



# PRODUCT SPECIFICATION

## 1.50mm PITCH, WIRE-TO-BOARD SMT HEADER AND RECEPTACLE

### 1.0 SCOPE

This specification covers the performance requirement for a 1.50mm Pitch, Wire-To-Board Header and Receptacle System.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

<u>Part Numbers</u>	<u>Description</u>
87437	Vertical SMT Header
87438	Right-Angle SMT Header
87439	Receptacle Housing
87421	Receptacle Crimp Terminals

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate Sales drawing for information on dimensions, materials, plating and markings, recommended module outlines and footprint specifications.

#### 2.3 SAFETY AGENCY APPROVALS

UL File Number:	E29179 Vol.10
CSA File Number:	LR 19980-367

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents are part of this specification between the requirements of this specification herewith. In the event of conflict between the requirements of this specification and the product drawings, the product drawings shall take precedence.  
In the event of conflict between the requirements of this specification and reference documents, this specification shall take precedence.

MIL-STD-202	Test Methods for Electrical and Electronic Component Parts
EIA Standards	Electrical Connector Test Procedure
MIL-STD-1344	Test Methods of Electrical Connector

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<u>DOCUMENT NUMBER:</u> <b>PS-87437</b>	<u>CREATED / REVISED BY:</u> GMENARLY/CWLAM 2010/06/03	<u>CHECKED BY:</u> LSLEE 2010/06/03	<u>APPROVED BY:</u> N.UKITA 2010/06/03



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## 4.0 RATINGS

4.1 Voltage rating: 250 VAC Maximum

4.2 Current rating: - AWG # 24 - 2.5A Maximum  
- AWG # 26 - 2A Maximum  
- AWG # 28 - 1.5A Maximum  
- AWG # 30 - 1.5A Maximum

4.3 Operating Temperature: -55°C to +105°C

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance	Measure Contact Resistance by 10mAmp DC, open circuit voltage 20mV. Per MIL-STD-1344A, Method 3004.1	20mohms Maximum (Initial) 40mohms Maximum (After 10X durability, mechanical and/ or environmental test)
2	Insulation Resistance	Measurement taken between adjacent contacts where 500 VDC is applied. Per MIL-STD-202F, Method 302)	1000 Mega ohms Minimum
3	Dielectric Strength	Receptacle subjected to 500 VAC rms for 1 minute between adjacent contacts. Per MIL-STD-202F, Method 301)	No breakdown.

### 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	Wire Crimping Strength	Pull wire axially from crimp terminal at a rate of 12.7mm per minute	Refer to Crimp specification CS-87421
5	Crimp Terminal Pull Strength	Pull crimp terminal axially from receptacle housing at a rate of 12.7mm per minute	1.0 KG Minimum

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## 5.2 MECHANICAL REQUIREMENTS (Continue)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.	Single Extraction Force	Gauge dimension is 0.37±0.005, withdraw crimp terminal from gauge at a rate of 12.7mm per minute	30g Minimum (Initial) 25g Minimum (After 10X)
7.	Total Insertion Force	Insert connectors at a rate of 12.7mm per minute	2P 2.5KG Max 3P 3.0KG Max 4P 3.5KG Max 5P 4.0KG Max 6P 4.5KG Max 7P 5.0KG Max 8P 5.5KG Max 9P 5.5KG Max 10P 6.0KG Max 11P 6.0KG Max 12P 6.5KG Max 13P 6.5KG Max 14P 7.0KG Max 15P 7.0KG Max
8.	Total Extraction Force	Withdraw connectors at a rate of 12.7mm per minute	2P 1.0-3.0KG 3P 1.0-3.5KG 4P 1.0-4.0KG 5P 1.0-4.5KG 6P 1.0-5.0KG 7P 1.0-5.0KG 8P 1.5-5.5KG 9P 1.5-5.5KG 10P 1.5-6.0KG 11P 1.5-6.0KG 12P 1.5-6.5KG 13P 1.5-6.5KG 14P 1.5-7.0KG 15P 1.5-7.0KG
9.	Total Extraction Force (After 10X durability, SMT preconditioning, and/or moisture resistance test)	Withdraw connectors at a rate of 12.7mm per minute	2P 0.6-2.5KG 3P 0.6-3.0KG 4P 0.6-3.5KG 5P 0.8-4.0KG 6P 0.8-4.5KG 7P 0.8-4.5KG 8P 1.0-5.0KG 9P 1.0-5.0KG 10P 1.0-5.5KG 11P 1.0-5.5KG 12P 1.0-6.0KG 13P 1.0-6.0KG 14P 1.0-7.0KG 15P 1.0-7.0KG

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## 5.2 MECHANICAL REQUIREMENTS (Continue)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
10.	<b>Pick-and-Place Cap Retention Force (applicable to 87437-**63 or 87437-**73)</b>	Apply a pull-out force normal to the top of the cap at a rate of 12.7mm per minutes.	50g Minimum Retention initial and after Reflow (1 cycle)
11.	<b>Pin Retention force (to housing)</b>	Push header pin axially from housing at a rate of 12.7mm per minute.	1.0KG Minimum after IR

## 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
12.	<b>Thermal Life (Mated Connectors)</b>	Parts to be subjected to 105°C in a chamber for 168 hours.	1. Contact resistance: 40 mohms Maximum 2. Appearance: No damage
13.	<b>Thermal Shock (Mated Connectors)</b>	Parts to be subjected to 2 hours of -55°C and 2 hours of 105°C for 10 cycles.	Similar to Thermal Life.
14.	<b>Moisture Resistance (Mated Connectors)</b>	Parts to be subjected to 85°C and 85% RH for a period of 168 hours.	Similar to Thermal Life.
15.	<b>Solderability</b>	Immersion in molten solder at 245 ± 5°C for 5 seconds	Soldered area should be 95% or more.
16.	<b>Resistance to soldering Heat</b>	Reflow by Manual Soldering iron) Using a soldering iron (310±10 degrees C for 5 seconds) heat up the area 0.2mm from the tip of the solder tails However, do not apply excessive pressure to the terminals	No damage in appearance of the connector

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17.	<b>Resistance to IR reflow heat (SMT)</b>	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.	Similar to Thermal Life Total Insertion and extraction force as per section 5.2 Plating thickness as per drawing  No damage in appearance of the connector
	<b><u>Reflow Temperature Profile</u></b>		

## 6.0 Packaging

Product shall be packaged and protected against damage during handling, transit and storage.

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