KAG-Nummer 11061751
Molex 511100850 (8-polig)
H17696, 11.08.22, Ra.

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PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION

Part Number: 0511100850
Status: Active
Overview: Milli-Grid Connector System
Description: 2.00mm Pitch, Milli-Grid Receptacle Housing, 8 Circuits, without Center Polarization Key, without Locking Ramp, Lead-Free

Series image - Reference only

Documents:

3D Model	Application Specification 503940001-AS-000 (PDF)
Drawing (PDF)	Packaging Specification PK-51110-300-001 (PDF)
3D Model (PDF)	Brochure (PDF)
Product Specification PS-51110-001-001 (PDF)	RoHS Certificate of Compliance (PDF)

Agency Certification

CSA	LR19980
UL	E29179

Application tooling part link

Application Tooling Part Link	63824-2800

General

Product Family	Crimp Housings
Series	51110
Application	Signal, Wire-to-Board
Comments	Applicable Wire Ranges: 24-30 AWG (series 50394 terminal) and 22-28 AWG (series 87396 terminal)
Overview	Milli-Grid Connector System
Product Name	Milli-Grid
UPC	800753748361

Physical

Circuits (maximum)	8
Color - Resin	Black
Flammability	94V-0
Gender	Receptacle
Glow-Wire Capable	No
Keying to Mating Part	None
Lock to Mating Part	Yes
Material - Resin	Polyester
Net Weight	0.164/g
Number of Rows	2
Packaging Type	Bag
Panel Mount	No
Pitch - Mating Interface	2.00mm
Pitch - Termination Interface	2.00mm
Polarized to Mating Part	Yes
Stackable	No
Temperature Range - Operating	-40° to +105°C

Material Info

Reference - Drawing Numbers

Application Specification	503940001-AS-000
Packaging Specification	PK-51110-300-001
Product Specification	PS-51110-001-001

EU ELV
Not Relevant

EU RoHS | **China RoHS**
Compliant

REACH SVHC
Not Contained Per - D(2022)4187-DC (10 June 2022)

Halogen-Free Status
Not Low-Halogen

For more information, please visit Contact US

China ROHS	Green Image
ELV	Not Relevant
RoHS Phthalates	Not Contained

Search Parts in this Series
51110 Series

Mates With
Milli-Grid Headers 87758 , 87759 , 87760 , 87831 , 87832
Milli-Grid BMI Header 151013
Milli-Grid Low-Halogen Headers 151117 , 151118 , 151119 , 151120

Use With
Milli-Grid Crimp Terminals 50394 , 87396
 Milli-Grid Pre-Crimped Leads 797581095 , 797581096

Application Tooling | FAQ
Tooling specifications and manuals are found by selecting the products below. Crimp Height Specifications are then contained in the Application Tooling Specification document.
Global

Description	Product #

Extractor Tool for Milli-Grid 2.0 Housings	638242800

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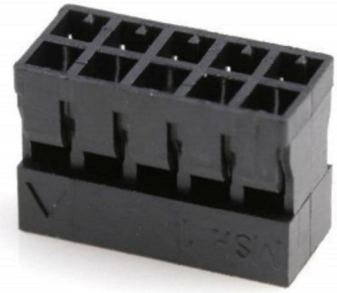
PRODUCT SPECIFICATION

MILLIGRID

Wire to Board

CONNECTOR SYSTEM

Crimp Terminal	Crimp Receptacle Housing with Polarization
	
Series: 50394	Series: 51110

Crimp Receptacle Housing w/o Polarization

Series: 51110

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1.0 SCOPE

This Product Specification covers the performance requirement for the Milli-Grid 2 mm Grid Wire to Board Connector terminated with 24 to 30 AWG wire using Crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

DESCRIPTION	SERIES NUMBER
Crimp Terminal	50394
Crimp Receptacle Housing	51110

2.2 DIMENSIONS, MATERIALS, PLATINGS

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

2.3 ENVIRONMENTAL CONFORMANCE

To fine product compliance information:
a. Go to 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 Number: E29179
CSA Number: 1585720 (LR19980)

C US

CSA approval meets following standards/test procedures:

a) CSA std. C22.2 No. 182.3-M1987
b) UL-1977

* “C” and “US” mark adjacent to CSA signifies that the product has been evaluated to the applicable CSA and ANSI/UL standards, for use in Canada and US respectively.

Series 51110, rated 2.0 A (No. 24 AWG), 125 V

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

MilliGrid W-T-B Connectors Test Summary TS
MilliGrid W-T-B Connectors Application Specification 503940001-AS
Molex Quality Crimping Handbook Order No. 63800-0029
Molex Moisture Technical Advisory AS-45499-001
Molex Package Handling Specification 454990100-PK
ATS-Application Tooling Specification *

**Application tooling Specification differs with Terminals. ATS shall be available in the respective Terminal part number page.*

3.2 INDUSTRY DOCUMENTS

UL-60950-1
UL-1977
CSA STD. C22.2 NO. 182.3-M1987

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

125 V AC (rms) / DC

4.2 APPLICABLE WIRES

Wire Gage(Stranded copper)	Insulation O.D.
AWG#24 – AWG#30	1.4 mm dia. Max.

4.3 CURRENT RATING (MAXIMUM AMPERES)

AWG	Single Ckt	Fully Loaded (50 Ckts)
#24	6.00 A	2.40 A
#26	5.40 A	2.20 A
#28	5.00 A	2.00 A
#30	4.40 A	1.80 A

Current rating is application dependent and each application should be evaluated by the end user for compliance to specific safety agency requirements. The ratings listed in the chart below are per Molex test method based on a 30 °C maximum temperature rise over ambient temperature and are provided as a guideline. Appropriate de-rating is required based on circuit size, ambient temperature, copper trace size on the PCB, gross heating from adjacent modules/components and other factors that influence connector performance. Wire size, insulation thickness, stranding, tin coated or bare copper, wire length & crimp quality are other factors that influence current rating.

4.4 TEMPERATURE

Operating Temperature Range : - 40 °C to + 105 °C
Non-Operating Temperature Range: : - 55 °C to + 105 °C

Note: Temperature life test duration (section 6.3. item 1) is based on the assumption that the contact spends its entire life at the rated field maximum temperature (based on EIA-364-1000, table 8).

5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with MIL-STD-202.

6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Contact Resistance	Mate connectors, measure by dry circuit, 20 mV MAX., 10 mA (based upon JIS C5402 5.4).	40 mohm MAX.
6.1.2	Insulation Resistance	Mate connectors, apply 500 V (rms) AC for 1 minute between adjacent terminal or ground (based upon JIS C5402 5.1/ MIL-STD-202 Method 301).	1000 Mohms Min.
6.1.3	Dielectric Strength	Mate connectors, apply 500 V(rms) AC for 1 minute between adjacent terminal or ground (based upon JIS C5402 5.1/ MIL-STD-202 Method 301).	No breakdown
6.1.4	Contact Resistance on Crimped Portion	Crimp the applicable wire onto the terminal, measure by dry circuit, 20 mV MAX., 10 mA.	5 mohm MAX.
6.1.5	Temperature Rise	Mate connectors and measure the temperature rise of contact when the maximum DC rated current is passed.	Temperature: 30 °C Max.

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	Mating and Unmating Force	Mating and Unmating connectors at a rate of 25 +/ -3 mm/min.	Mating force: 1.96 N / CKT MAX. Unmating force: 0.392 N / CKT Min.
6.2.2	Crimp Terminal Insertion Force	Insertion the crimped terminal into the housing.	9.8 N MAX.
6.2.3	Crimp Terminal Housing Retention Force	Apply axial pull out force at a rate of 25 mm/min. on the terminal assembled in the housing.	9.8 N MIN.
6.2.4	Crimping Pull Out Force	Fix the crimped terminal, Apply axial pull out force on the Wire at the speed rate of 25 mm/min. (based on JIS C5402 6.8)	AWG#24 = 29.4 MIN. AWG#26 = 19.6 MIN. AWG#28 = 9.8 MIN. AWG#30 = 4.9 MIN. (all in Newtons)
6.2.5	Repeated Mate / Unmate	When Mate / unmate up to 50 cycles repeatedly at a rate of 10 cycles / min.	Contact Resistance: 60 mohms Max.
6.2.6	Vibration	Mate connectors and subject to the following vibration conditions, for a period of two hours in each 3 mutually perpendicular axis, passing DC 1 mA current during the test. Amplitude: 1.5 mm p-p Frequency: 10-55-10 Hz. Shall be transversed on 1 minute (based on MIL-STD-202 Method 201A)	Appearance: No damage Contact resistance: 60 mohm Max. Discontinuity: 1.0 μs MAX.
6.2.7	Shock	Mate connectors and subject to the following shock conditions, 3 shocks shall be applied along 3 mutually perpendicular axis, passing DC 1 mA current during the test. (Total of 18 shocks) Test pulse : Half Sine Peak value: 490 m/s sq. (50G) Duration : 11 ms (based on JIS C0041 MIL-STD-202 Method 213B Cond. A)	Appearance: No damage. Contact Resistance: 60 mohm Max. Discontinuity: 1.0 μs Max.

6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Heat Resistance	Mate connector and expose to 85+/-2 °C for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (based on JIS C0021 / MIL-STD-202 Method 108A Cond. A)	Appearance: No damage. Contact Resistance: 60 mohm Max.
6.3.2	Cold Resistance	Mate connector and expose to –55+/-3 °C for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed (based on JIS C0020)	Appearance: No damage. Contact Resistance: 60 mohm Max.
6.3.3	Humidity	Mate connector and expose to 60+/-2 °C, relative humidity 90-95% for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (based on JIS C0022 / MIL-STD-202 Method 103B Cond. B).	Appearance: No damage. Contact Resistance: 60 mohm Max. Dielectric Strength: Must meet 6.1.3 Insulation Resistance: 100 Mohm Min.
6.3.4	Temperature Cycling	Mate connectors and subject to the following conditions for 5 cycles. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 1 cycle: a) –55+/-3 °C 30 min. b) +105+/-2 °C 30 min. (Transit time shall be within 5 minutes; JIS C0025)	Appearance: No damage. Contact Resistance: 60 mohm Max.

6.3 ENVIRONMENTAL PERFORMANCE CONTINUED

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.5	Salt Spray	Mate connectors and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dipped in the running water, after which the specified measurements shall be performed. NaCl solution concentration: 5+/-1% Spray time: 48+/-4 hours Ambient Temperature: 35 +/- 2 °C (based on JIS C5028 / MIL-STD-202 Method 101D Condition B).	Appearance: No damage. Contact Resistance: 60 mohm Max.
6.3.6	S02 Gas	Mate connectors and expose to 50+/-5 ppm $S0_2$ gas, ambient temperature 40+/-2 °C for 24 hours.	Appearance: No damage. Contact Resistance: 60 mohms Max.

Individual Tests
Mating & Unmating Force
Crimp Terminal Insertion Force
Crimp Terminal Retention Force
Crimping Pull Out Force
Repeated Mate / Unmate

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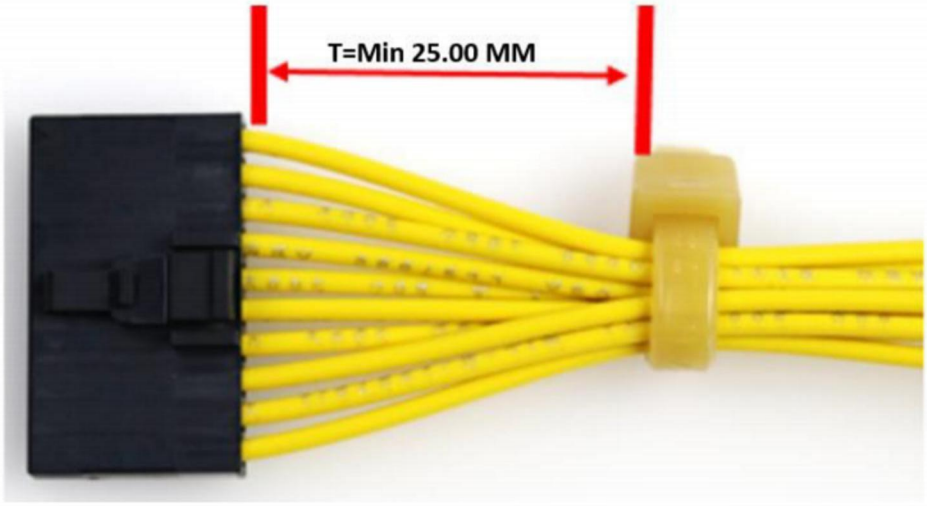
7.0 PACKAGING

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

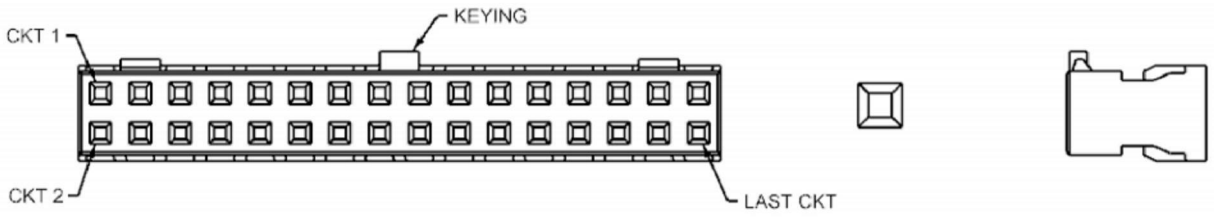
8.0 CABLE TIE AND / OR TWIST TIE LOCATION



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.

9.0 POLARIZATION AND KEYING OPTIONS

9.1 RECEPTACLE HOUSING (Series: 51110)



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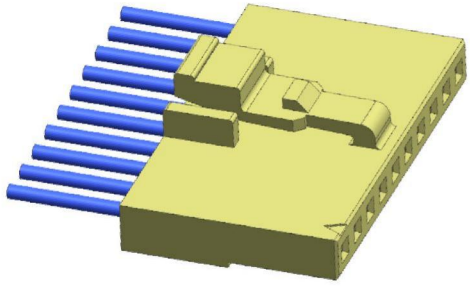
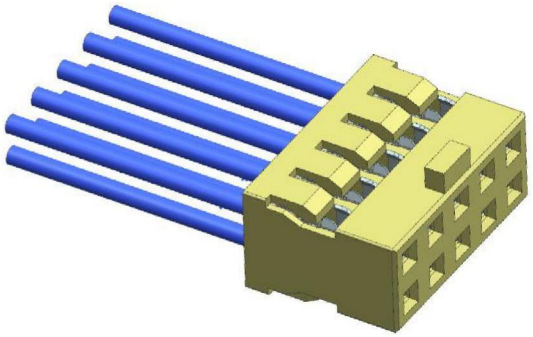
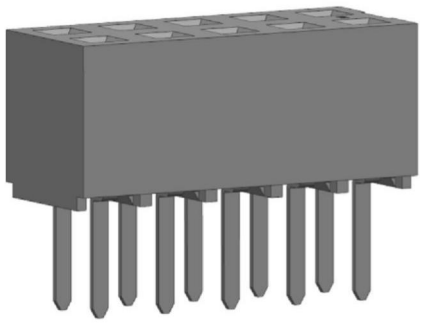
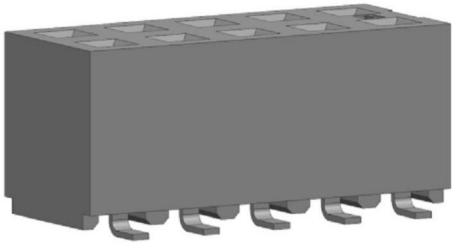
APPLICATION SPECIFICATION

5Milli-Grid Connector System

1.0 SCOPE

This document contains information pertaining to application requirements of the Milli Grid Connector System.

2.0 PRODUCT DESCRIPTION

SINGLE ROW RECEPTACLE (WTB)	DUAL ROW RECEPTACLE (WTB)
	
DUAL ROW RECEPTACLE (BTB) TROUGH HOLE	**DUAL ROW RECEPTACLE (BTB) SMT**
	

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A2	EC No: 628516 DATE: 2019 / 11 / 03	APPLICATION SPECIFICATION FOR MILLI-GRID CONNECTOR SYSTEM (WTW/WTB)	1 of 13

DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
503940001-AS	Akhil	Manohar	Manohar

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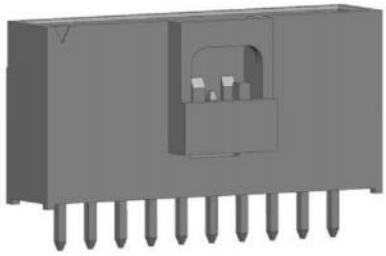
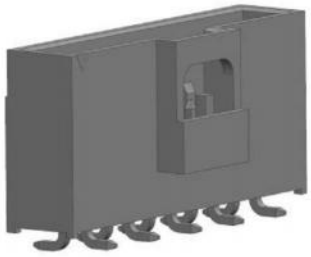
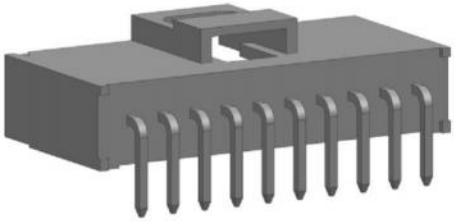
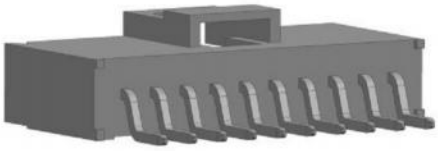
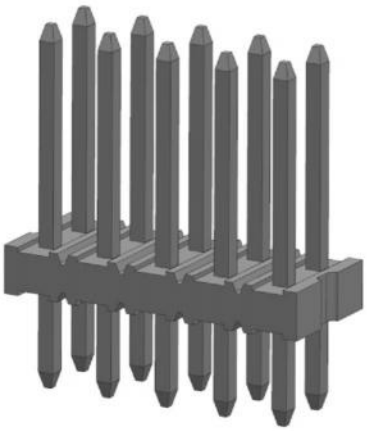
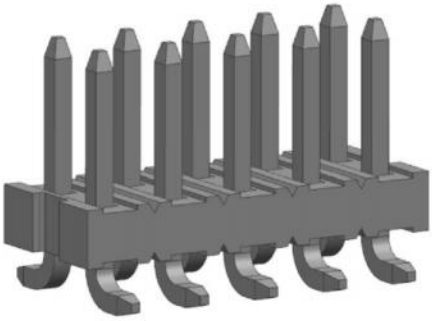
APPLICATION SPECIFICATION

SINGLE ROW VERTICAL TROUGH HOLE	SINGLE ROW VERTICAL SMT
	
SINGLE ROW RIGHT ANGLE TROUGH HOLE	**SINGLE ROW RIGHT ANGLE SMT**
	
DUAL ROW UNSHROUDED VERTICAL TROUGH HOLE	**DUAL ROW UNSHROUDED VERTICAL SMT**
	

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DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
503940001-AS	Akhil	Manohar	Manohar

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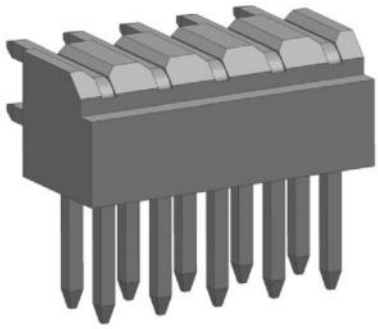
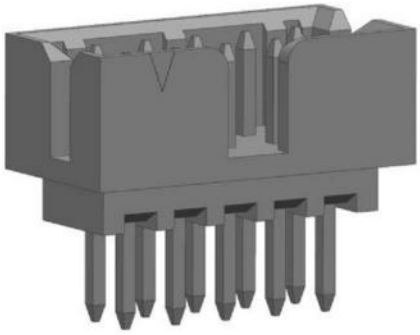
APPLICATION SPECIFICATION

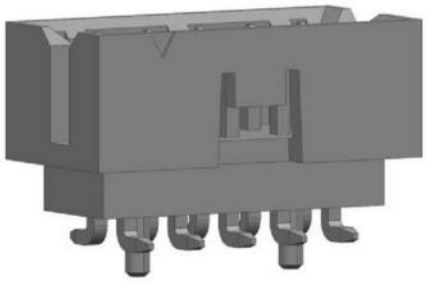
DUAL ROW UNSHROUDED RIGHT ANGLE TROUGH HOLE



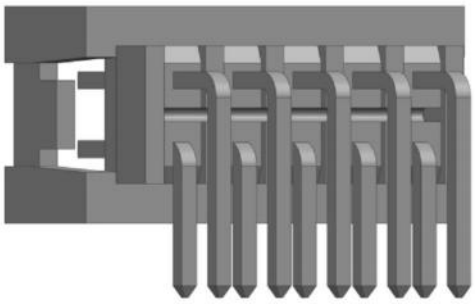
DUAL ROW SHROUDED VERTICAL TROUGH HOLE



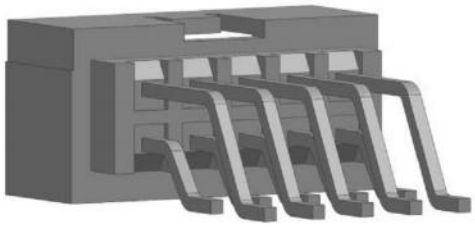
DUAL ROW SHROUDED VERTICAL SMT



DUAL ROW SHROUDED RIGHT ANGLE TROUGH HOLE



DUAL ROW SHROUDED RIGHT ANGLE SMT



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DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
503940001-AS	Akhil	Manohar	Manohar

SEE APPROPRIATE SALES DRAWINGS AND PRODUCT SPECIFICATIONS FOR INFORMATION ON SPECIFIC PART NUMBERS.

3.0 GENERAL NOTES

Appearance: Parts confirm to class "B" requirements of the cosmetic specification PS-45499-002. Refer notes in sales drawing.

1. ASSEMBLY INSTRUCTIONS

Wire to Board

Contact/terminal insertion into Receptacle housing

Use only *female* terminals with receptacle housing. Align the terminal to the receptacle housing cavity axis Continue inserting until it stops and locks up. Orientation needed to insert terminal in housing as shown in the fig 1. Terminal will lock's up as shown in the **Detail A** view. Pull the terminal back gently to ensure terminal is seated properly.

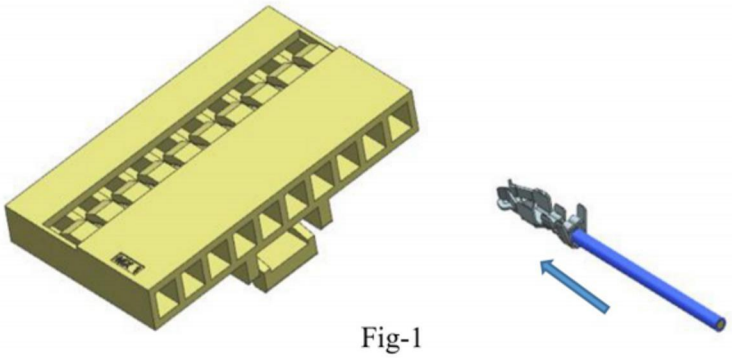


Fig-1

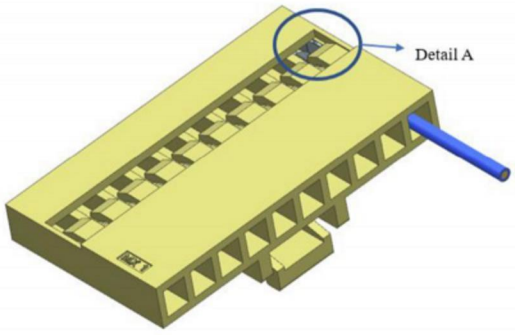
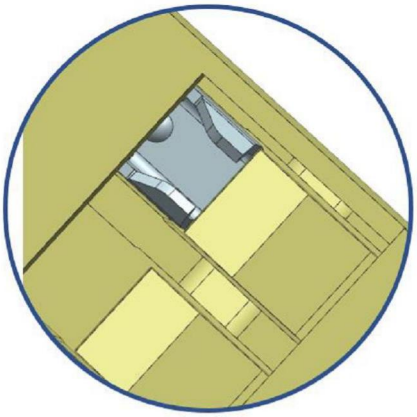


Fig-2



Detail A

Insert the terminals into all circuits and complete the insertion as shown in in Fig 3 and Carry out the visual inspection of the terminal

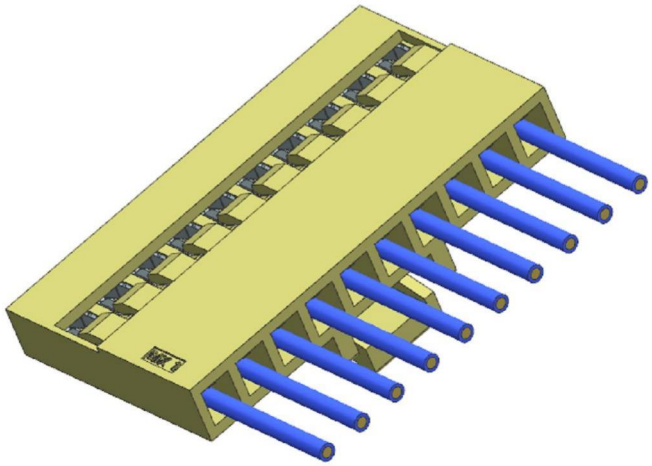


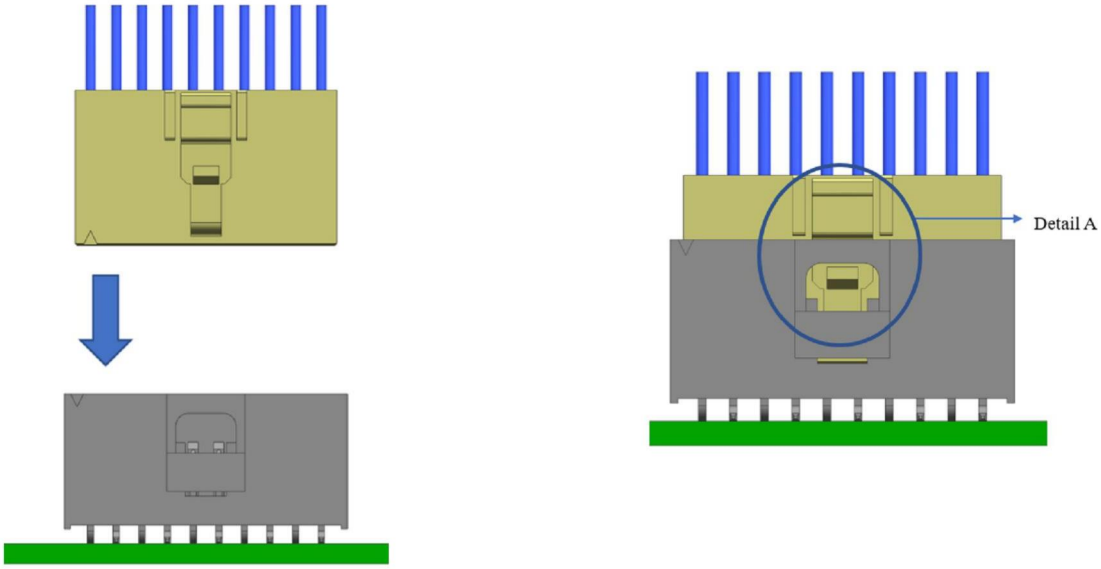
Fig-3

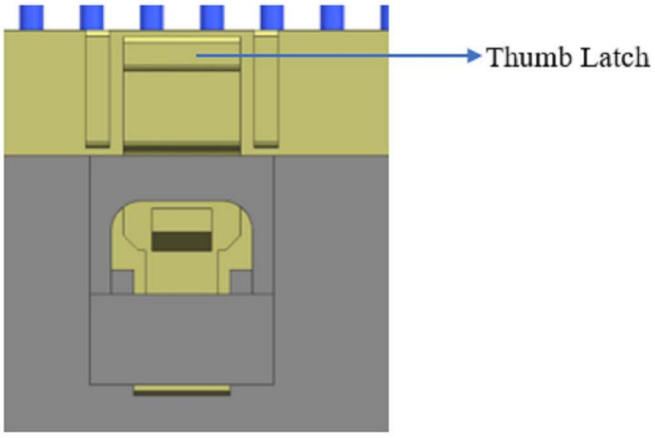
No Servicing Tool available for terminal extraction.

NOTE: Terminal insertion into receptacle housing of dual row also same as single row housing.

Connector mating (Shrouded Single row header)

Align connector system latch and begin the mating process along the same axis, slide the connector assemblies into each other until latch locks with the header as shown below.

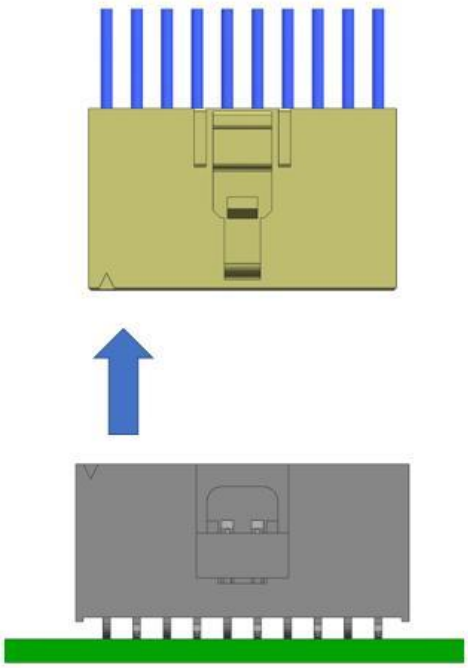




Detail A

Connector unmating

To unmate the connectors press the latch lever on receptacle assembly to disengage the pull the assembly by applying force on thumb latch as shown in Detail view A.

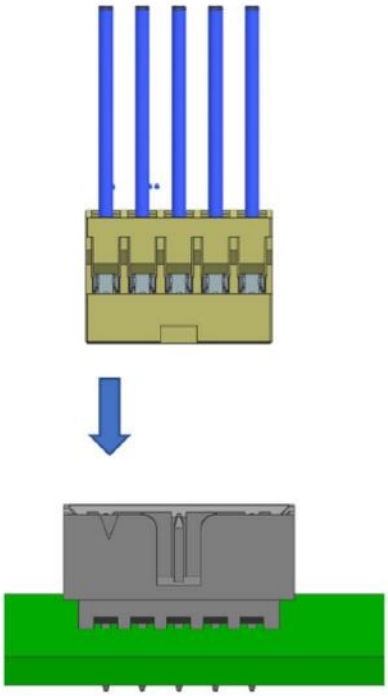


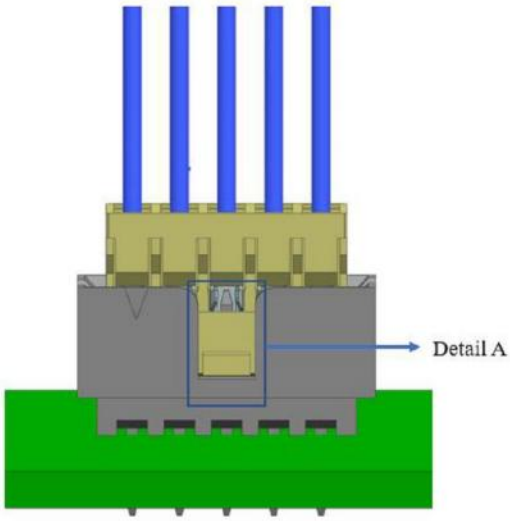
NOTE: Mating and Unmating mechanism remains same irrespective of the termination style of the header. (Single row through hole and Single row Surface mount termination)

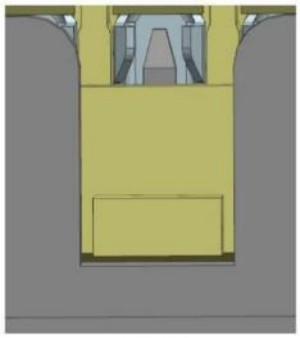
DUAL Row

Connector mating (Shrouded Dual ow header)

Align the receptacle to the header by arranging the polarization mechanism in axis and slide the connector assemblies into each other until the bottom and they lock due to friction.



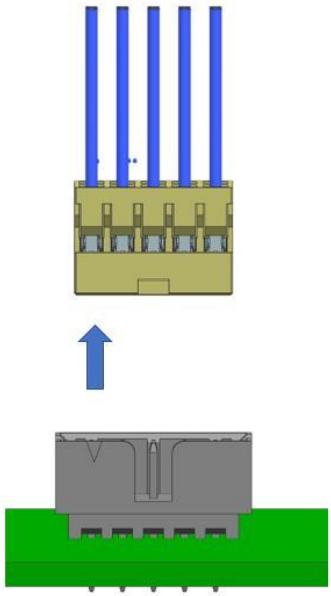




Detail A

Connector unmating

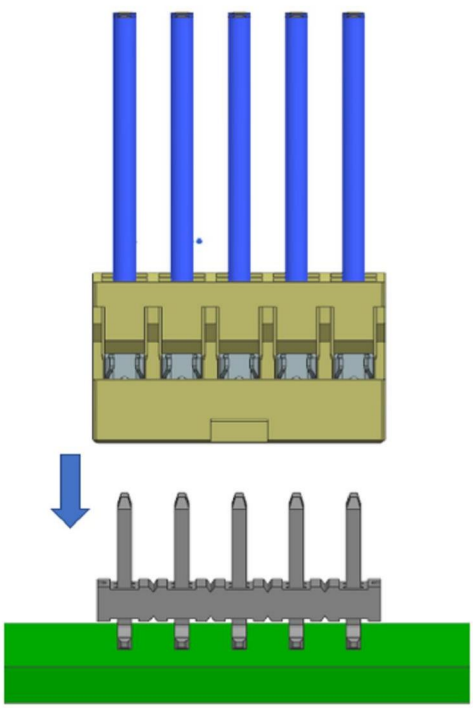
To unmate the connectors, just pull back each other until they separate from each other.

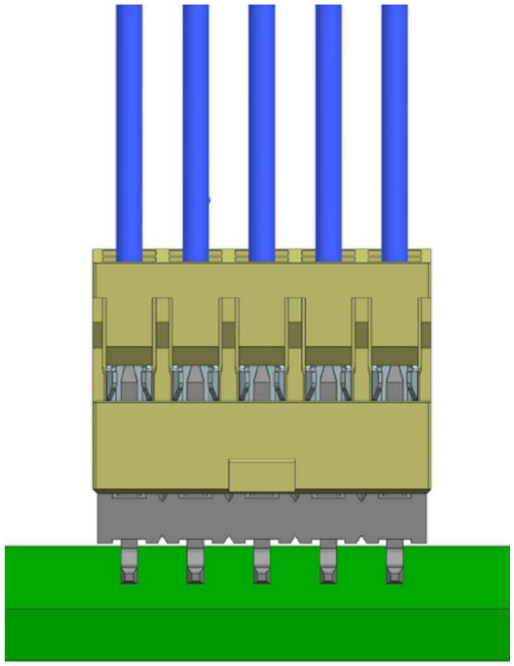


NOTE: Mating and unmating of the above combination remains same irrespective of their termination style.

Connector mating (Unshrouded Dual row header)

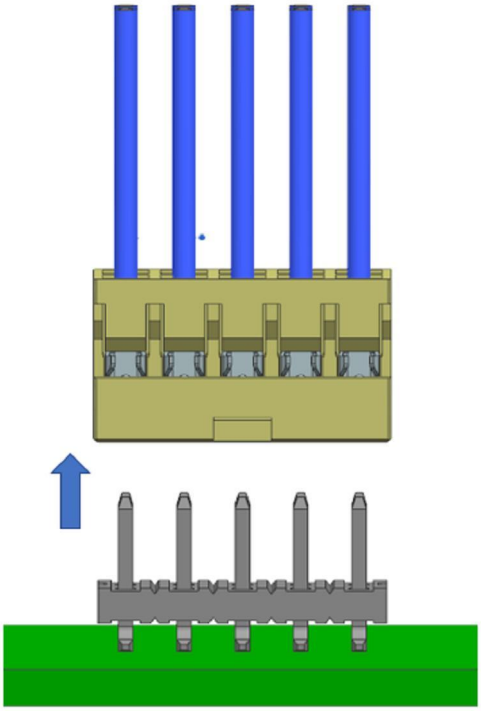
Align the receptacle to the header axis and move the receptacle until the bottom stops.





Connector unmating

To unmate the connectors, gently pull back each other until they separate from each other

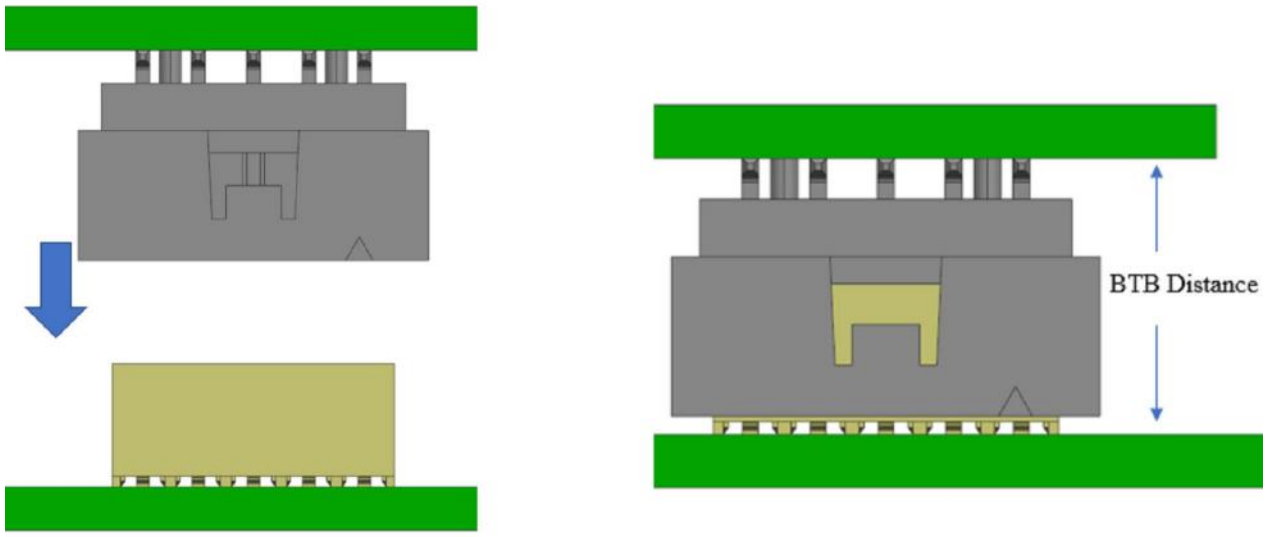


NOTE: Mating and unmating of the above combination remains same irrespective of their termination style

Board to Board

Connector mating (Shrouded Dual row header)

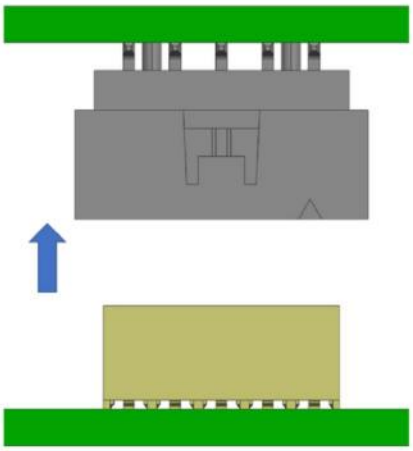
Align the receptacle to the axis of the header and slide the connector assemblies into each other until it bottoms and stops



- Please Find the Board-To-Board distance of the Combination in Respective sales drawings.

Connector unmating

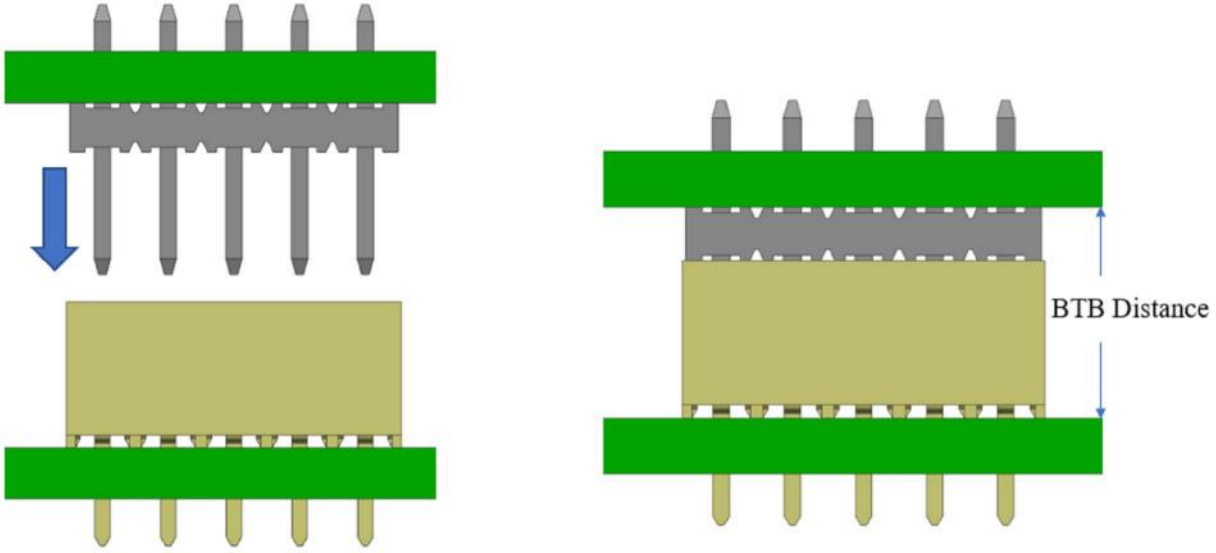
To unmate the connectors, gently pull back each other until they separate from each other.



NOTE: Mating and unmating of the above combination remains same irrespective of their termination style.

Connector mating (Unshrouded Dual row header)

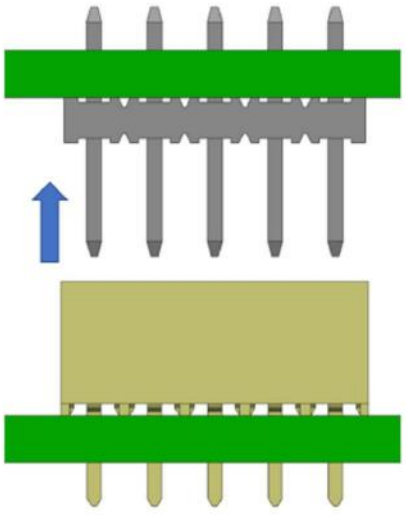
Align the receptacle to the axis of the header and slide the connector assemblies into each other until it bottoms and stops.



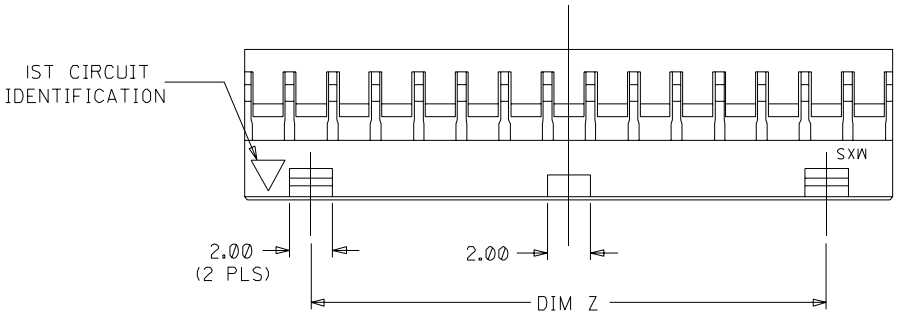
❖ Please Find the Board-To-Board distance of the Combination in Respective sales drawings.

Connector unmating

To unmate the connectors, gently pull back each other until they separate from each other.



NOTE: Mating and unmating of the above combination remains same irrespective of their termination style

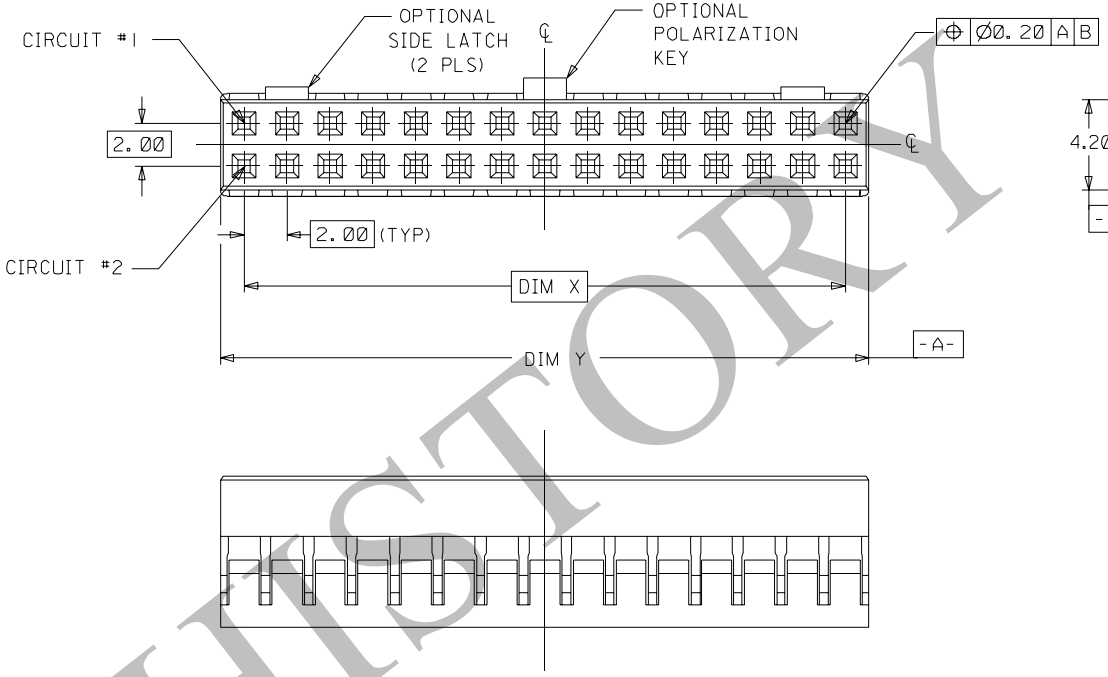


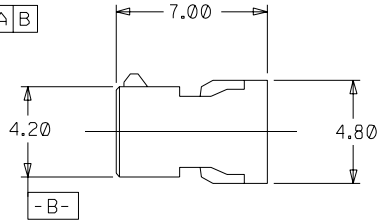
PLS REFER TO PART 51110-**60 FOR CENTER LATCH OPTION.

PART NO.	CKT SIZE	DIM X	DIM Y	D
51110-045*	4	2.00	4.20	
51110-065*	6	4.00	6.20	
51110-085*	8	6.00	8.20	
51110-105*	10	8.00	10.20	
51110-125*	12	10.00	12.20	
51110-145*	14	12.00	14.20	8.
51110-165*	16	14.00	16.20	10
51110-185*	18	16.00	18.20	12
51110-205*	20	18.00	20.20	14
51110-225*	22	20.00	22.20	16
51110-245*	24	22.00	24.20	18
51110-265*	26	24.00	26.20	20
51110-285*	28	26.00	28.20	22
51110-305*	30	28.00	30.20	24
51110-325*	32	30.00	32.20	26

NOTES:

1. MATERIAL: GLASS-FILLED POLYESTER UL RATED 94V-0 COLOR: BLACK.
2. PART TO BE USED WITH CRIMP TERMINAL PART NUMBER 50394-8***.
3. APPLICABLE WIRE RANGE : AWG #24 - #30.
4. WIRE INSULATION RANGE : DIAMETER 1.40MM MAXIMUM.
5. 30 CKT SHOWN FOR ILLUSTRATION ONLY.





PART NUMBER LEGEND:

51110- * * 5 *

CIRCUIT SIZE

0 - WITHOUT CENTER POLARIZATION KEY AND SIDE LATCH.

1 - WITH CENTER POLARIZATION KEY AND SIDE LATCH. (14 TO 32 CIRCUITS ONLY) WITH CENTER POLAR. KEY ONLY. (8 TO 12 CIRCUITS ONLY)

EC NO. S2001-0365 DRWN: G.R. XIE 010613 CH'K: APPR:

B3

DESCRIPTION REV

QUALITY SYMBOLS
MAJOR ▼ = Ø
CRITICAL Ⓒ = Ø

GENERAL TOLERANCES: (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	±0.--	±.
3 PLACES	±0.--	±.
2 PLACES	±0.20	±.
1 PLACE	±0.--	±.

ANGULAR: ± 3 °

SCALE NTS

DESIGN UNITS ☒ mm ☐ INCH

THIRD ANGLE PROJECTION

DIMENSIONS: ☐ mm/INCH ☐ INCH/mm ☒ mm ONLY

SHT

REVISE CAD ON

DRAWN BY & DATE S.K.TOH 931026

CHECKED BY & DATE EDPOH 931026

APPROVED BY & DATE JM CHAN 931026

CAD FILENAME

TITLE: 2 MM GRID, WIRE-TO-BOARD CONNECTOR, CRIMP RECEPTACLE HOUSING

MOLEX INCORPORATED

MATERIAL NO. SEE NOTES

DRAWING NO. SD-51110-**5*

SHEE 1 O