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| NUMBER GS-20-0463 | TYPE Application Specification | FCI | |
| TITLE PwrMAX[®] Mezzanine Connector System (Preliminary) | | PAGE 1 of 8 | REVISION 6 |
| | | AUTHORIZED BY Chris Gieski | DATE 09-JUN-16 |
| | | CLASSIFICATION UNRESTRICTED | |

1.0 OBJECTIVE

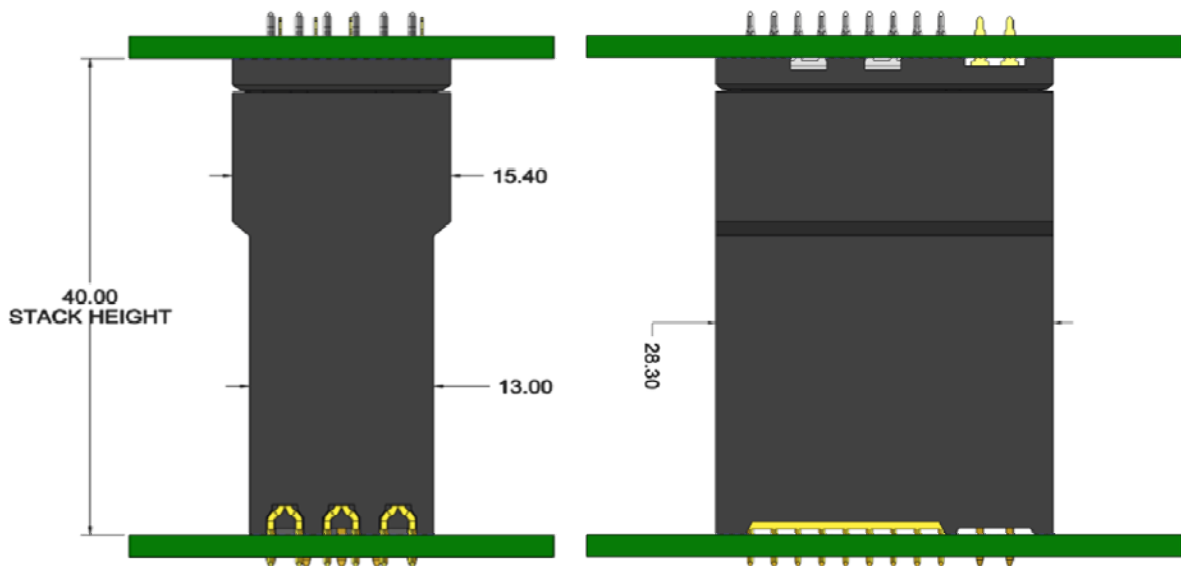
This specification provides information and requirements regarding customer application of PwrMAX[®] Mezzanine. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer scenarios and 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[®] Mezzanine connector system (**Product Type: Press-fit & Solder Tail**)

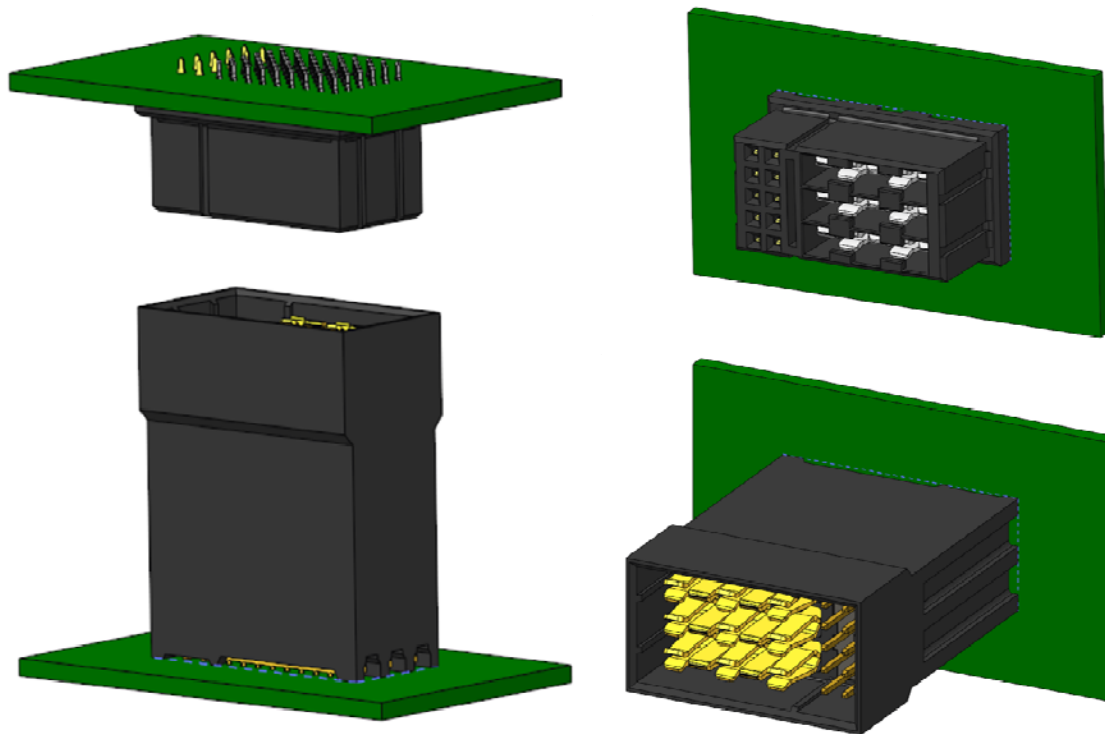
3.0 GENERAL

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[®] Mezzanine connector systems 40mm stack height. (See Figure 1 & 2)




**Figure 1: PwrMAX[®] 3P-10S Mezzanine Configuration
(3 Power circuits on 4.00mm pitch and 10 signal)**

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**Figure 2: PwrMAX® Mezzanine Configuration
(3 Power circuits on 4.00mm pitch and 10 Signal)**

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4.0 DRAWINGS AND APPLICABLE DOCUMENTS

- FCI PRODUCT SPECIFICATION GS-12-1344
- FCI PRODUCT DRAWINGS 10137124C, 10137125C
- APPLICATION MANUALS/INSTRUCTION SHEETS (IF NOT INCLUDED IN THIS DOCUMENT)

Product drawings and FCI's **GS-12-1344** 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.

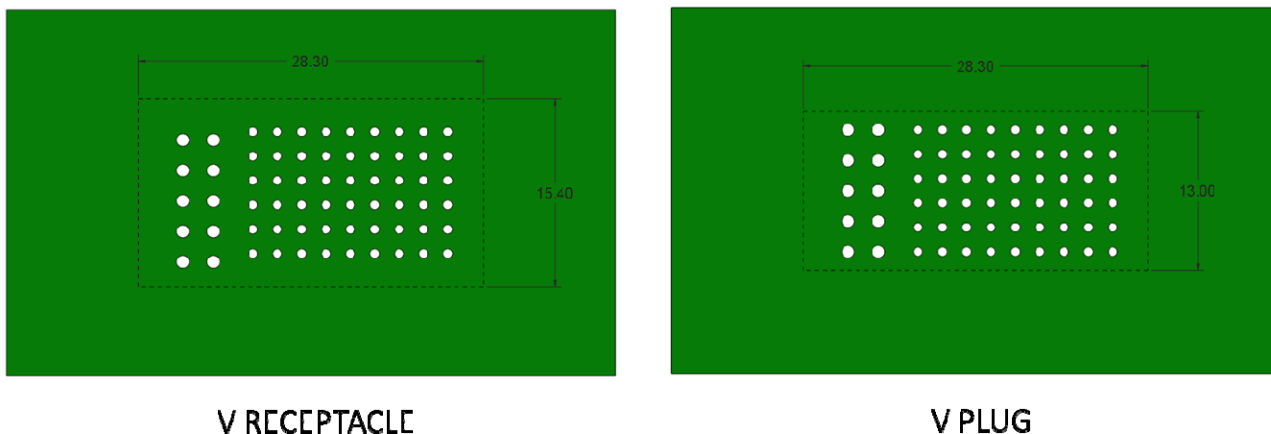



Figure 3: PwrMAX[®] Mezzanine 3P-10S Configuration keep out zones

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6.0 APPLICATION TOOLING

No Application Tooling needed for installation of PwrMAX[®] Mezzanine connectors. Flat rock application is best method to apply the V receptacle connector to the board. The V Plug is STB and can be placed on the PCB and then processed. (See Figure 4)

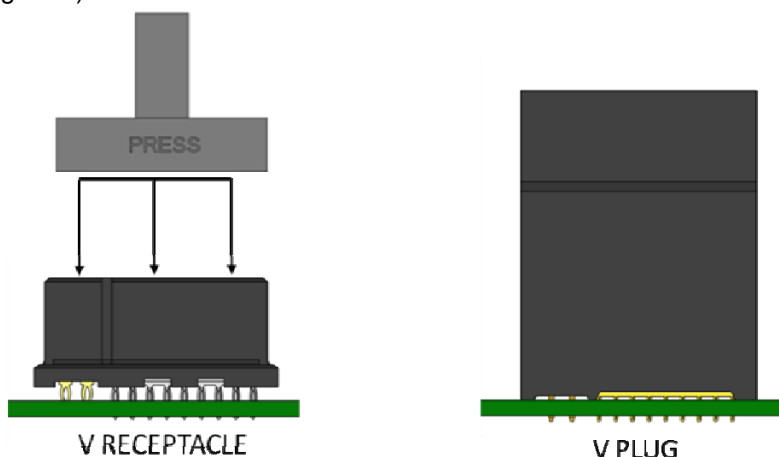


Figure 4: PwrMAX[®] Mezzanine Configuration (FLAT ROCK SURFACES)

7.0 APPLICATION PROCEDURE

Remove the V receptacle 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). The V plug is STB and should be removed from the tray and placed onto the PCB in the proper location and then ran through the selected solder process. (Wave or reflow)

Note: Generic figures are representative of all product configurations

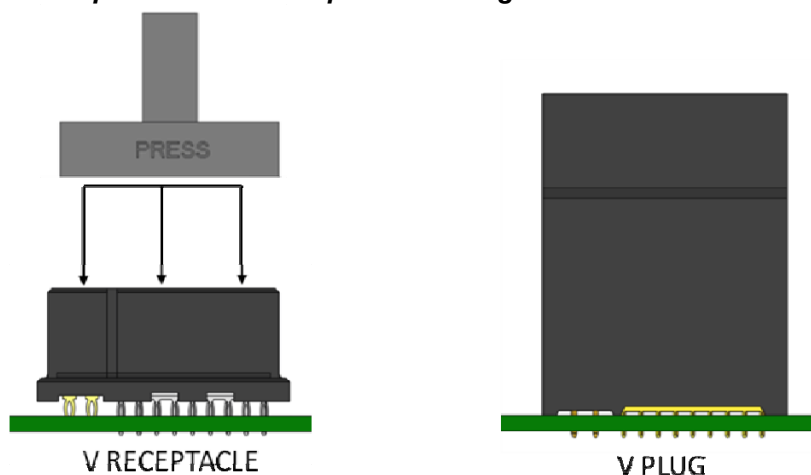



Figure 5: PwrMAX[®] Mezzanine Configuration PCB Application process

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8.0 POST-APPLICATION INSPECTION PROCEDURES

Note: Generic figures are representative of all product configurations

PwrMAX[®] Mezzanine 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.
- Physically remove the Mylar Tape from the mating shroud of the V Plug connector after soldering process is completed. See Figure 8 for illustration of Mylar Tape.
- Visually assure that the plastic standoffs on the bottom of the assembly are seated within 0.10 mm of flush to the PCB 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

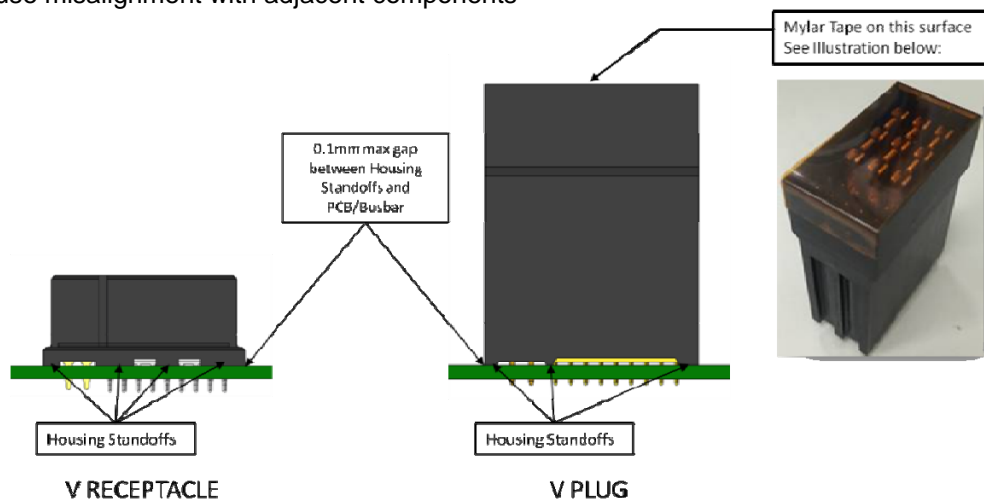


Figure 8: PwrMAX[®] Mezzanine Configuration (Proper Seating Depth)

9.0 REPAIR TOOLING / REMOVAL PROCEDURE

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

Pry the connector off of the board. Make sure to support the PCB 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.**

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10.0 MECHANICAL PROPERTIES

The shroud guiding system of the PwrMAX[®] Mezzanine Connector System provides maximum gatherability of $\pm 1.00\text{mm}$ on X and $\pm 1.00\text{mm}$ on Y direction (See Figure 9).

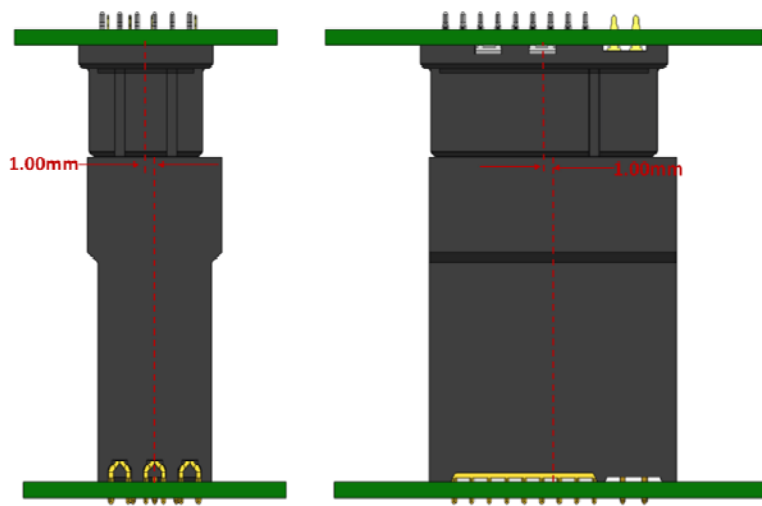


Figure 9: PwrMAX[®] Mezzanine Configuration (Gatherability)

Compliant pin Insertion forces per Connector


- V Receptacle connector MAX force: 4000N (900lbs)
- V Plug: NA (STB)

Mating/Un-mating forces per contact

| Connector Config | Mating Force (N) Max. Allowance | Un-Mating Force (N) Min. Allowance |
|--------------------|------------------------------------|---------------------------------------|
| PwrMAX Mezz 3P-10S | 65 | 21.5 |

Connector Voltage Rating

- The PwrMAX[®] Mezzanine connector system working voltage = 12V

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Connector Current Rating

| Application | Power Contact | Number of adjacent contacts (fully powered) | Test Board (Copper Pad) | Air Starting Temp. | Still Air | T-Rise (°C) | Current Rating per power contact (Amp) |
|------------------------------------|-------------------|---|-------------------------|--------------------|-----------|-------------|--|
| PwrMAX® Mezzanine (Board To Board) | Power (4.00mm CL) | 3 | 4 layer (2 oz. copper) | Ambient (xx) | Yes | 30 | 300 |

Connector Wipe

- Power = 4.38mm
- Signal = 3.94mm

11.0 RECORD RETENTION

| REV | PAGES | DESCRIPTION | EC # | DATE |
|-----|-------|--|------|----------|
| 1 | ALL | First draft | NA | 12/16/15 |
| 2 | 6 | Updated max insertion force | NA | 12/29/15 |
| 3 | 6 | Add description to figure 9 and included further explanation for Compliant pin insertion force | NA | 12/30/15 |
| 4 | 6 | Updated mating/un-mating force table to be for the connector configuration | NA | 01/05/16 |
| 5 | 5 | Added to Mylar tape removal to the post application process section 8.0 | N/A | 03/22/16 |
| 6 | 6 | Update section 10 and figure 9. Change Mis-alignment to Gatherability | N/A | 06/09/16 |
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