

# **.084/(2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES**

(HOT TIN PLATED TERMINALS ONLY)

Terminal Pin	Terminal Socket
	
Series: <a href="#">42023</a>	Series: <a href="#">42024</a>

Pin Header Assembly	Socket Header Assembly
	
Series: <a href="#">42002</a>	Series: <a href="#">42002</a>

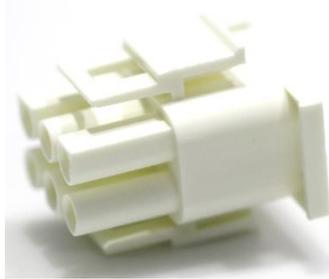
[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>1 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>		DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>

**Housing Plug**



Series: [42021](#)

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>2 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## Table of Contents

<u>ITEMS</u>	<u>PAGE</u>
1.0 SCOPE .....	4
2.0 PRODUCT DESCRIPTION .....	4
2.1 DESCRIPTION, SERIES NUMBER, AND LINKS .....	4
2.2 DIMENSIONS, MATERIALS, PLATINGS .....	4
2.3 ENVIRONMENTAL CONFORMANCE .....	4
2.4 SAFETY AGENCY LISTINGS .....	4
2.5 PRINTED CIRCUIT BOARD .....	5
3.0 APPLICABLE DOCUMENTS AND SPECIFICATION .....	5
3.1 MOLEX DOCUMENTS .....	5
3.2 INDUSTRY DOCUMENTS .....	5
4.0 ELECTRICAL PERFORMANCE RATINGS .....	6
4.1 VOLTAGE .....	6
4.2 MAXIMUM CURRENT RATING .....	6
4.3 TEMPERATURE .....	6
4.4 DURABILITY .....	6
5.0 QUALIFICATION .....	6
6.0 PERFORMANCE .....	7
6.1 ELECTRICAL PERFORMANCE .....	7
6.2 MECHANICAL PERFORMANCE .....	8
6.3 ENVIRONMENTAL PERFORMANCE .....	9
7.0 SOLDER INFORMATION .....	11
7.1 SOLDER PROCESS TEMPERATURES .....	11
7.2 REFLOW SOLDERING PROFILE .....	11
8.0 PACKAGING .....	12
9.0 CABLE TIE AND / OR TWIST TIE LOCATION .....	13
10.0 POLARIZATION AND KEYING OPTIONS .....	14

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: <b>621730</b> DATE: <b>8/6/2019</b>	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>3 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 1.0 SCOPE

This specification covers the .250-inch ( 6.35mm) centerline tin plated printed circuit board connector series.

## 2.0 PRODUCT DESCRIPTION

### 2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

DESCRIPTION	SERIES NUMBER
Terminal Socket	42024-A1*
Terminal Pin	42023-1A1*
Socket Header Assembly, 2 circuit	A-42002-2*1A*
Socket Header Assembly, 3 circuit	A-42002-3*1A*
Socket Header Assembly, 4 circuit	A-42002-4*1A*
Socket Header Assembly, 6 circuit	A-42002-6*1A*
Socket Header Assembly, 9 circuit	A-42002-9*1A*
Socket Header Assembly, 12 circuit	A-42002-12*1A*
Socket Header Assembly, 15 circuit	A-42002-15*1A*
Housing Plug	42021-*
Pin Header Assembly, 2 circuit	A-42002-2*1A*
Pin Header Assembly, 3 circuit	A-42002-3*1A*
Pin Header Assembly, 4 circuit	A-42002-4*1A*
Pin Header Assembly, 6 circuit	A-42002-6*1A*
Pin Header Assembly, 9 circuit	A-42002-9*1A*
Pin Header Assembly, 12 circuit	A-42002-12*1A*
Pin Header Assembly, 15 circuit	A-42002-15*1A*

### 2.2 DIMENSIONS, MATERIALS, PLATINGS

Dimensions & Plating: See individual sales drawings.

### 2.3 ENVIRONMENTAL CONFORMANCE

To find product compliance information:

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

### 2.4 SAFETY AGENCY LISTINGS

UL File Number: Applied for  
CSA File Number LR: Applied for

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>4 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 2.5 PRINTED CIRCUIT BOARD

Solder Tail Length:

1. For a .062 / (1.57) thick board, the .17 / (4.3) solder tail length is recommended.
2. For a .125 / (3.18) thick board, the .23 / (4.3) solder tail length is recommended.

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

### 3.1 MOLEX DOCUMENTS

[Molex Quality Crimping Handbook Order No. 63800-0029](#)

[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](#)

ATS – Application Tooling Specification\*

*\*Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com*

### 3.2 INDUSTRY DOCUMENTS

UL-606950-1

CSA STD. C22.2 No. 182.3-M1987

MIL- STD-1344

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>5 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 4.0 ELECTRICAL PERFORMANCE RATINGS

It is standard practice in the industry to rate header connector systems the same as in-line connector systems. All the below listed ratings & tests are valid, but it is possible that certain practices and materials of printed circuit board technology will undermine the below listed values, and as such are out of our control. It's the responsibility of the end user to determine the suitability of these products for the application.

### 4.1 VOLTAGE

600 Volts

### 4.2 MAXIMUM CURRENT RATING

2, 3 and 4 Circuit – 12.0 Amps Maximum  
6, 9, 12 and 15 Circuit – 9.0 Amps Maximum

### 4.3 TEMPERATURE

Operating Temperature Range (includes T-Rise from applied current): - 55°C to + 105°C

### 4.4 DURABILITY

Plating Type	Number of Cycles
Tin Plated	50

*As tested in accordance with MIL-STD-1344 test method (see sec 6.2.3 of this specification). Durability per MIL-STD-1344A METHOD 2016*

## 5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with MIL-STD-1344.

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>6 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 6.0 PERFORMANCE

### 6.1 ELECTRICAL PERFORMANCE (HOT TIN PLATED TERMINALS ONLY)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Contact Resistance (low level)	Mate connectors with a maximum voltage of 20mV and a current of 100mA. (MIL-STD-1344A METHOD 3004.1)	2.5 milliohms Maximum (Initial)
6.1.2	Insulation Resistance	Mate connectors with a voltage of 500 VDC between adjacent terminals (MIL-STD-1344A METHOD 3003.1).	1000 Megohms Min. (Initial)
6.1.3	Dielectric Strength	Mate connectors with a voltage of 2900 VAC for 1 minute between adjacent terminals. (MIL-STD-1344A METHOD 3001.1)	No breakdown

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>.084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>7 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 6.2 MECHANICAL PERFORMANCE (HOT TIN PLTAEED TERMINALS ONLY)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	Connector Insertion and Withdrawal	Insert and withdraw connectors at a rate of 0.5 inches per minute (12.7 mm per minute) (MIL-STD-1344A METTHOD 2013.1)	3.0 Max. Insertion 0.5 Min. Withdrawal (per terminal initial)
6.2.2	Retention Force in Housing	Axial pull out force on the terminal in the housing at a rate of .5 inches per minute (12.7 mm per minute) (MIL-STD-1344A METHOD 2010.1)	4 lbf minimum
6.2.3	Durability	Mate connectors up to 50 cycles at a maximum rate of 5 cycles per minute (MIL-STD-1344A METHOD 2016)	2.6 milliohm Max
6.2.4	Vibration	Amplitude: .060" (1.5 mm) peak to peak Sweep: 10-55-10 Hertz in one minute Duration: 2 hours in each X-Y-Z axis (MIL-STD-1344A METHOD 2005.1) (TEST CONDITION I)	Appearance: No Damage Contact Resistance: 5.0 milliohm Maximum Discontinuity: 1 microsecond maximum
6.2.5	Mechanical Shock	50 G's with three shocks in each X-Y-Z axis (MIL-STD-1344A METHOD 2004.1) (TEST CONDITION A)	Appearance: No Damage Contact Resistance: 6.0 milliohm Maximum Discontinuity: 1 microsecond Maximum

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>.084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIESFOR .084/(2.13)DIAMETER SERIES,</b>	SHEET No. <b>8 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 6.3 ENVIRONMENTAL PERFORMANCE (HOT TIN PLATED TERMINALS ONLY)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Thermal Shock	Mate connectors, expose to 25 cycles of: -55 +0/-3 °C for 30 minutes +85 +3/0 °C for 30 minutes (MIL-STD-1344A METHOD 1003.1) (TEST CONDITION A-1)	Appearance: No damage Contact Res: 12.0 milliohm Maximum  Dielectric strength: 2900 Vac for 1 minute
6.3.2	Humidity-temperature cycling	Mate connectors, expose to a temperature – humidity cycling between 25 °C and 65 °C at 95% Rh, -10 °C with humidity not controlled (MIL-STD-1344A METHOD 1002.1) (TYPE II)	Appearance: No damage Contact Res. = 6.0 m Ohm max Dielectric strength: 5000 VAC for 1-minute Insulation Resistance: 100 Megohms min.
6.3.3	Salt spray	Expose unmated connector assemblies to a salt spray concentration of 5% at 35 °C for 48hours (MIL-STD-1344A METHOD 1001.1)	7.00 milliohm maximum Dielectric Strength: 5000 VAC for 1 minute
6.3.4	Thermal Aging	Mate connectors exposed for 96 hours at 105 +/- 2° C (MIL-STD-1344A METHOD 1005.1) (TEST CONDITION 4) (TEST TIME CONDITION A)	Appearance: No Damage Contact Resistance: 10 milliohm Maximum
6.3.5	Solderability	Solder Time: 3 +/- 0.5 seconds Solder temperature: 230 +/- 5° C	95% of immersed area must show no voids, pin holes etc.
6.3.6	Resistance to Solder Heats	Solder Time: 3 +/- 0.5 seconds Solder temperature: 260 +/- 5° C	Appearance: No Damage

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: <b>621730</b> DATE: <b>8/6/2019</b>	TITLE: <b>.084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>9 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

**Individual Tests**

Connector Insertion /  
withdrawal Force

Retention force in housing

[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: <b>621730</b> DATE: <b>8/6/2019</b>	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13)DIAMETER SERIES,</b>				SHEET No. <b>10 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 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.

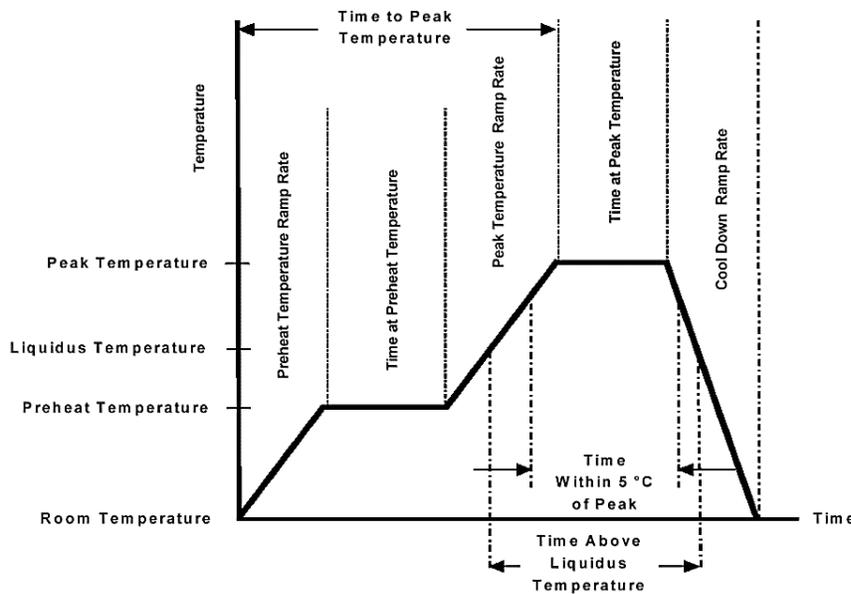
### 7.1 SOLDER PROCESS TEMPERATURES \*

Wave Solder Temperature: 230 ± 5°C Maximum  
 Reflow Solder Temperature: 260 ± 5°C Maximum

[Molex Solderability Specification SMES-152 \(Click Here\)](#)

### 7.2 REFLOW SOLDERING PROFILE \*

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



[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>11 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

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

## 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.

[MLX Connectors Web Page](#)

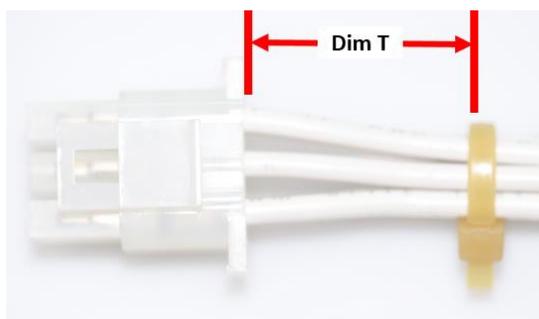
[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>				SHEET No. <b>12 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

## 9.0 CABLE TIE AND / OR TWIST TIE LOCATION

CKT Size	Dim T Min.
2	22.18
3	32.27
4	42.35
6	22.18
9	32.27
12	42.23
15	52.31



The “T” dimension defines a “free” length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

[MLX Connectors Web Page](#)

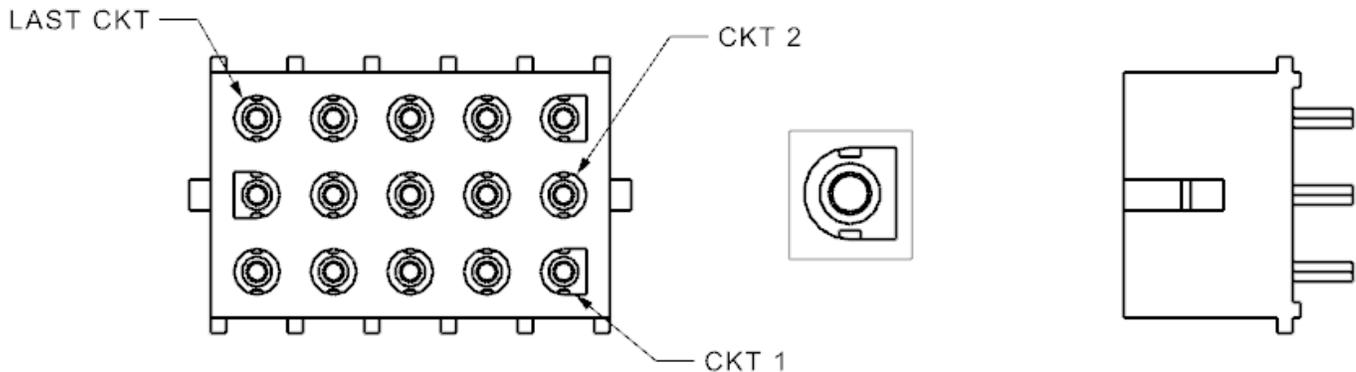
[TABLE OF CONTENTS](#)



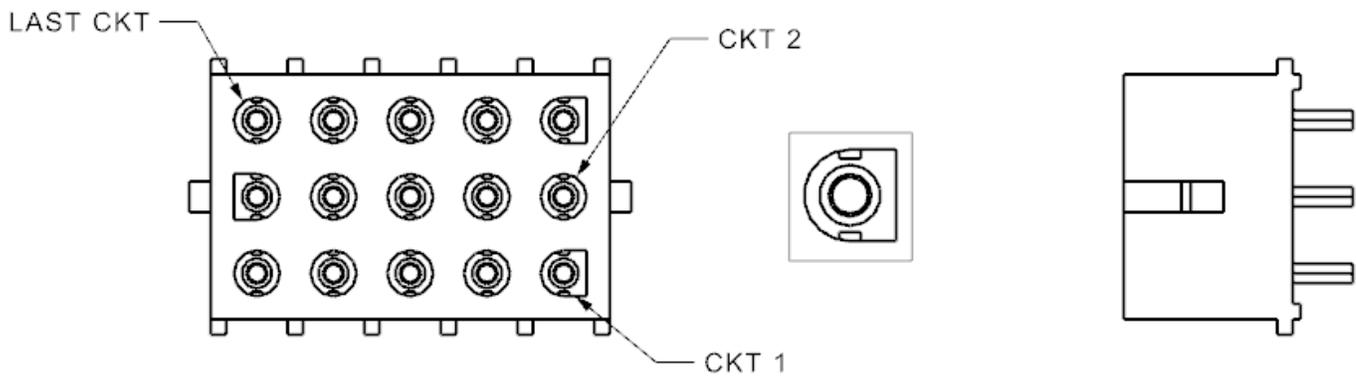
REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>13 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	

**10.0 POLARIZATION AND KEYING OPTIONS**

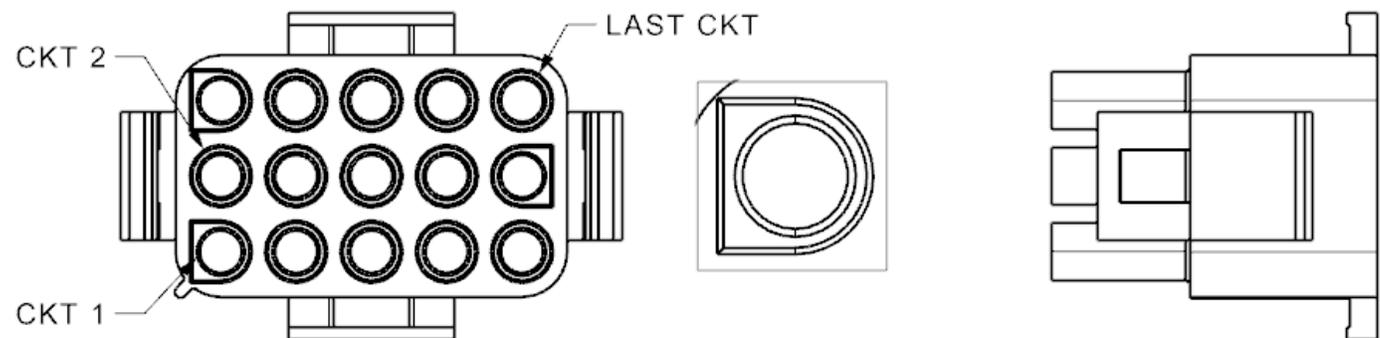
**10.1 Socket header Assembly (Series: [42002](#))**



**10.2 Pin Header Assembly (Series: [42002](#))**



**10.3 Housing Plug (Series: [42021](#))**



[MLX Connectors Web Page](#)

[TABLE OF CONTENTS](#)



REVISION: <b>A</b>	ECM INFORMATION: EC No: 621730 DATE: 8/6/2019	TITLE: <b>PRODUCT SPECIFICATION FOR .084/ (2.13) DIAMETER SERIES PIN AND SOCKET HEADER ASSEMBLIES FOR .084/(2.13) DIAMETER SERIES,</b>	SHEET No. <b>14 of 14</b>
DOCUMENT NUMBER: <b>PSX-42002-0001</b>	DOC TYPE: <b>PS</b>	DOC PART: <b>001</b>	CREATED / REVISED BY: <b>MBN02</b>
	CHECKED BY: <b>SMAHAJANSHET</b>	APPROVED BY: <b>NCSR</b>	