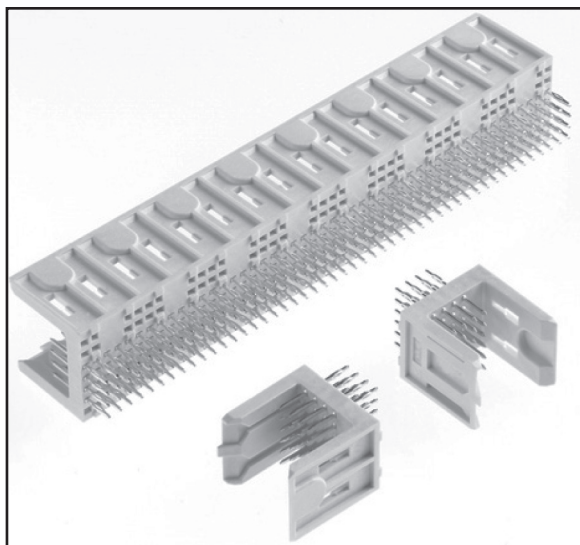


# 3M™ MetPak™ 2-FB Header

2 mm 4/5 Row, Vertical, Solder or Press-Fit Tail, Shouldered Pin

MP2 Series



## Solder Tail

- End-to-end stackable
- Select load capability
- Monoblockable
- Shoulder Pin

## Press Fit

- End-to-end stackable
- Early mate late break for hot swapping (press-fit EMLB adjusted by application tooling)
- Select load capability
- Monoblockable
- Push-on shoulder pin
- Optional feed-through tail for rear plug-up midplane applications
- Accepts Universal Tooling
- RoHS Compliant. See the Regulatory Information Appendix (RIA) in the “RoHS compliance” section of [www.3Mconnector.com](http://www.3Mconnector.com) for compliance information (RIA E1 & C1 apply)

Date Modified: May 10, 2010

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Sheet 1 of 4

## Physical

### Insulation:

Material: High Temp LCP  
Flammability: UL 94V-0  
Color: Beige

### Contact:

Material: Phosphor Bronze

### Plating:

Underplating: 50  $\mu$ " [1.27  $\mu$ m] Nickel  
Wiping Area: See Ordering Information  
Solder Tails: See Ordering Information

## Electrical

**Current Rating:** Signal: 1.5 A – All contacts simultaneously

**Insulation Resistance:** 10<sup>3</sup> M $\Omega$

**Withstanding Voltage:** 1,000 V<sub>AC</sub>

## Environmental

**Temperature Rating:** -55°C to +125°C

**Process Temperature Rating:** 260°C (Profile per J-STD-020C)

**Moisture Sensitivity Level:** 1 (per J-STD-020C)

UL File No.: E68080



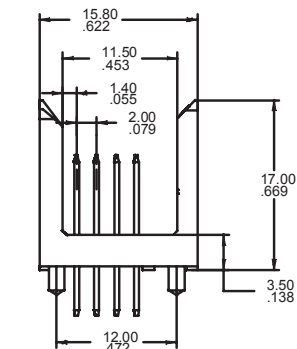
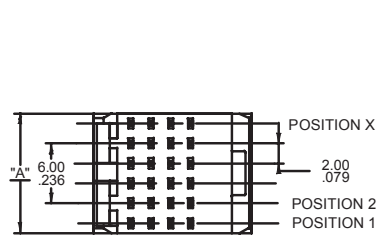
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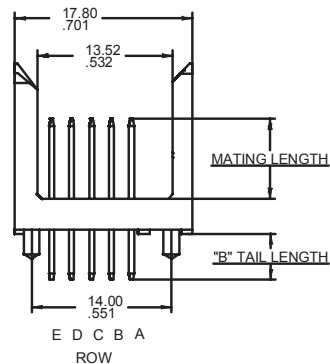
# 3M™ MetPak™ 2-FB Header

2 mm 4/5 Row, Vertical, Solder or Press-Fit Tail, Shouldered Pin

MP2 Series



4 ROW PRODUCT

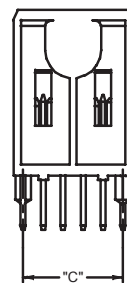


5 ROW PRODUCT

FOR SPECIAL MONOBLOCKS  
AND PIN ARRANGEMENTS  
CONTACT 3M SALES  
REPRESENTATIVE

| mm<br>[inch]           |    |      |       |
|------------------------|----|------|-------|
| Tolerance Unless Noted |    |      |       |
|                        | 0  | 0.0  | 0.00  |
| mm                     | ±3 | ±0.3 | ±0.13 |

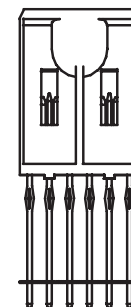
[ ] Dimensions for  
Reference Only



SOLDER TAIL  
PRODUCT



PRESS FIT  
PRODUCT



PRESS FIT  
PRODUCT  
REAR  
PLUG-UP

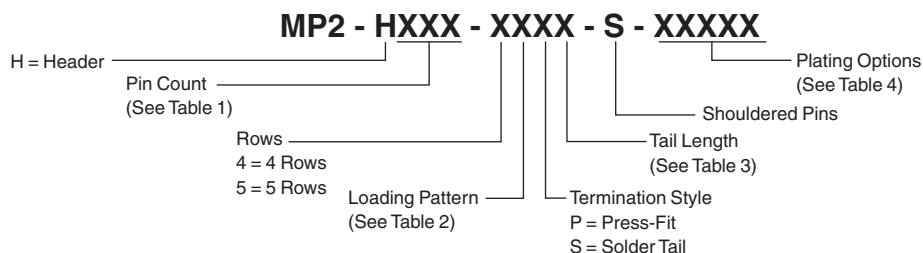
Contact 3M For Rear Plug-Up Option



Notes:

1. Refer to IEC 61076-4-104 Futurebus+® global standard.
2. "Press Fit" describes a contact tail having a compliant section designed to make a reliable electrical connection with a plated through-hole (PTH) in a printed circuit board, typically a "back plane."

## Ordering Information



TS-1120-D  
Sheet 2 of 4



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# 3M™ MetPak™ 2-FB Header

2 mm 4/5 Row, Vertical, Solder or Press-Fit Tail, Shouldered Pin

MP2 Series

**Table 1 - Connector & Row Lengths**

| Pin Count | Dim. "A" mm [inch] | Dim "C" mm [inch] | Rows |
|-----------|--------------------|-------------------|------|
| 024       | 11.95 [0.471]      | 10.00 [0.394]     | 4    |
| 048       | 23.95 [0.943]      | 22.00 [0.866]     | 4    |
| 072       | 35.95 [1.415]      | 34.00 [1.339]     | 4    |
| 096       | 47.95 [1.889]      | 46.00 [1.811]     | 4    |
| 120       | 59.95 [2.36]       | 58.00 [2.283]     | 4    |
| 144       | 71.95 [2.833]      | 70.00 [2.756]     | 4    |
| 168       | 83.95 [3.305]      | 82.00 [3.228]     | 4    |
| 192       | 95.95 [3.778]      | 94.00 [3.701]     | 4    |
| 030       | 11.95 [0.471]      | 10.00 [0.394]     | 5    |
| 060       | 23.95 [0.943]      | 22.00 [0.866]     | 5    |
| 090       | 35.95 [1.415]      | 34.00 [1.339]     | 5    |
| 120       | 47.95 [1.888]      | 46.00 [1.811]     | 5    |
| 150       | 59.95 [2.361]      | 58.00 [2.283]     | 5    |
| 180       | 71.95 [2.833]      | 70.00 [2.756]     | 5    |
| 210       | 83.95 [3.305]      | 82.00 [3.228]     | 5    |
| 240       | 95.95 [3.778]      | 94.00 [3.701]     | 5    |

**Table 4 - Plating Options**

| Plating Suffix                    | Press-Fit Tails*    | Solder Tails        | Plating Composition                                                                                                                                                                |
|-----------------------------------|---------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TG30                              | (RIA E2 & C2 apply) | (RIA E3 & C2 apply) | 0.76 µm [30 µ"] Min. Au Contact Area<br>2.54 µm [100 µ"] Min. SnPb Tail Area<br>1.27 µm [50 µ"] Min. Ni all over                                                                   |
| TR30                              | (RIA E2 & C2 apply) | (RIA E3 & C2 apply) | 0.08 µm [3 µ"] Min. Au Contact Area<br>0.67 µm [27 µ"] Min. PdNi Contact Area<br>2.54 µm [100 µ"] Min. SnPb Tail Area<br>1.27 µm [50 µ"] Min. Ni all over                          |
| KR                                | (RIA E1 & C1 apply) | (RIA E1 & C1 apply) | 0.76 µm [30 µ"] Min. Au Contact Area<br>2.54 µm [100 µ"] Min. Matt Whisker<br>Mitigating Sn Tail Area<br>1.27 µm [50 µ"] Min. Ni all over                                          |
| LR                                | (RIA E1 & C1 apply) | (RIA E1 & C1 apply) | 0.08 µm [3 µ"] Min. Au Contact Area<br>0.67 µm [27 µ"] Min. PdNi Contact Area<br>2.54 µm [100 µ"] Min. Matt Whisker<br>Mitigating Sn Tail Area<br>1.27 µm [50 µ"] Min. Ni all over |
| KV<br>for rear<br>plug-up<br>only | (RIA E1 & C1 apply) |                     | 0.76 µm [30 µ"] Min. Au Dual Contact Areas<br>0.10 µm [4 µ"] Min. Au Needle Eye<br>1.27 µm [50 µ"] Min. Ni all over                                                                |

**Table 3 - Tail Length Options**

| Plating Suffix |                 | Dim. "B"     |
|----------------|-----------------|--------------|
| Solder Tail    | Press-Fit* Tail |              |
| 1              | 1               | 4.60 [0.181] |
| 3              |                 | 2.72 [0.107] |

\*Compliant-Pin Tail

**Table 2 - Mate Length vs. Loading Pattern**

| Loading Pattern Code | Description          | Mate length Row A | Mate length Row B | Mate length Row C | Mate length Row D | Mate length Row E (5-Row Prod. Only) |
|----------------------|----------------------|-------------------|-------------------|-------------------|-------------------|--------------------------------------|
| 1                    | All Positions Filled | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| 2                    | All Positions Filled | 6.50 [0.256]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| 3                    | All Positions Filled | 6.50 [0.256]      | 5.75 [0.226]      | 5.75 [0.226]      | 6.50 [0.256]      | 6.50 [0.256]                         |
| 4                    | All Positions Filled | 6.50 [0.256]      | 6.50 [0.256]      | 6.50 [0.256]      | 6.50 [0.256]      | 6.50 [0.256]                         |
| 5                    | All Positions Filled | 5.75 [0.226]      | 7.25 [0.285]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]                         |
| 6                    | All Positions Filled | 7.25 [0.285]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]                         |
| 7                    | All Positions Filled | 6.50 [0.256]      | 5.75 [0.226]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| 8                    | All Positions Filled | 6.50 [0.256]      | 5.00 [0.197]      | 6.50 [0.256]      | 6.50 [0.256]      | 6.50 [0.256]                         |
| 9                    | All Positions Filled | 5.00 [0.197]      | 6.50 [0.256]      | 5.00 [0.197]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| A                    | All Positions Filled | 5.00 [0.197]      | 5.75 [0.226]      | 6.50 [0.256]      | 5.75 [0.226]      | 5.00 [0.197]                         |
| B                    | All Positions Filled | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.75 [0.226]                         |
| C                    | All Positions Filled | 5.00 [0.197]      | 5.00 [0.197]      | 6.50 [0.256]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| D                    | All Positions Filled | 5.75 [0.226]      | 5.75 [0.226]      | 7.25 [0.285]      | 5.75 [0.226]      | 5.75 [0.226]                         |
| E                    | All Positions Filled | 7.25 [0.285]      | 7.25 [0.285]      | 7.25 [0.285]      | 7.25 [0.285]      | 7.25 [0.285]                         |
| G                    | All Positions Filled | 7.25 [0.285]      | 5.75 [0.226]      | 5.75 [0.226]      | 5.00 [0.197]      | 5.00 [0.197]                         |
| H                    | All Positions Filled | 5.00 [0.197]      | 5.75 [0.226]      | 5.75 [0.226]      | 7.25 [0.285]      | 7.25 [0.285]                         |
| J                    | All Positions Filled | 8.00 [0.315]      | 8.00 [0.315]      | 8.00 [0.315]      | 8.00 [0.315]      | 8.00 [0.315]                         |
| K                    | All Positions Filled | 5.00 [0.197]      | 6.50 [0.256]      | 7.25 [0.285]      | 6.50 [0.256]      | 5.00 [0.197]                         |

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**3M**

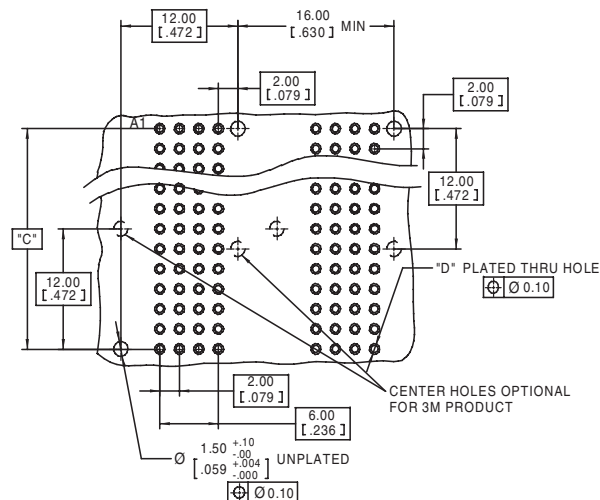
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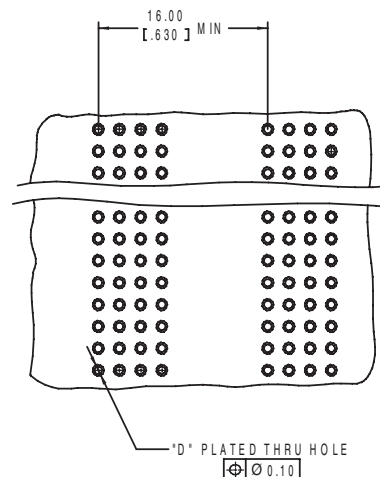
# 3M™ MetPak™ 2-FB Header

2 mm 4/5 Row, Vertical, Solder or Press-Fit Tail, Shouldered Pin

MP2 Series



**RECOMMENDED 4 ROW SOLDER  
TAIL PCB HOLE MOUNTING PATTERN**



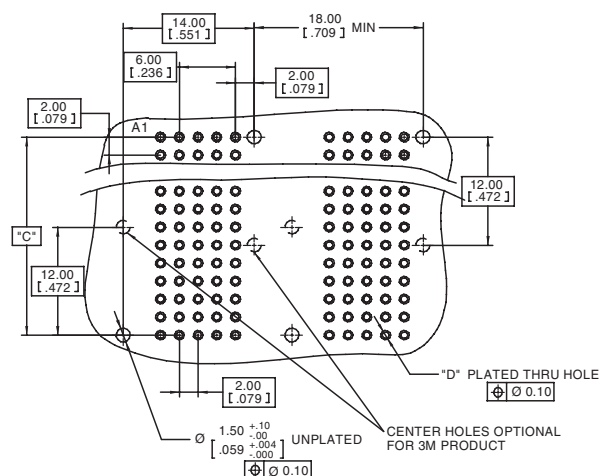
**RECOMMENDED 4 ROW PRESS-FIT  
PCB HOLE MOUNTING PATTERN**

**Table 5 – HOLE PLATING For TG30 and TR30 FINISHES ONLY**

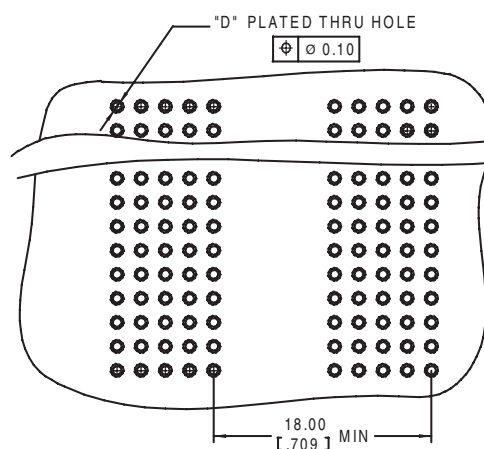
| HOLE | Finished Dia. MM [in]   | Cu Thickness [mm [in]] | SnPb Thickness microns [μ"] | Drilled Hole Dia. mm [in] |
|------|-------------------------|------------------------|-----------------------------|---------------------------|
| "D"  | 0.65-0.80 [.0256-.0315] | 0.025 [.001] min.      | 15 [600] max.               | 0.81-0.86 [.0319-.0339]   |

**Table 6 – HOLE PLATING For KR, LR, and KV FINISHES ONLY**

| HOLE | Finished Dia. MM [in]     | Immersion Matte Sn Thickness microns [μ"] | Electrolytic Au Thickness microns [μ"] | OSP ENTEK Thickness microns [μ"] | Drilled Hole Dia. mm [in]                              |
|------|---------------------------|-------------------------------------------|----------------------------------------|----------------------------------|--------------------------------------------------------|
| "D"  | 0.700-0.800 [.0276-.0315] | 0.025-0.045 [0.001-0.002]                 | 0.1 - 0.5 [4 - 20]                     | 0.2 - 0.5 [8 - 20]               | 0.830-0.860 [.0330-.0340] or 0.85 mm [#66] TWIST DRILL |



**RECOMMENDED 5 ROW SOLDER  
TAIL PCB HOLE MOUNTING PATTERN**



**RECOMMENDED 5 ROW PRESS-FIT  
PCB HOLE MOUNTING PATTERN**

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Sheet 4 of 4



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