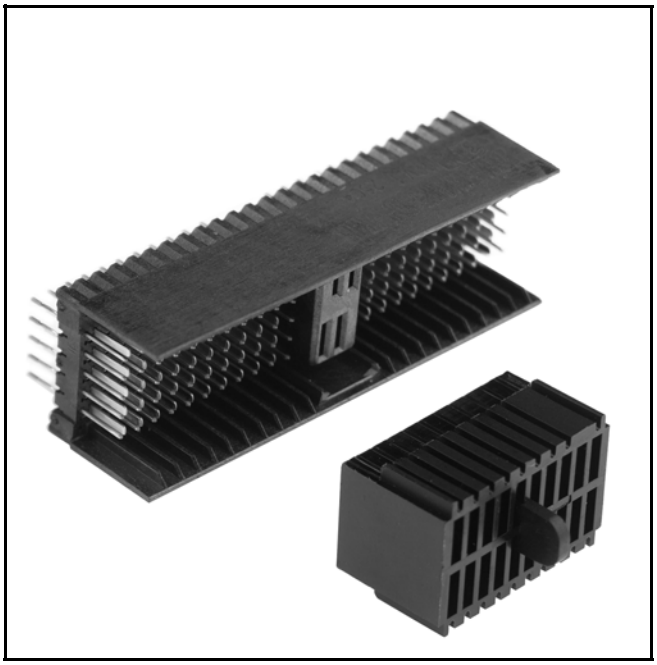
3M™ MetPak™ HSHM Press-Fit Power Header

2 mm Type A, 110/4 Signal/Power Contacts, 5 Rows, Straight HSHM Series



- Up to 5 Gb/s data rates
- Low crosstalk at high frequencies
- 50/100 Ω (single-ended /differential) impedance
- Modular/scalable format IEC 61076-4-101
- 63 mated lines per linear inch
- Four integrated 8.25 A power blades
- End-to-end stackable with 5 row 3M™ MetPak™ CP2, HM and HSHM headers
- See Regulatory Information Appendix (RIA) for chemical compliance information.

Date Modified: April 3, 2007

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Physical

Insulation	
Material:	High Temperature Thermoplastic (LCP)
Flammability:	UL 94V-0
Contact	
Material:	Copper Alloy
Plating:	See ordering information

Performance

Mechanical	
Normal Force (Nominal):	0.57 N [58 g] Signal, 0.74 N [75 g] Shield, 0.98 N [100 g] Power
Engagement Force (Nominal):	0.32 N [33 g] Signal, 0.22 N [22 g] Shield, 1.42 N [145 g] Power
Separation Force (Nominal):	0.20 N [20 g] Signal, 0.20 N [20 g] Shield, 0.89 N [91 g] Power
Wipe (Nominal, Shortest Contact):	2.67 mm [0.105 in] Signal, 1.57 mm [0.062 in] Shield, 1.93 mm [.076 in] Power
Durability:	250 cycles with TR40B plating
Application:	This module is suitable for stand-alone use with pin lengths of up to 6.80 mm. Limited capture of 0.75 mm in longitudinal and 1.00 mm transverse directions. Refer to IEC 61076-4-101.
Electrical	
Data Rate:	5 Gb/s
Characteristic Impedance:	50 Ω Single-ended, 100 Ω Differential
Current Rating (Fully Loaded):	1 A at 70°C Signal, 8.25 A @ 70°C Power
Insulation Resistance:	10^4 MΩ at 100 V_{DC}
Withstanding Voltage:	750 V_{RMS}

Environmental

Temperature Rating: -55°C to +125°C

UL File No.: E68080

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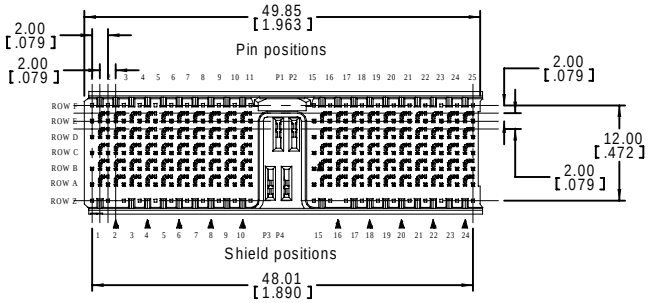
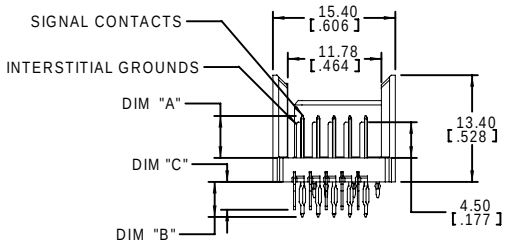
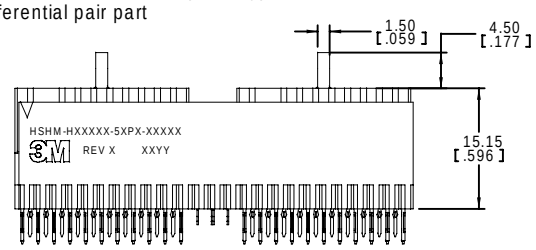


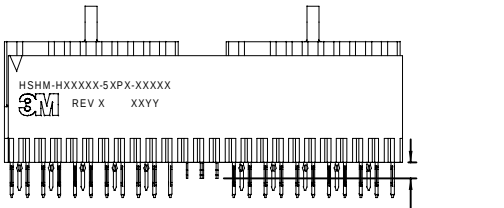
Denotes shield column (tail only) omitted for the row differential pair part



DIM A = Pin mating length
DIM B = Pin tail length
DIM C = Shield tail length



Coaxial, column differential and stripline configuration shown with protective caps*



Row differential configuration shown with protective caps*

* Caps to be removed after press-fit installation process

Standard Configuration:
Dim A = 5.3 mm for rows A through E
For non-standard configurations contact a sales representative

mm
[inch]

Tolerance Unless Noted			
	0	0.0	0.00
mm	±3	±0.3	±0.13

[ ] Dimensions for Reference Only

Ordering Information

HSHM - H110APWRX - 5CPX - XXXXX (rows F and Z not loaded)

High Speed Option:
4 = Coaxial, column differential and stripline (75 Ω) applications
5 = Row differential applications

Tail Length:
1 = 4.4 mm pin and 3.5 mm shield
2 = 2 mm pin and 2 mm shield

Plating µm [µ″]:
TG30 = 0.76 [30] Min. Au Contact Area
2.54 [100] Min. SnPb Terminal Area (RIA E2 & C2 Apply)
1.27 [50] Min. Ni All over

TR40B = 0.127 [5] Min. Hard Au Contact Area, Lubricated
1.02 [40] Min. PdNi Contact Area
0.10 [4] Min. Pd Strike Contact Area
2.54 [100] Min. SnPb Terminal Area (RIA E2 & C2 Apply)
1.27 [50] Min. Ni all over

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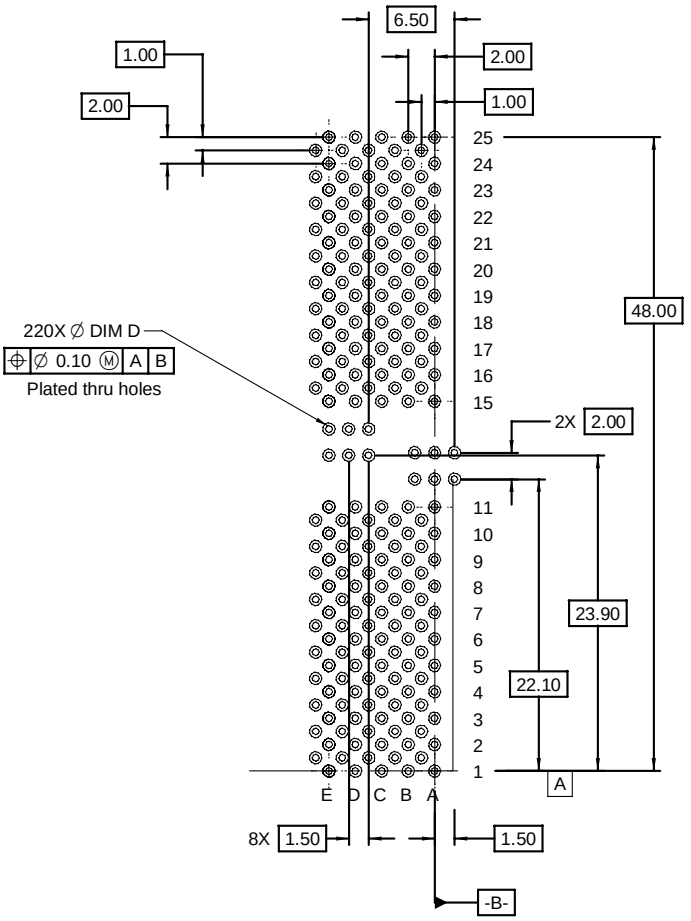
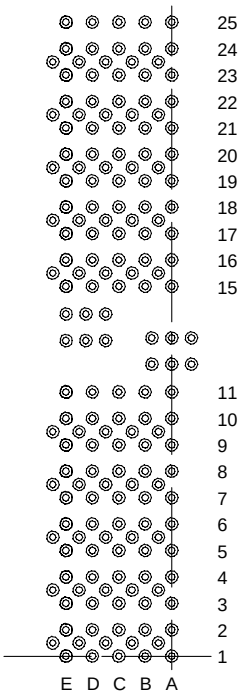


Recommended PCB hole mounting pattern for power center and single ended applications



Recommended PCB hole mounting pattern for row differential applications

(Same geometry as left view without the ground vias)

HOLE PLATING TABLE mm [in.]			
FINISHED HOLE DIA. ("D")	**Cu. THICKNESS**	**SnPb THICKNESS**	**DRILLED HOLE DIA.**
0.457 - 0.559 [.0180 - .0220]	0.025 - 0.045 [.0010 - .0018]	0.008 -0.018 [.0003 - .0007]	0.584 - 0.625 [.0230 - .0246]

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Regulatory Information Appendix
3M Electronic Solutions Division/Interconnect

EUROPE

Appendix E1: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product is RoHS Compliant 2005/95/EC.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E2: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC

This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E3: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

This product contains lead in the solder tail area in excess of the maximum concentration value allowed.

Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E4: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains decaBDE in the insulating material in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/17/EC.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

CHINA

Appendix C1: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.
This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does not** contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix C2: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.
This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称 (Part or Component Name)	有毒有害物质或元素 (Hazardous Substances or Elements)					
	铅(Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
端子镀层(contact plating)	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.)
×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.
This product will be free from defects in material and manufacture for a period of one (1) year from the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

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