1.0 OBJECTIVE

This specification provides information and requirements regarding customer application of PwrMAX® Orthogonal. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer scenarios and that customers will develop their own application processes to meet their needs. However, if these application processes differ greatly from the one recommended, FCI cannot guarantee results.

2.0 SCOPE

This specification provides information and requirements regarding customer application of PwrMAX Orthogonal connector system **(Product Type: Press-fit & Solder Tail)**

3.0 GENERAL

This document is meant to be an application guide. If there is a conflict between the product drawings and specifications, the drawings take precedence. The PwrMAX® orthogonal 2 position connector system consists of two main orientations Orthogonal & Backplane (See Figure 1 & 2).

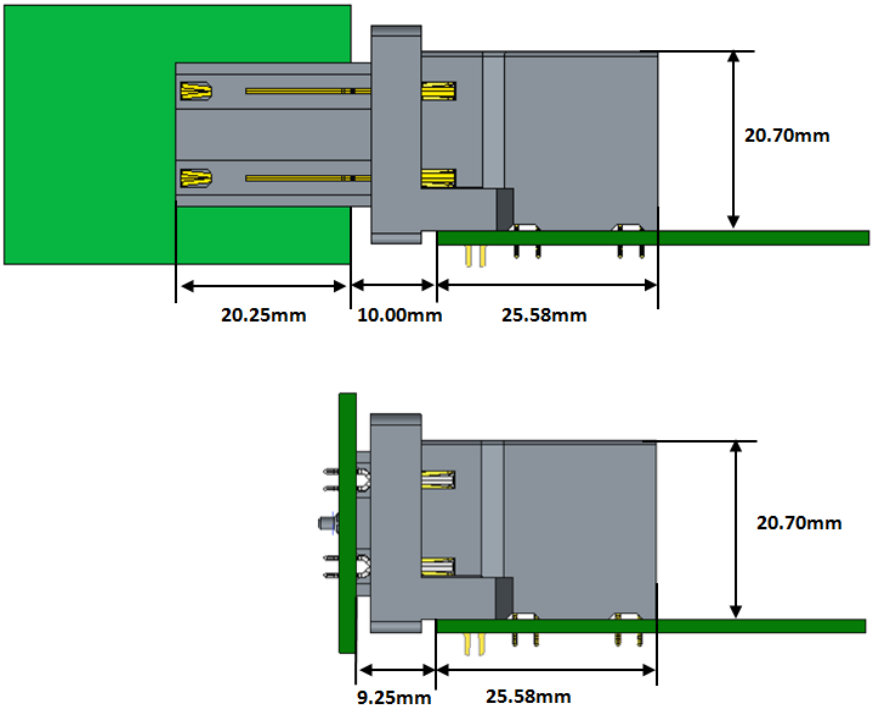


Figure 1: PwrMAX® 2 position Orthogonal Configurations (2 Power circuits on 10.00mm pitch)

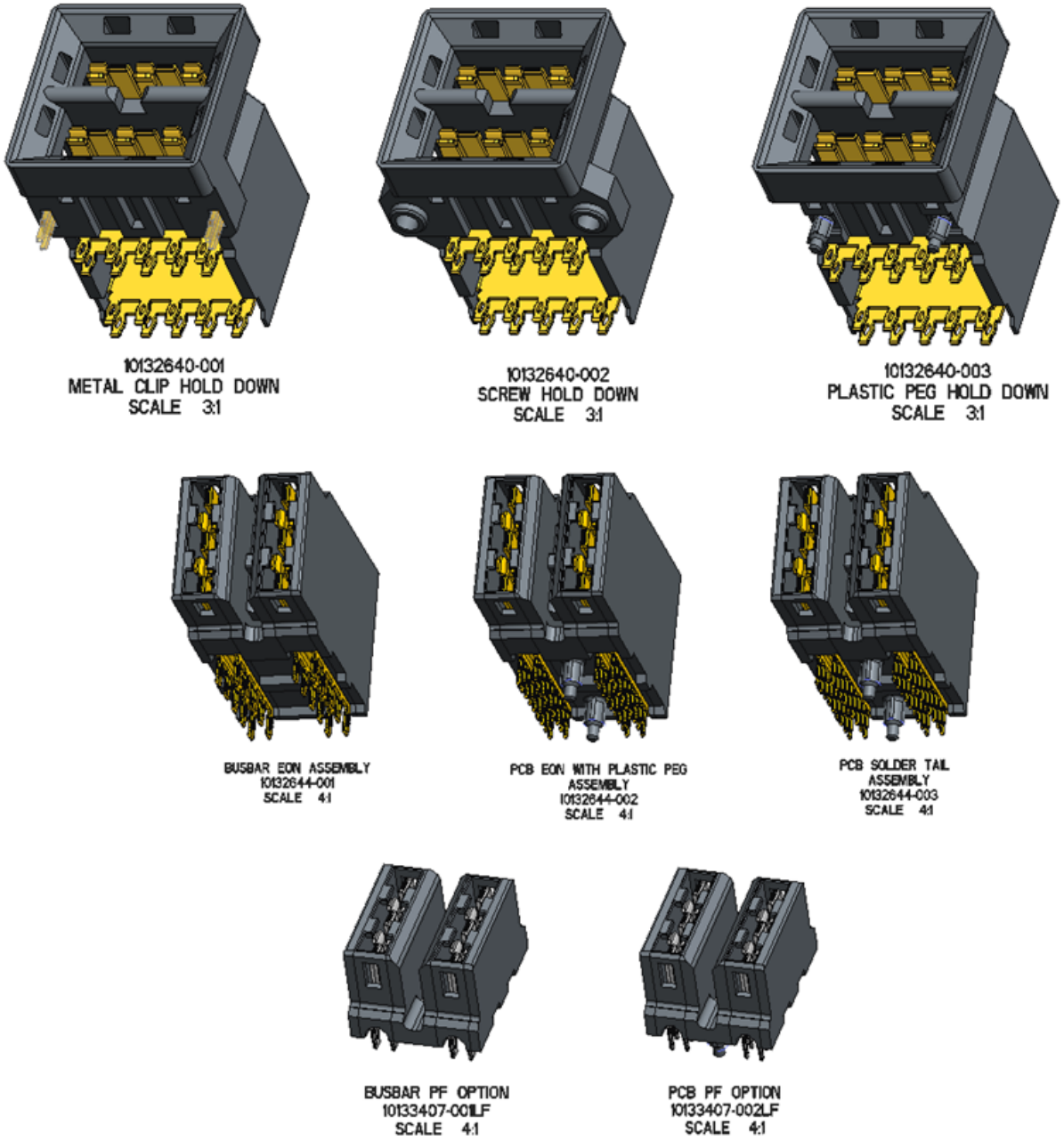


Figure 2: PwrMAX® Orthogonal Configurations
(2 Power circuits on 10.00mm pitch)

4.0 DRAWINGS AND APPLICABLE DOCUMENTS

- FCI PRODUCT SPECIFICATION GS-12-1314
- FCI PRODUCT DRAWINGS 10132640C, 10132644C & 10133407C
- APPLICATION MANUALS/INSTRUCTION SHEETS (IF NOT INCLUDED IN THIS DOCUMENT)

Product drawings and **FCI's GS-12-1314** Product Specification are available at www.**fci**.com In the event of a conflict between this application specification and the drawing, the drawing will take precedence. Customers are advised to refer to the latest revision level of FCI product drawings for appropriate details.

5.0 APPLICATION REQUIREMENTS

(For Press Fit applications And Solder use the following)
For specifics of PC board layout, refer to the customer drawings for the particular Part Number being applied. The board material(s) that has/(have) been evaluated in the application testing is/(are) (TBD). Additional qualification will be required to support board materials and board thicknesses other than what has been identified in this specification or product drawing.

To enable the application and repair/removal of the connectors, there are recommended keep-out zones for components. Refer to Figure **(3)** for the recommended keep out zones.

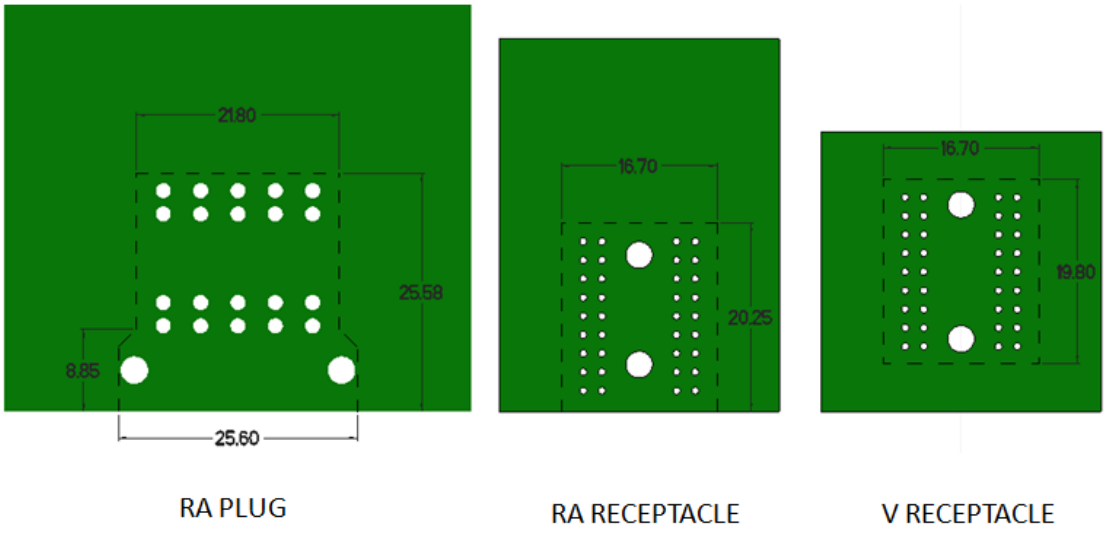


Figure 3: PwrMAX® 2 position Orthogonal Configuration keep out zones.

6.0 APPLICATION TOOLING

No Application Tooling needed for installation of PwrMAX® Orthogonal connectors. Flat rock application is best method to apply these connectors to the board. (See Figure 4)

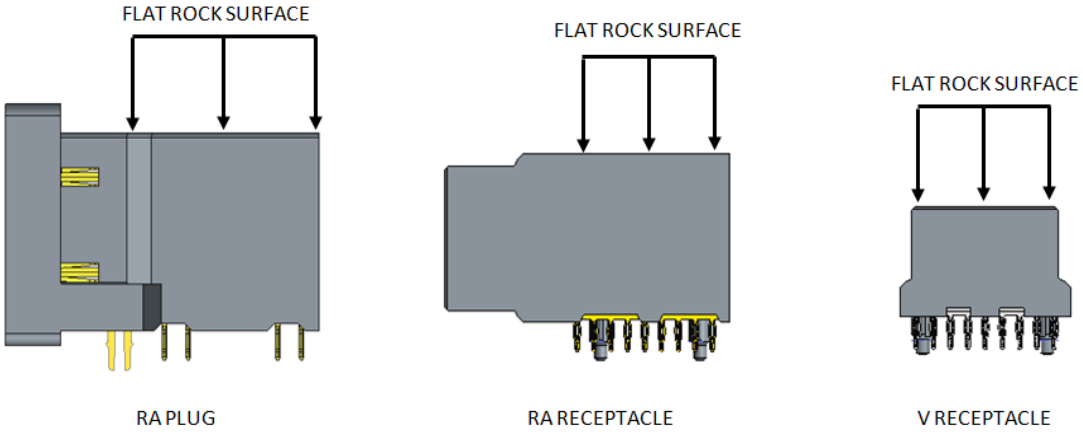


Figure 4: PwrMAX® 2 position Orthogonal Configuration (FLAT ROCK SURFACES)

7.0 APPLICATION PROCEDURE

Remove the connector from the tray and place the connector assembly in the desired location on the printed circuit board taking care to assure that all press-fit tails line up with the proper PCB holes. Then apply force to the connector on the surfaces seen below using a press (See Figure 5).

Note: Generic figures are representative of all product configurations

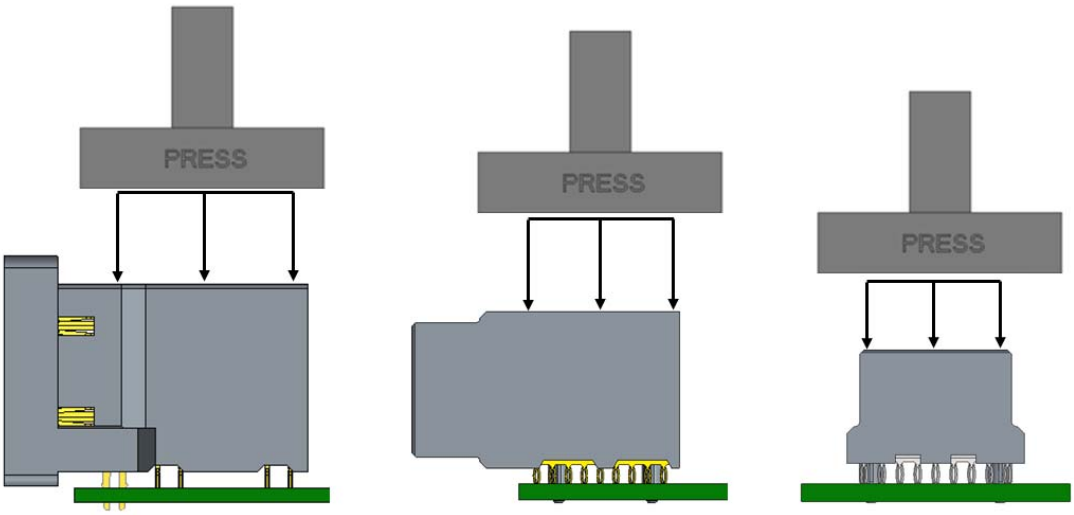


Figure 5: PwrMAX® 2 position Orthogonal Configuration PCB Application process

Remove the connector from the tray and place the connector assembly in the desired location on the Busbar taking care to assure that all press-fit tails line up with the proper PCB holes. Then apply force to the connector on the surfaces seen below using a press (See Figure 6 & 7).

Note: Generic figures are representative of all product configurations

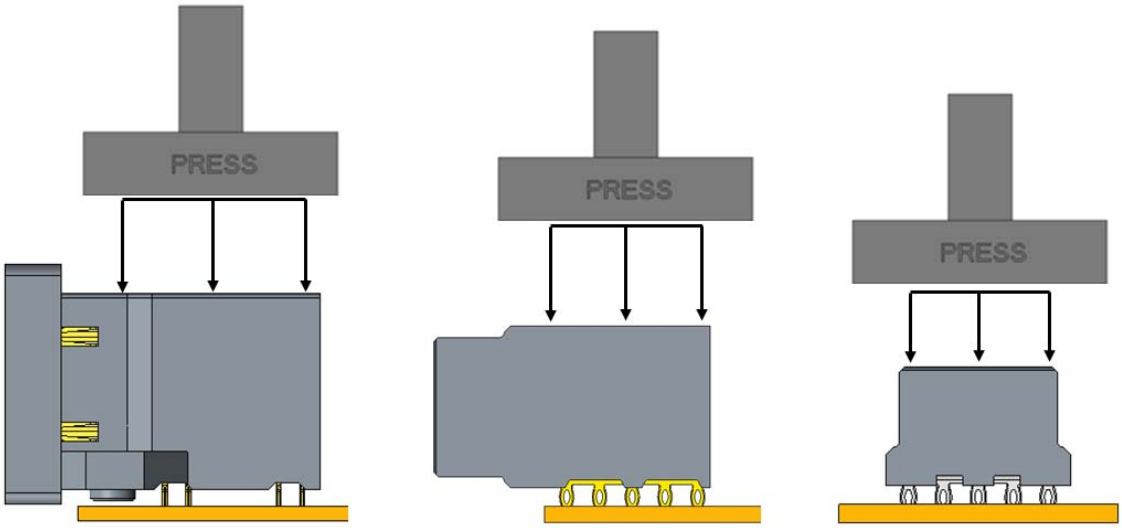


Figure 6: PwrMAX® 2 position Orthogonal Configuration Busbar Application process

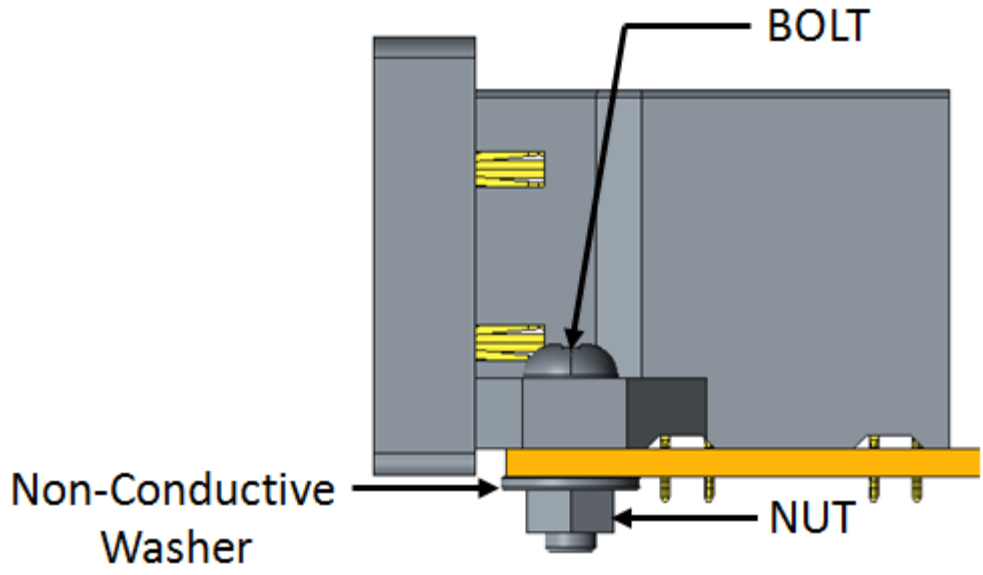


Figure 7: PwrMAX® 2 position RA Plug Configuration Busbar hold down method

8.0 POST-APPLICATION INSPECTION PROCEDURES

Note: Generic figures are representative of all product configurations

PwrMAX® Orthogonal connector system application inspection should consist of several simple checks to assure that the product is applied properly and is not damaged.

- Visually assure that all Solder tails are seated in the proper PCB holes and that none have been crushed during application.

- Visually assure that the plastic standoffs on the bottom of the assembly are seated within 0.10 mm of flush to the PCB/Busbar but not crushed (see Figure 8). A larger gap beneath the standoffs may indicate that the product is not seated parallel or perpendicular to the board. In the case of the header, this can cause misalignment with adjacent components.

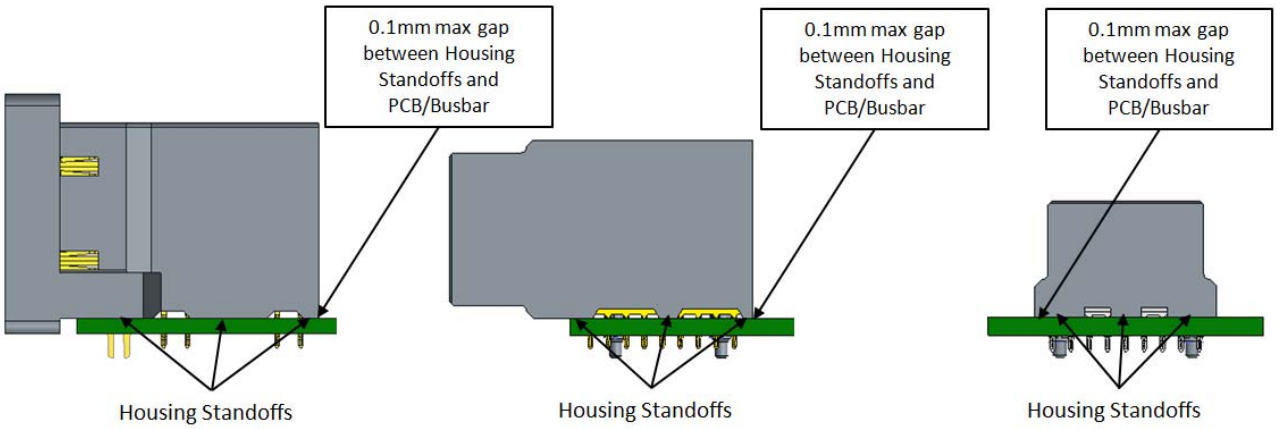


Figure 8: PwrMAX® 2 position Orthogonal Configuration (Proper Seating Depth)

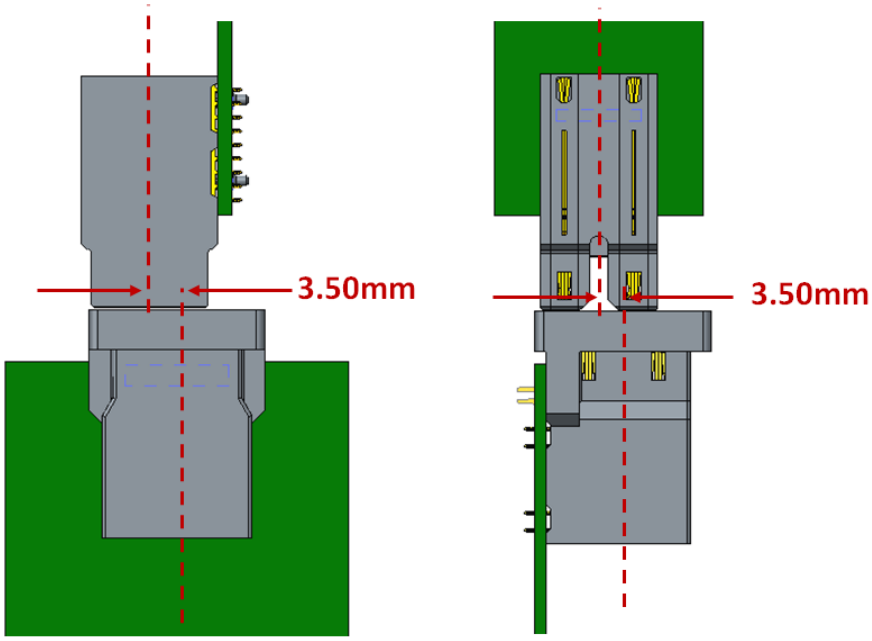
9.0 REPAIR TOOLING / REMOVAL PROCEDURE

Tooling needed for **(rework / repair)** of PwrMAX® Connector system is TBD

Press the connector off of the board in the hold down areas. Make sure to support the PCB/Busbar while pressing on the screws. Visually inspect that the contact tails have been removed from the board. ***Note if there are any power contacts that remain in the board remove them with a pair of pliers.**

10.0 MECHANICAL PROPERTIES

The shroud guiding system of the PwrMAX® Orthogonal Connector System allows Maximum misalignment 3.50mm on X and 3.50mm on Y direction (See Figure 9).



Insertion/Retention forces per Connector

- RA Plug : 2500N (562lbs)
- RA Receptacle: 540N (122lbs)
- V Receptacle: 540N (122lbs)

Insertion/Retention forces per hold down clip

- The Insertion forces per hold down clip shall be less than 6 lbs.
- The retention forces per hold down clip shall be greater than 3 lbs.

Mating/Un-mating forces per power contact

Contact Type	Mating Force (N) Max. Allowance	Un-Mating Force (N) Min. Allowance
Power Contact	20	6.5

Connector Voltage Rating

- The PwrMAX® Orthogonal/Backplane connector system working voltage = 600V

Connector Current Rating

Application	Power Contact	Number of adjacent contacts (fully powered)	Test Board (Copper Pad)	Air Starting Temp.	Still Air	T-Rise (ºC)	Current Rating per power contact (Amp)
PwrMAX® Orthogonal (Board To Board)	**Power** (10.00mm CL)	2	6 layer (2 oz. copper)	Ambient (xx)	Yes	30	100
PwrMAX® Orthogonal (Board to Busbar)	**Power** (10.00mm CL)	2	6 layer (2 oz. copper)				100
PwrMAX® Backplane (Board to Board)	**Power** (10.00mm CL)	2	6 layer (2 oz. copper)				100
PwrMAX® Backplane (Board to Busbar)	**Power** (10.00mm CL)	2	6 layer (2 oz. copper)				100

Connector Wipe

- 5.1mm

11.0 RECORD RETENTION

REV	PAGES	DESCRIPTION	EC #	DATE
1	ALL	First draft	NA	8/03/15
2	7	Modified Miss-alignment allowance to 3.50mm	NA	8/18/15
3	7/8	Added current and voltage ratings. Added Insertion/Retention forces	NA	10/29/15
4	ALL	Updated Classification	NA	11/03/15
5	8	Updated working voltage value	NA	12/15/15