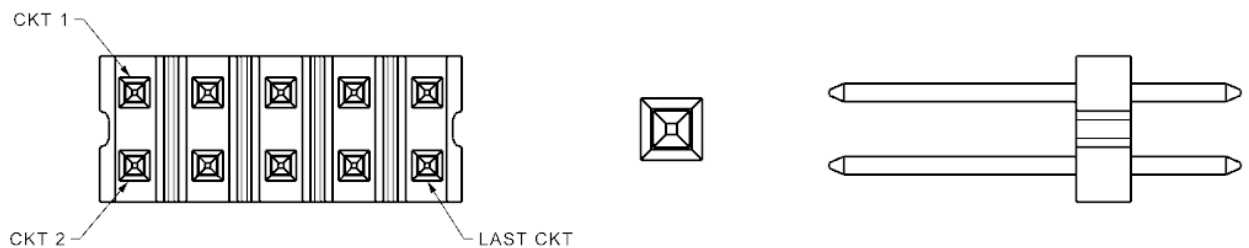
10.2 RIGHT ANGLE HEADER, THROUGH HOLE (Series: [87754](#))



10.3 PCB HEADER, THROUGH HOLE (Series: [87755](#))



10.4 VERTICAL HEADER, THROUGH HOLE (Series: [87758](#))



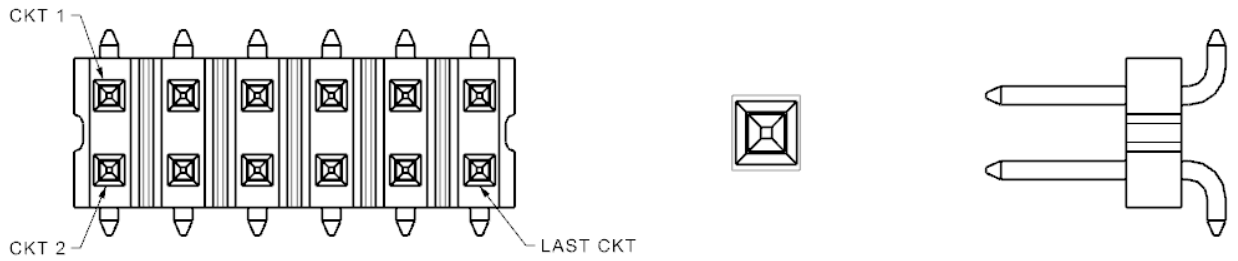
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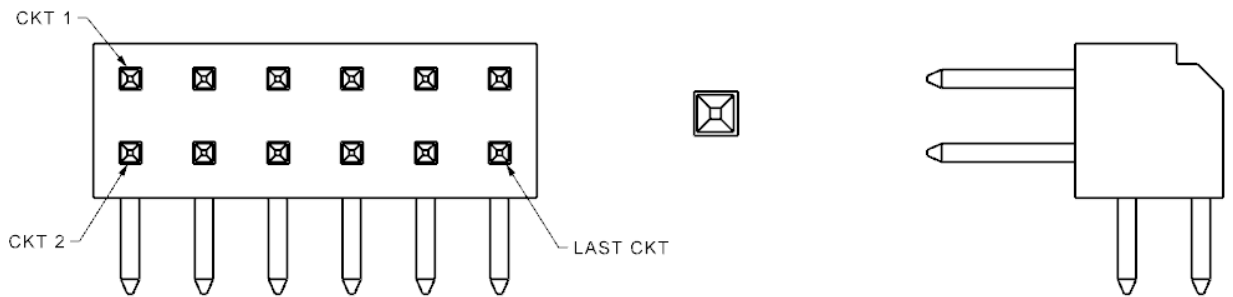


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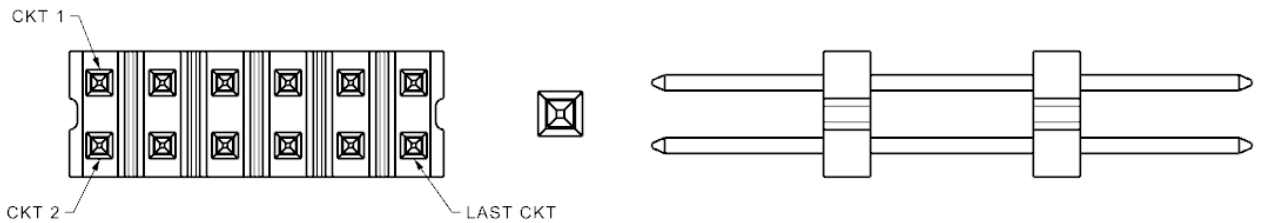
10.5 VERTICAL HEADER, SURFACE MOUNT (Series: [87759](#))



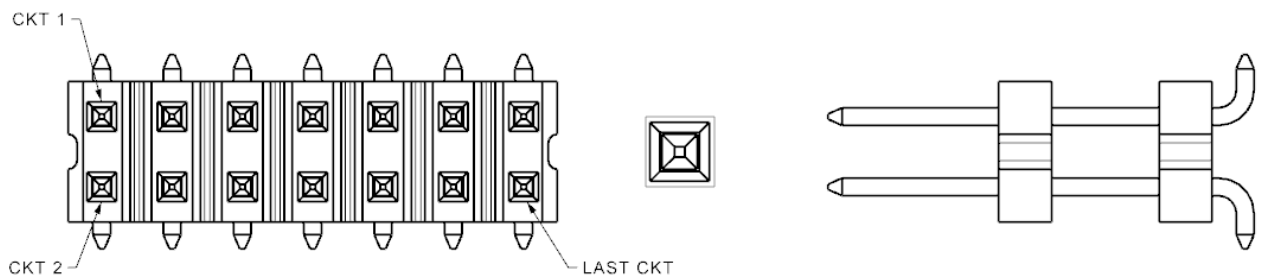
10.6 RIGHT ANGLE HEADER, THROUGH HOLE (Series: [87760](#))



10.7 VERTICAL HEADER, THROUGH HOLE (Series: [87761](#))



10.8 VERTICAL HEADER, SURFACE MOUNT (Series: [87762](#))



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10.9 VERTICAL HEADER, SURFACE MOUNT (Series: [87858](#))



10.10 HEADER, HORIZONTAL SURFACE MOUNT (Series: [87979](#))



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