smiths connectors

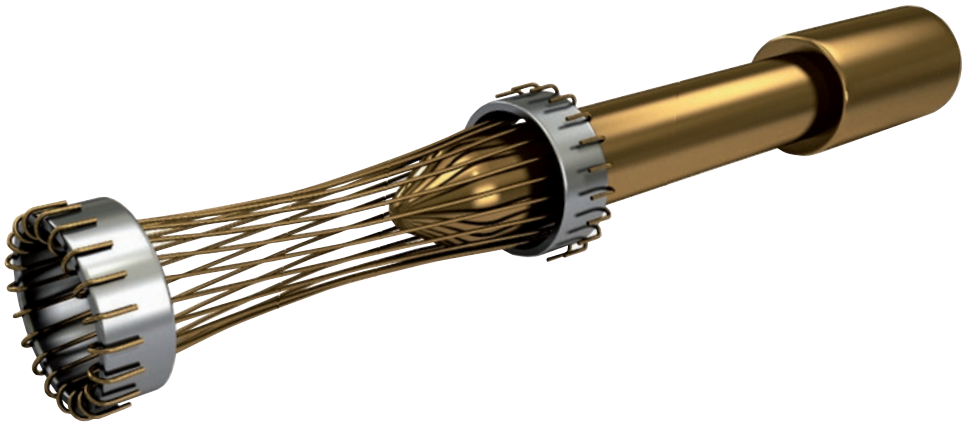
PC/104+
CONNECTOR SERIES

Ruggedized Stackable Connector System

HYPERTAC IDI INTERCONNECT DEVICES SABRITEC

HYPERBOLOID TECHNOLOGY

Smiths Connectors offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



FEATURES

LOW INSERTION/EXTRACTION FORCES

The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.

LONG CONTACT LIFE

The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.

LOWER CONTACT RESISTANCE

The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has half the resistance of conventional contact designs.

HIGHER CURRENT RATINGS

The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.

IMMUNITY TO SHOCK & VIBRATION

The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360 degrees around the pin and is uniform over its entire length.
The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.

BENEFITS

HIGH DENSITY INTERCONNECT SYSTEMS

Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.

LOW COST OF OWNERSHIP

The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.

LOW POWER CONSUMPTION

The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.

MAXIMUM CONTACT PERFORMANCE

The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.

RELIABILITY UNDER HARSH ENVIRONMENTS

Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.

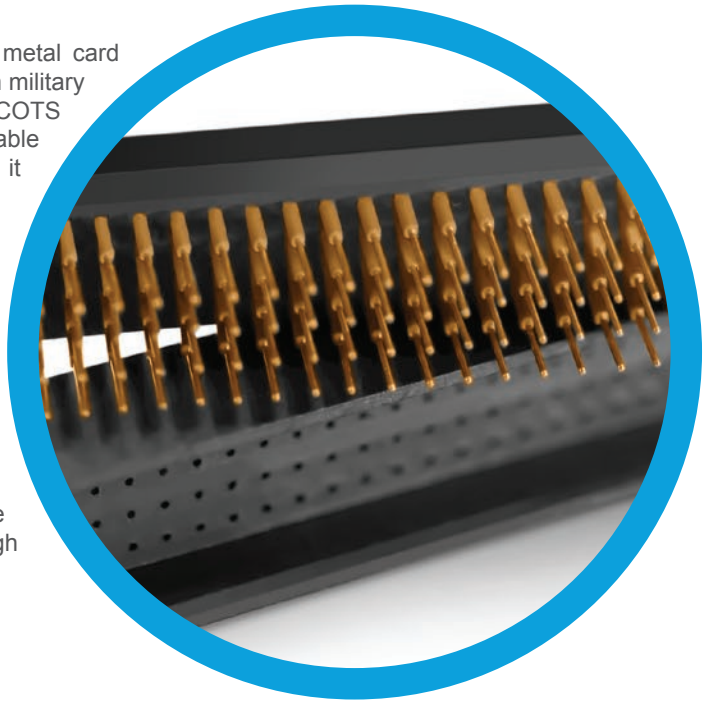
FEATURES & BENEFITS

- 2 mm centerline, 4 X 30 contact grid (120 total contact positions)
- Up to 1 Amp per contact
- Insulator material meets NASA outgassing specifications
- Connector designed for ruggedized applications
- Contact tails available in round solder termination style
- System is compatible with industry standard PC/104 bus footprint
- Available in standard 0.60” as well as 1.04” PCB stack heights
- Movable pin alignment guide to ease PCB insertion

PC/104+ CONNECTORS

PC/104+ board stacking connectors utilize the unique Hypertac® contact system which improves the performance of the PC/104+ platform by providing immunity to shock and vibration fretting. The capabilities of Smiths Connectors’ ruggedized PC/104+ exceed all prior requirements for the form factor – PC/104+ based platforms can now be used in a greater range of industries and applications.

The traditional stackable design eliminates the need for backplanes or metal card cages found throughout the range of embedded computing devices used in military systems. Smiths Connectors’ PC/104+ is interchangeable with PC/104+ COTS products and provides engineers with a high performance and highly reliable interconnect solution for their applications. Its hyperboloid socket makes it inherently rugged.



PC/104+ improves the performance and reliability of all PC/104+ bus architectures in existing applications while establishing a higher standard for the industry. It is a comprehensive technology that has proven capabilities in meeting a wide range of military applications in both emerging designs as well as retrofit scenarios.

Designed specifically for maximum performance and reliability under all harsh environmental conditions, PC/104+ has an established pedigree and is currently utilized on several active satellite programs. The contacts are housed in an LCP plastic insulator which exceeds the NASA space requirement for outgassing. PC/104+ enables engineers to achieve the high level of shock and vibration tolerance required in space applications.

TECHNICAL CHARACTERISTICS

Number of Rows/Ways	4 Rows
Pitch	2.00 mm
Contact Positions	120
Contact Termination	Solder
Mating Pin Diameter	0.38 mm
Nominal PCB Tail Diameter	0.50 mm and 0.70 mm

MECHANICAL & ENVIRONMENTAL

Operating Temperature	-55° to 125°C
Shock	Shock testing to MIL-DTL-55302 para. 4.5.14
Vibration	Vibration testing to MIL-DTL-55302 para. 4.5.10
Flammability Rating	UL94-V0
Engagement/Disengagement	Extraction: 0.3 to 1.6 oz. typical per contact

MATERIALS & FINISHES

Insulator	30% Glass filled LCP (meets NASA outgassing specification)
Non-Stacking Contact	Socket: Beryllium copper wires and brass body components; 50µin gold over nickel on mating surfaces, gold flash over nickel on all other socket components and solder area
Stacking Contact	Socket: Beryllium copper wires and brass body components; 50µin gold over nickel on mating surfaces, gold flash over nickel on all other socket components and solder area Mating Pin: Phosphor bronze; 50µin gold over nickel Solder area: flash gold

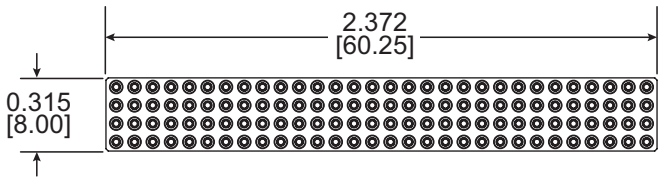
ELECTRICAL

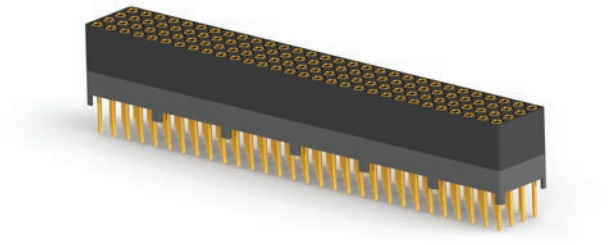
Current Rating	1 A continuous/contact
Operating Voltage	1463 V max.
Insulation Resistance	> 5,000 megohms at 500 VDC
Breakdown Voltage Between Contacts	1950 V max.
Contact Resistance	< 8 milliohms

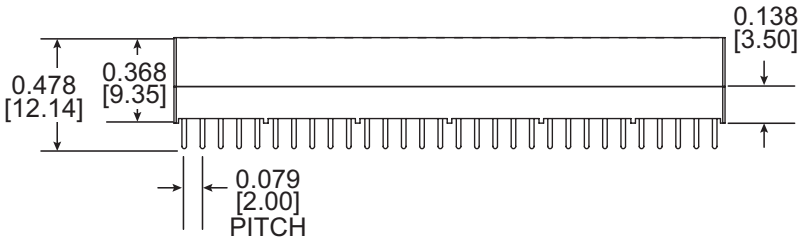
Dimensions are in inches [mm]

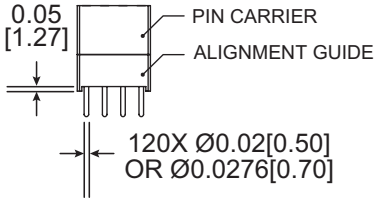
DIMENSIONS

NON-STACKTHROUGH

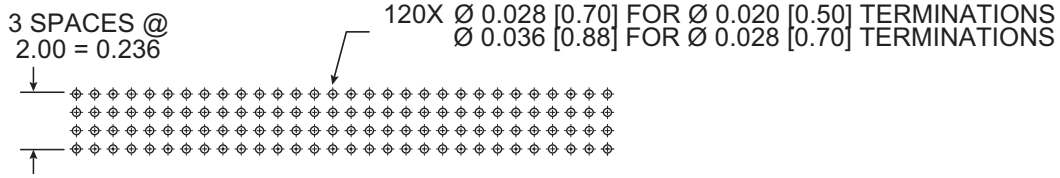






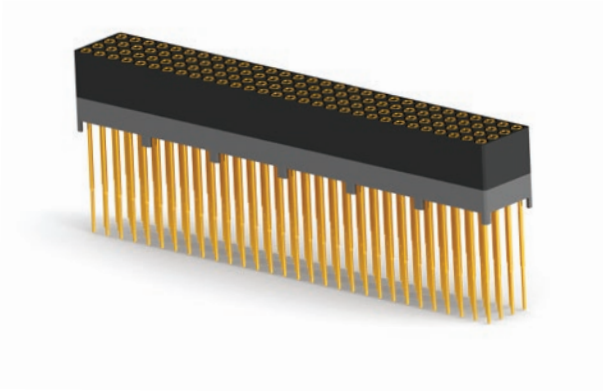


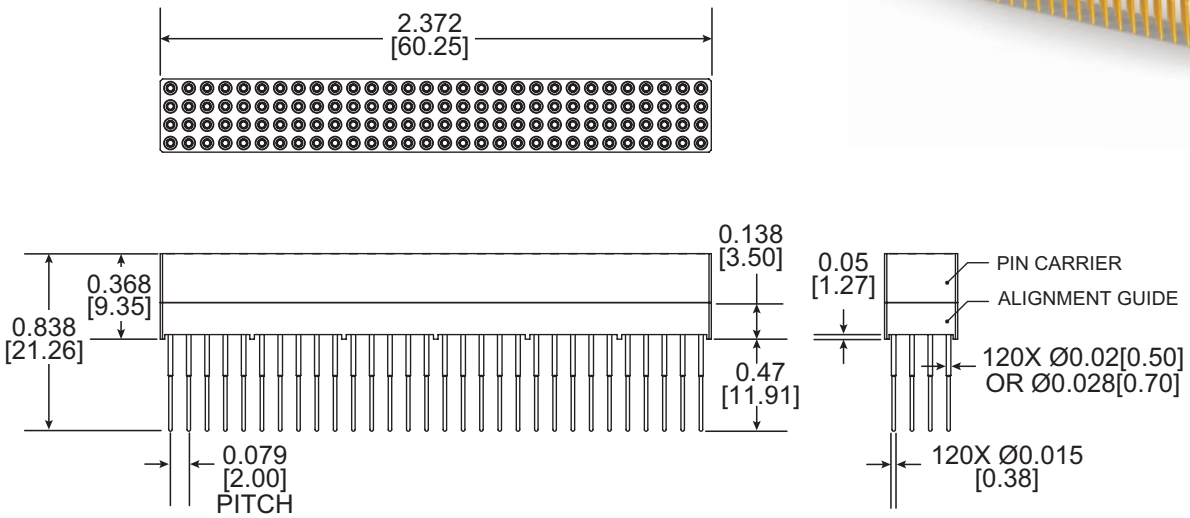
RECOMMENDED PCB MOUNTING FOOTPRINT
(Plated holes)



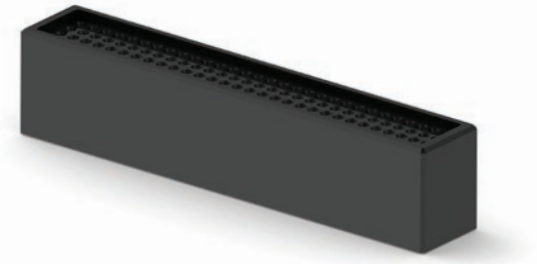
Dimensions are in inches [mm]

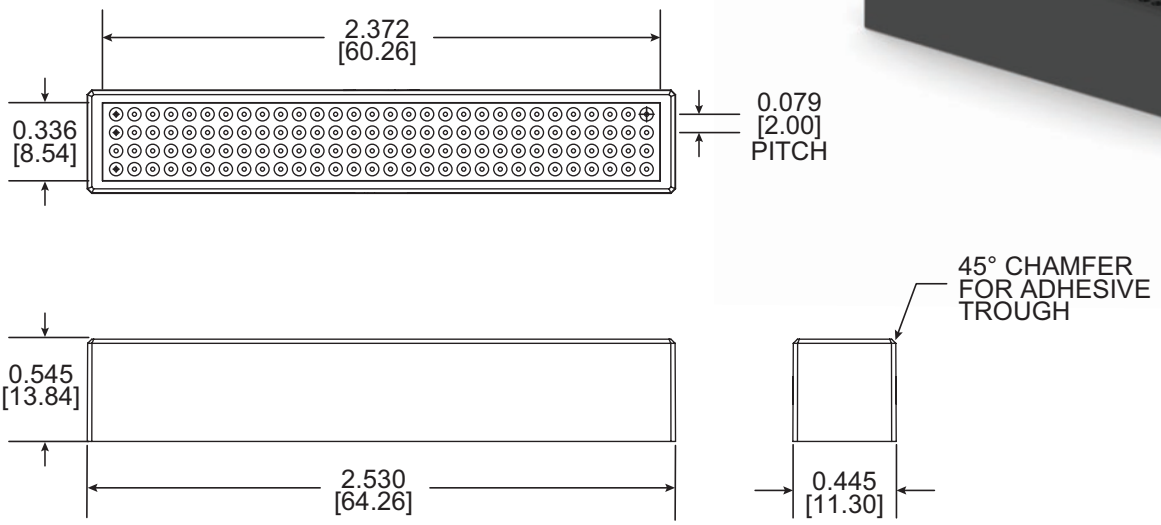
STACKTHROUGH FOR 0.60 INCH STACKING HEIGHT





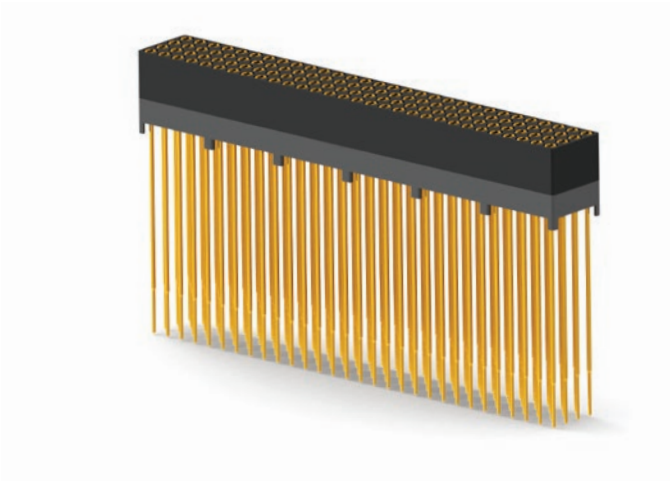
SHROUD

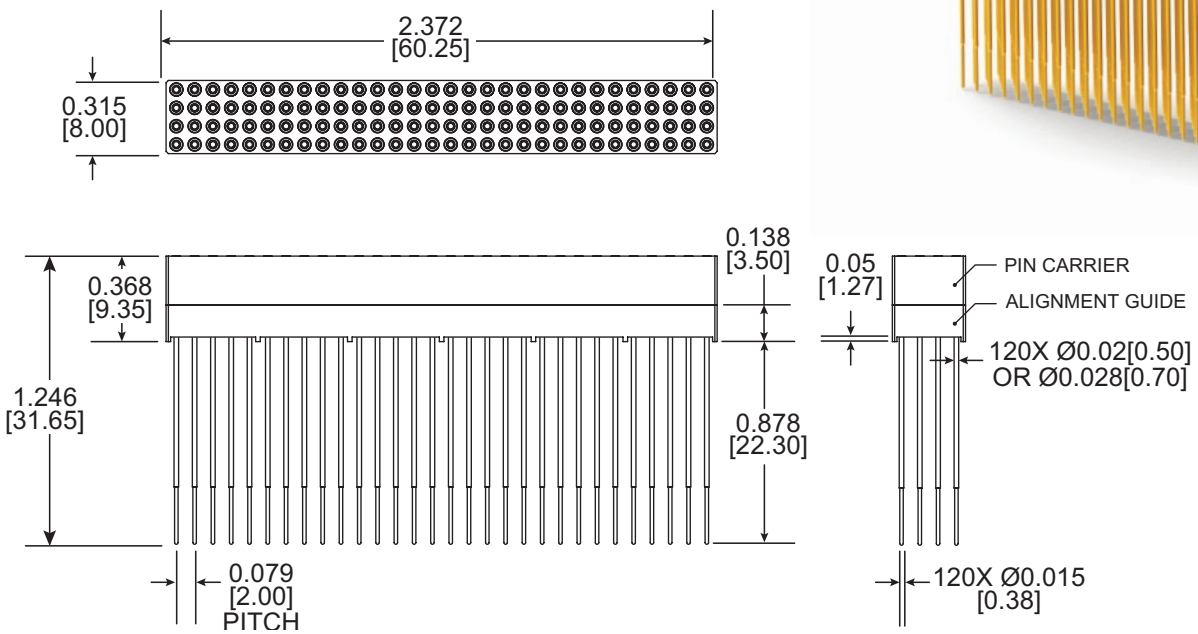




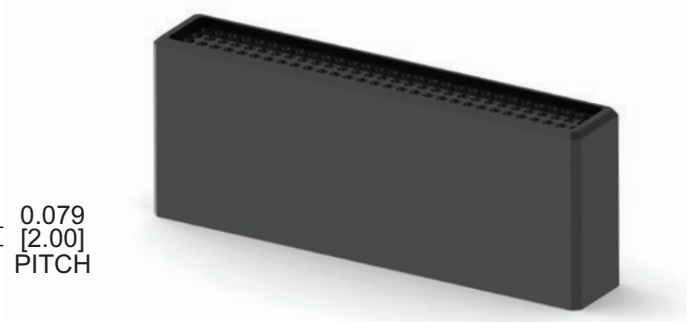
Dimensions are in inches [mm]

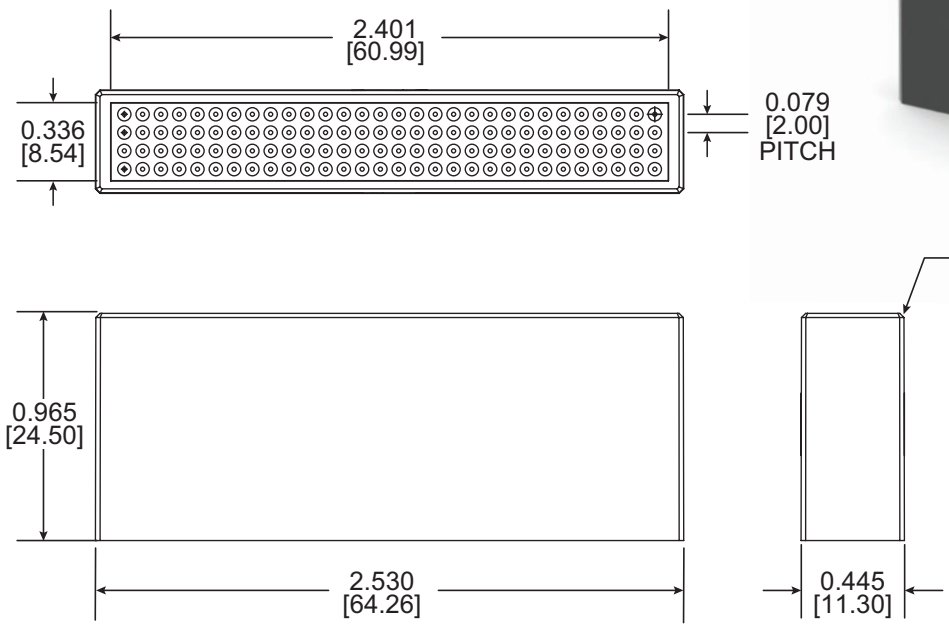
STACKTHROUGH FOR 1.04 INCH STACKING HEIGHT





SHROUD



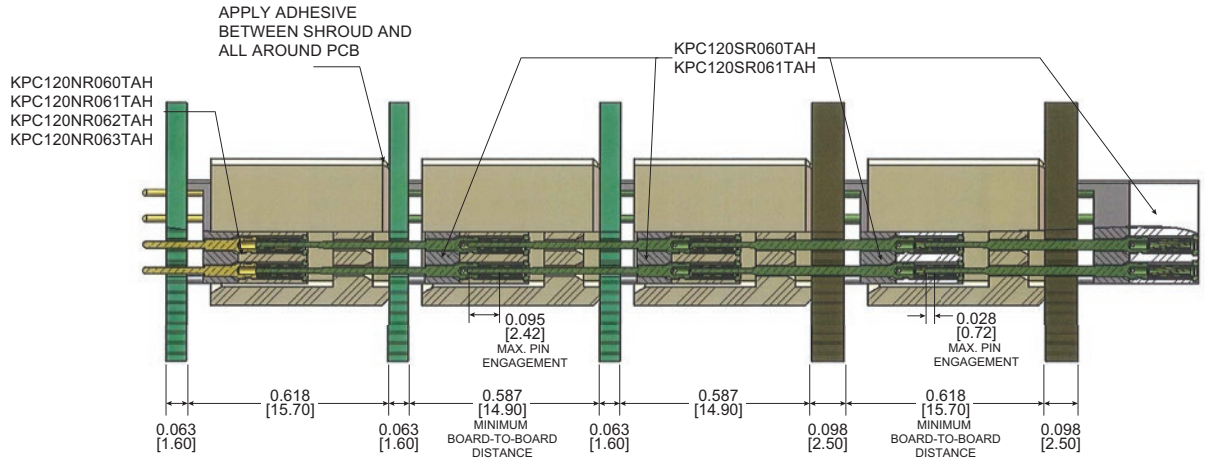


Dimensions are in inches [mm]

APPLICATIONS

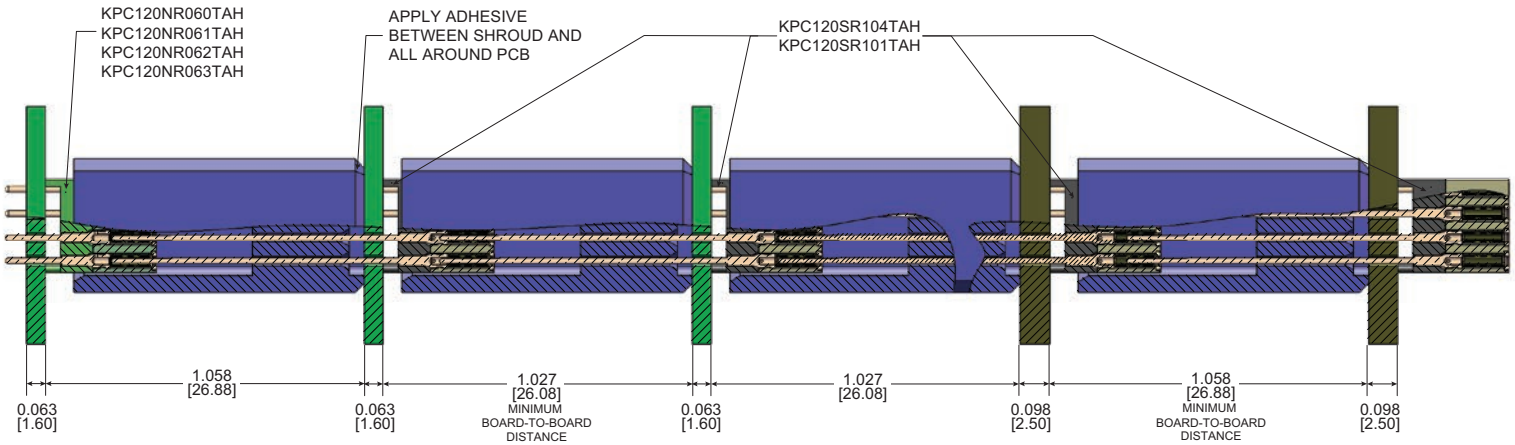
STACKTHROUGH FOR 0.60 INCH STACKING HEIGHT

0.60 in and 1.04 in versions can be used in the same system



STACKTHROUGH FOR 1.04 INCH STACKING HEIGHT

0.60 in and 1.04 in versions can be used in the same system



HOW TO ORDER

KPC	120		R			TAH
1	2	3	4	5		6

1 SERIES *[Fixed]*

KPC (PC/104+)

2 NUMBER OF CONTACTS *[Fixed]*

120 CONTACTS

3 CONNECTOR STYLE *[Fixed]*

N NON-STACKTHROUGH

S STACKTHROUGH

4 PRINTED CIRCUIT BOARD TAIL STYLE *[Fixed]*

R ROUND

5 PRINTED CIRCUIT BOARD

Non-Stackthrough Only

060 Ø 0.020 [0.50] PCB TAIL, 0.063 [1.60] PCB THICKNESS

061 Ø 0.028 [0.70] PCB TAIL, 0.063 [1.60] PCB THICKNESS

062 Ø 0.020 [0.50] PCB TAIL, 0.098 [2.50] PCB THICKNESS

063 Ø 0.028 [0.70] PCB TAIL, 0.098 [2.50] PCB THICKNESS

Stackthrough Only

060 Ø 0.020 [0.50] PCB TAIL, 0.60 [15.24] STACK HEIGHT

061 Ø 0.028 [0.70] PCB TAIL, 0.60 [15.24] STACK HEIGHT

101 Ø 0.028 [0.70] PCB TAIL, 1.04 [26.42] STACK HEIGHT

104 Ø 0.020 [0.50] PCB TAIL, 1.04 [26.42] STACK HEIGHT

6 PLATING *[Fixed]*

TAH 50µin GOLD OVER NICKEL ON MATING SURFACES AND GOLD FLASH IN PRINTED CIRCUIT BOARD TAIL SECTION

Dimensions are in inches [mm]

Disclaimer 2015

All of the information included in this catalog is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.
Smiths Connectors makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use.
Smiths Connectors reserves the right to modify design and specifications, in order to improve quality, keep pace with technological development or meet specific production requirements.

SMITHS CONNECTORS
PRODUCT LINES

Circular

- Metal and plastic
- Industrial M12, M23, M40, M58
- Crimp and solder terminations
- Push/pull latch mechanism
- Color coding

EMI / EMP Filter

- EMI/RFI filtering and transient protection
- RoHS compliant solderless filter connectors available
- Filtered adapter for “bolt on” EMI/EMP solutions
- Filter hybrid capability
- Circular, ARINC, D-Subminiature, Micro-D

Heavy Duty

- Modular solution: signal, power, data contacts and fiber optics
- EMC shielding
- High pressure up to 35K PSI, 250°C
- High temperature up to 440°C

High Power

- Single and multi-way
- Circular and configurable rectangular
- Power contact up to 1,200 Amps
- Excellent performance in harsh environments

High Speed Copper / Fiber

- Quadrax and Twinax connectors
- Fiber Optic Butt Joint, Expanded Beam and Floating Fiber Termini available
- ARINC and MIL-STD contacts

Mil / Aero Standards

- Standard military interface
- ARINC 801
- ARINC interface
- Custom inserts

Modular / Rectangular

- Configurable modules for signal, power, coax, fiber optic and/or pneumatics
- Guided hardware for blind mating
- Easy configuration in a single frame
- For rack & panel and cable applications

PCB

- Low, medium and high density board-to-board, cable to board and stacking
- Signal, power, coax and high speed configurations
- Numerous termination styles

Spring Probe

- Z-axis compliant
- Blind mate engagement
- High density
- Extreme miniaturization
- High reliability, multi-cycle performance

SMITHS CONNECTORS
GLOBAL SUPPORT

AMERICAS

Costa Mesa, CA	1.714.371.1100	customerservice@sabritec.com
Hudson, MA	1.978.568.0451	info@hypertronics.com
Kansas City, KS	1.913.342.5544	info@idinet.com

EUROPE

France	33.2.3296.9176	info@hypertac.fr
Germany	49.991.250.120	info@hypertac.de
Italy	39.10.60361	info@hypertac.it
United Kingdom	44.0208.236.2400	info@hypertac.co.uk

ASIA

Bangalore, India	91.80.2535.7351/52	info@hypertac.fr
Shanghai, China	86.21.3318.4650	asiacrs@smithsconnectors.com
Singapore	65.6846.1655	asiacrs@smithsconnectors.com
Suzhou, China	86.512.6273.1188	asiacrs@smithsconnectors.com

visit us at | **smithsconnectors.com** |