



# HPCE<sup>®</sup> Product Presentation





# Category Information

# Power Solutions Offerings



## 1 Power connectors

### Board, Cable, Busbar connectors



- PwrBlade<sup>®</sup>
- PwrBlade+<sup>™</sup>
- HPCE<sup>®</sup> BTB *NEW*
- HPCE<sup>®</sup>
- HCI<sup>®</sup>
- PwrLoPro<sup>™</sup> *NEW*
- BarKlip<sup>™</sup> *NEW*
- Airmax Power\*

## 2 Power cable IO

### Cable assemblies



- PwrBlade<sup>®</sup> cable
- HPCE<sup>®</sup> cable *NEW*
- PwrProfile<sup>®</sup>
- PwrProfile+
- PwrTwinblade<sup>®</sup>

## 3 Busbar

### Laminated Busbars



Custom-made

\* Backplane power

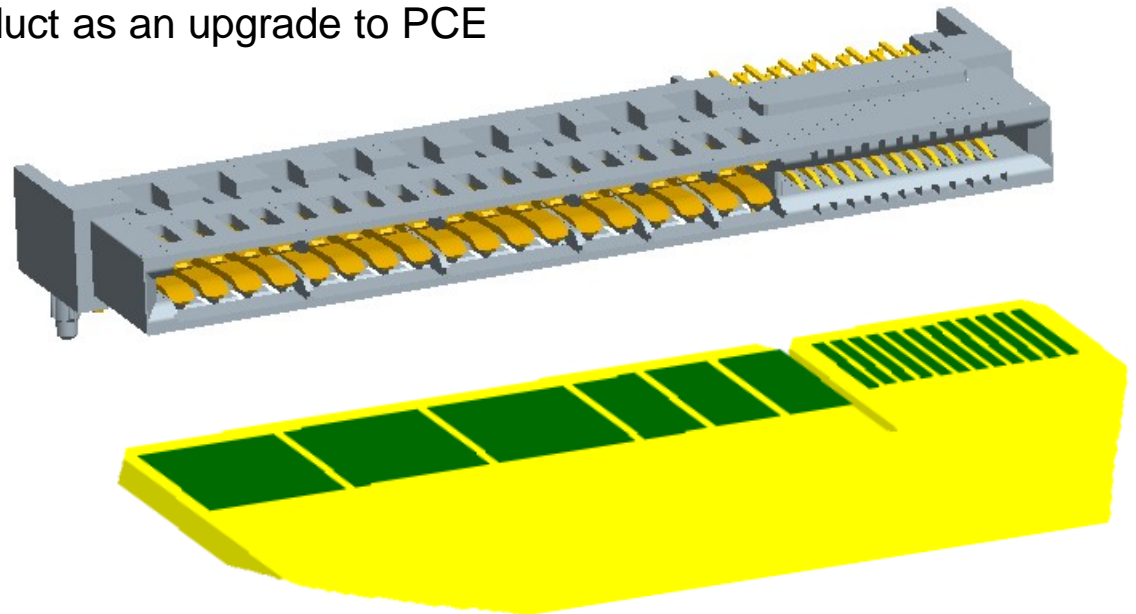


# Product Information

# HPCE® Key Points



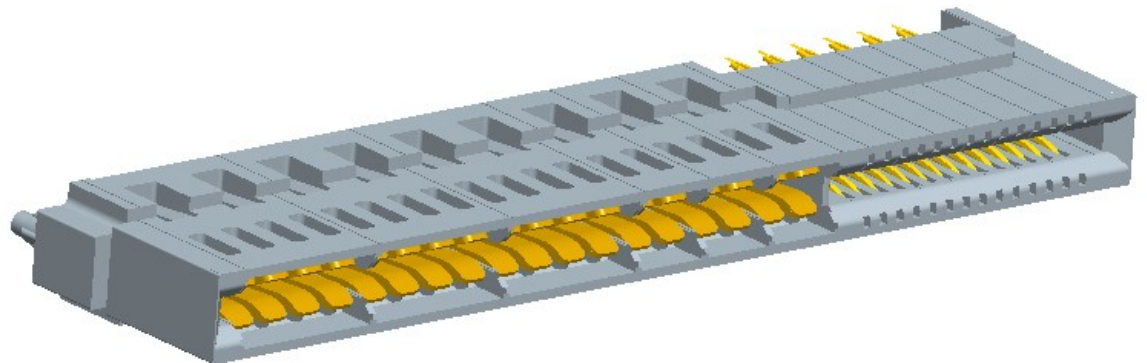
- Low profile
- High density
- 1-piece board-to-edge card connectors
  - Right angle vertical
  - Straddle mount (for boards up to 3mm thickness)
  - Mezzanine type (2 vertical HPCE® linked by PCB/Busbar)
- Next gen power card edge product as an upgrade to PCE
- 2<sup>nd</sup> sourced to 3M



# HPCE® Product Overview



- 3 types: R/A , Vertical and Straddle mount
- High Power: power Quad Beams contacts (1X4)
- Low Power: power Dual Beams contacts
- (1X2) Signal Contacts (1X1)
- 10A/beam & 40A per Quad beams power contact
- 7.50mm above the PCB to optimize air flow
- Over all length: 100 mm maximum included end-pieces

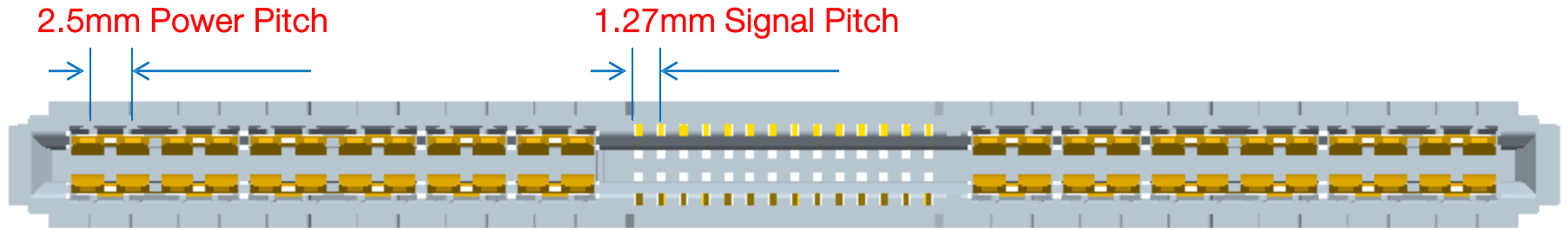


# HPCE® Product Spec



## Product Flexibility

Modular tooling design to meet customer needs



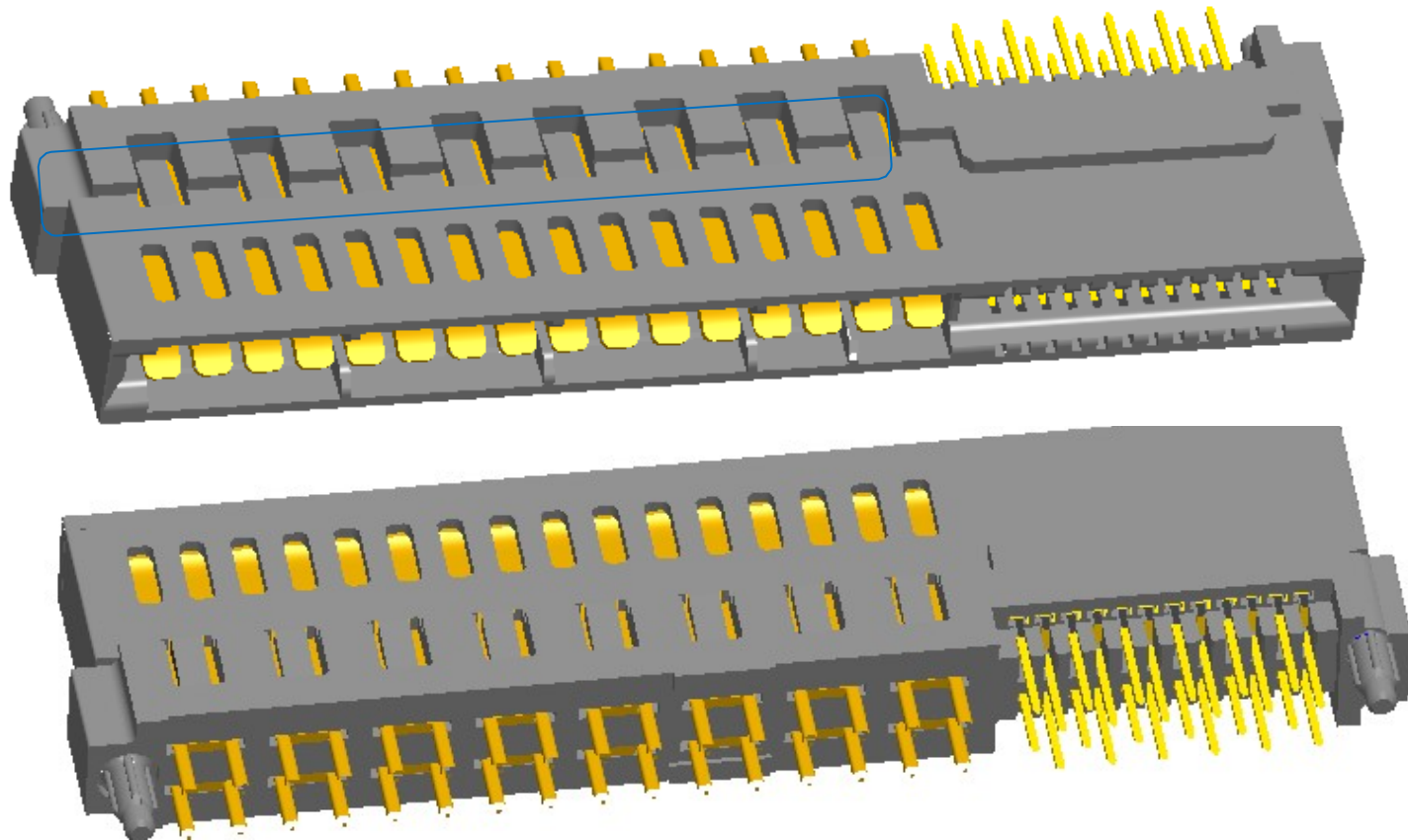
S&OP	HPCE	Various Config.	Max. Overall Length (mm)	Max. Power Contact Qty. Multiple of 4	Max. Signal Contact Qty. Multiple of 4
52VF	Vertical Type	Power + Signal	100	72 Pins	60 Pins
52WF	Straddle Mount Type	Power + Signal + Power		64 Pins	60 Pins
52RF	Right Angle Type	Signal + Power		72 Pins	60 Pins

# HPCE<sup>®</sup> Product Spec



## Highly Vented Housing Design

Highly vented housing design for enhanced heat dissipation effects



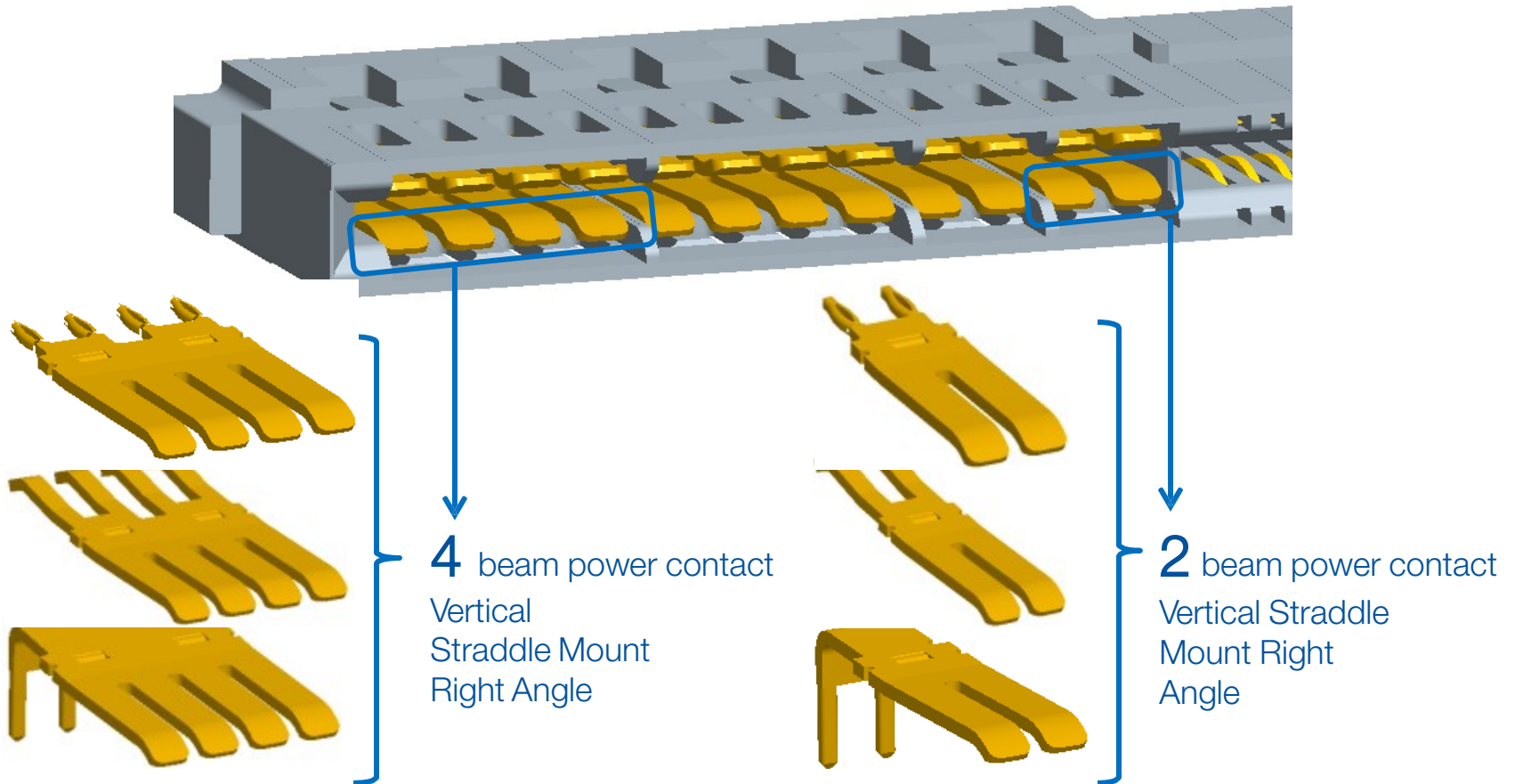


# HPCE® Product Spec



## Power Contact

- 2 beam and 4 beam power contact available for HPCE series
- Customer can select proper contact to save on overall length

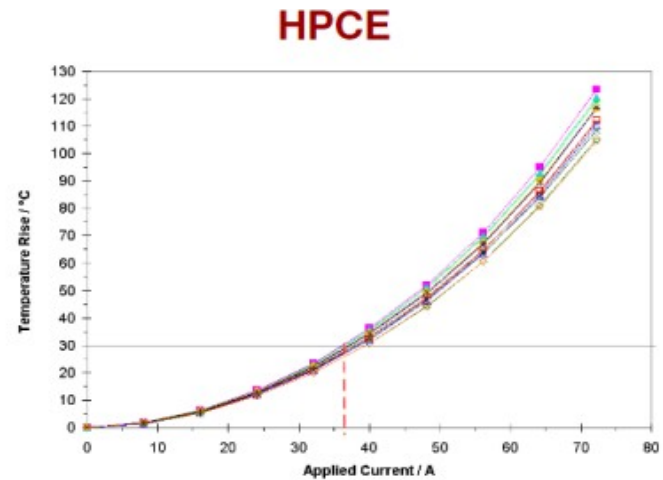


# HPCE® Product Spec



## Power Contact – High Current Carrying Capability

- Low contact resistance and high conductivity copper material bring high current rating
- 9A/beam, 36A per 4beam contact, 18A per 2beam power contact for 56P12S configuration
- 10A/beam for 40P configuration
- 11A/beam for 24P configuration



Following are the current rating values for the HPCE connector system:

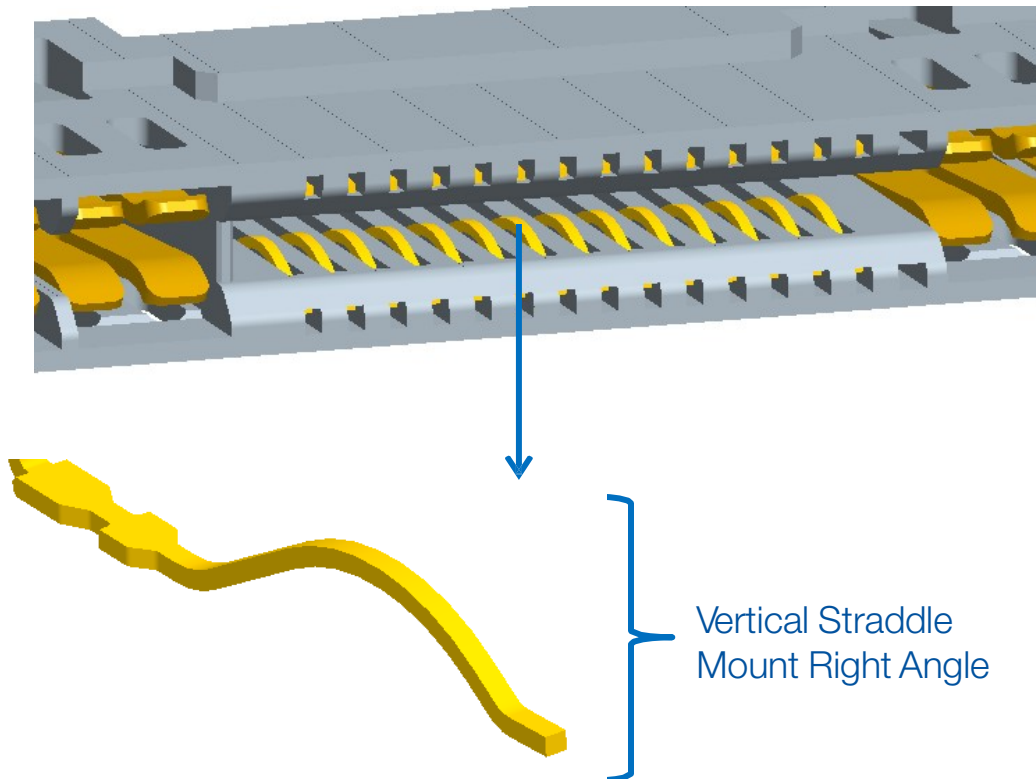
Configuration	Number Power Pins (Fully Energized)	Edge Card	Air Temp. (Starting / C°)	Still Air (No Forced Air)	T-Rise (max. / C°)	Typical Current Rating (Single Power Pin/ Amps)	Remark
24P	24	1.6 mm thick	Ambient	Yes	30	11.0	5 Oz. - 2 External Layers test board
40P	40					10.0	
56P-12S	56					9.0	

# HPCE® Product Spec



## Signal Contact

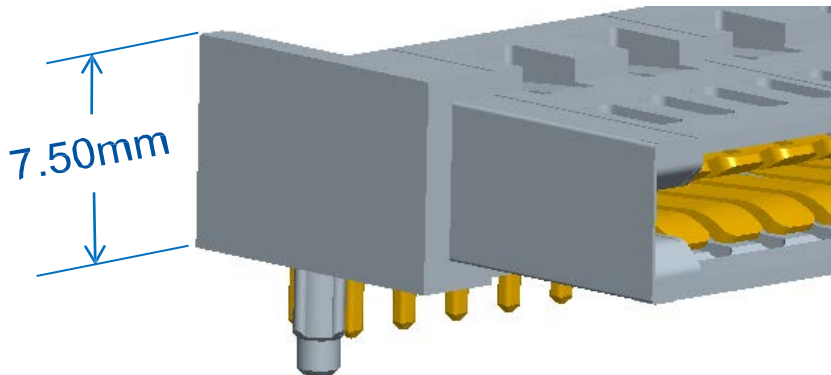
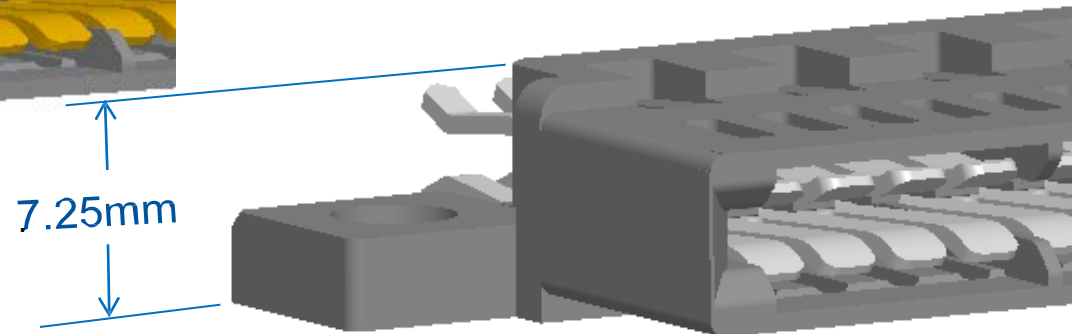
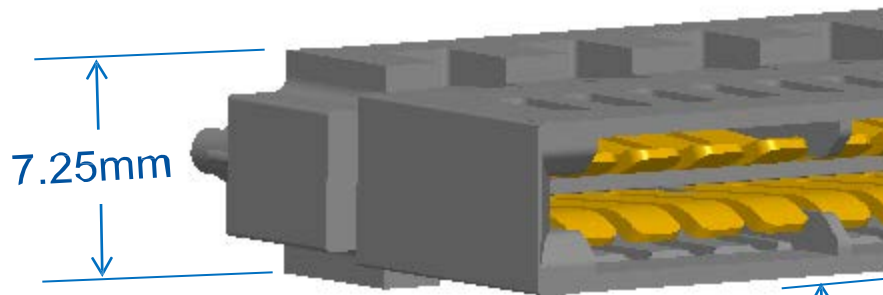
- The signal contact is available for multiples of 2, e.g. 8S, 10S, 12S, 14S, 16S, up to 60S
- Can be used as power control contact (hot swap)
- 1.5A current maximum



# HPCE<sup>®</sup> Product Spec

## Low Profile Height

- 7.25mm for vertical and straddle mount type (2.8mm for straddle mount above PCB)
- 7.50mm for right angle type

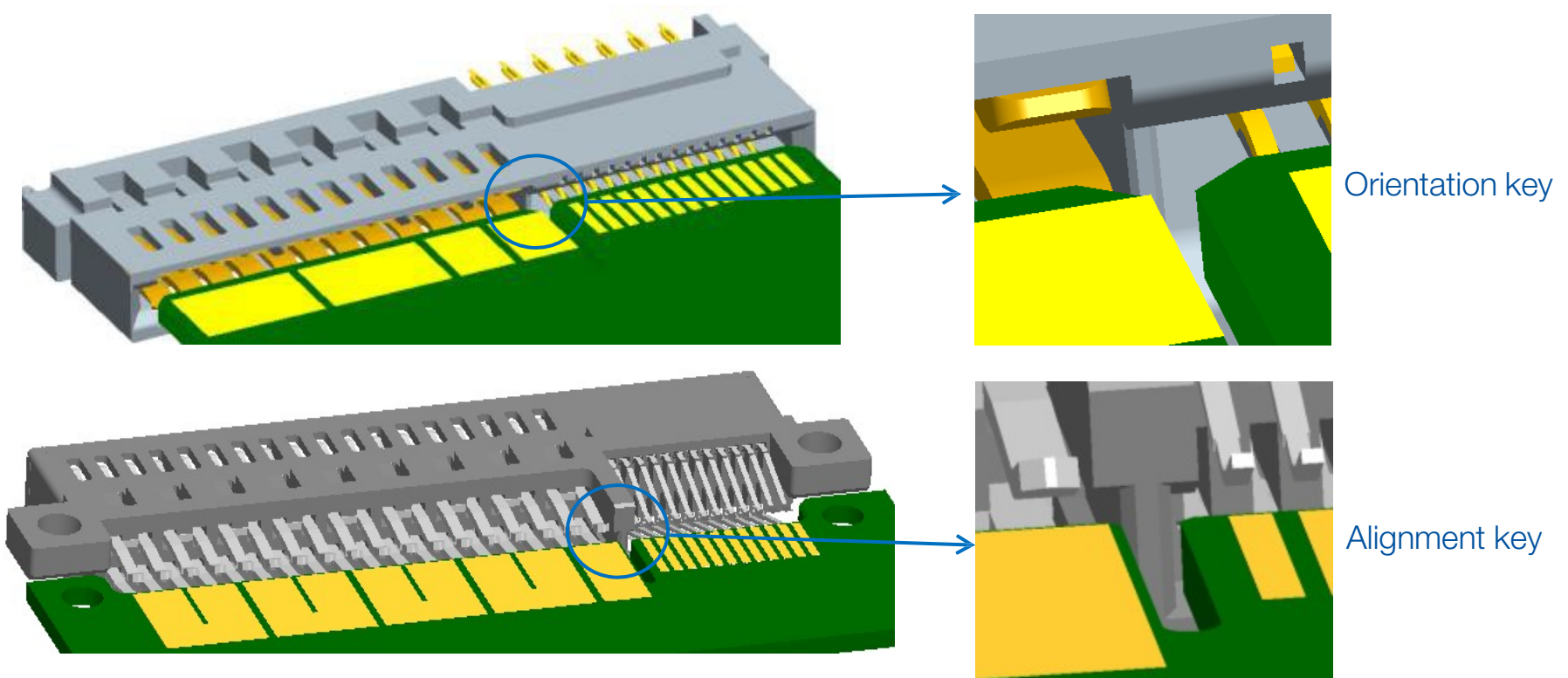


# HPCE<sup>®</sup> Product Spec



## Orientation & Alignment

- Orientation key option can prevent the operator from inserting the card edge incorrectly
- Alignment key option for solder side of straddle mount type allows the operator to insert solder PBC easily and correctly by aligning the housing key with the PCB slot



# HPCE® Product Spec



## Tail Pin and Add-On Options

HPCE	STB	Surface Mount	Press fit	Hold On	Screw Hole
R/A	Available	Optional	Optional	Available	Optional
V/T	Available	Optional	Available	Available	Optional
SM	N/A	Available	N/A	N/A	Available

Available: Available for production

Optional: Option, but not yet tooled.

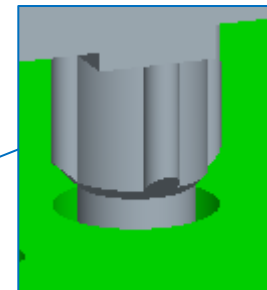
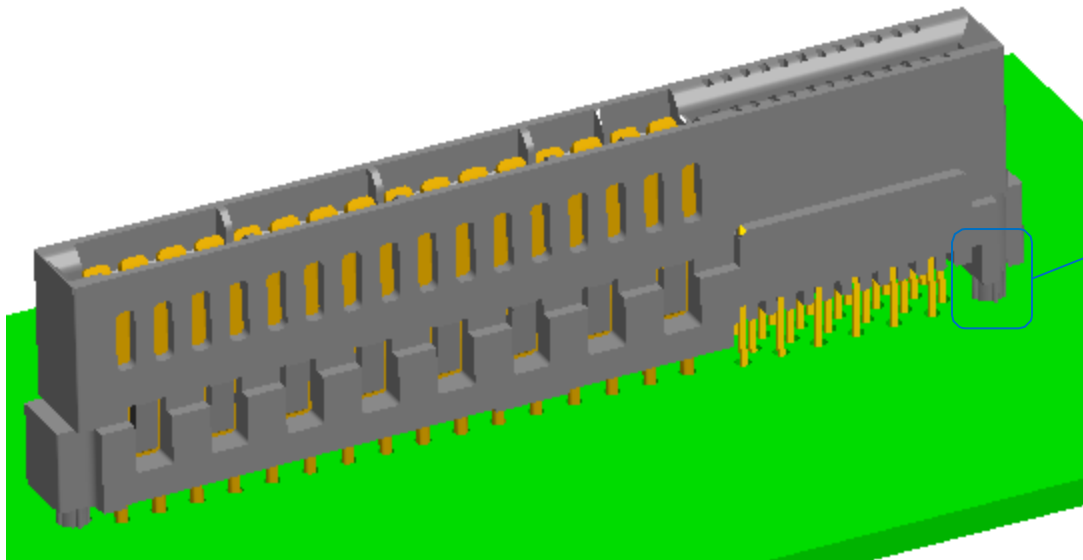
N/A: Not available

# HPCE<sup>®</sup> Product Spec



## Vertical STB Type

- Connector solders to PCB vertically and can be applied up to 260 C, 60 seconds, reflow/PIP solder process, and wave soldering process
- Two hold-downs create retention force to make sure the connector is well fixed before soldering



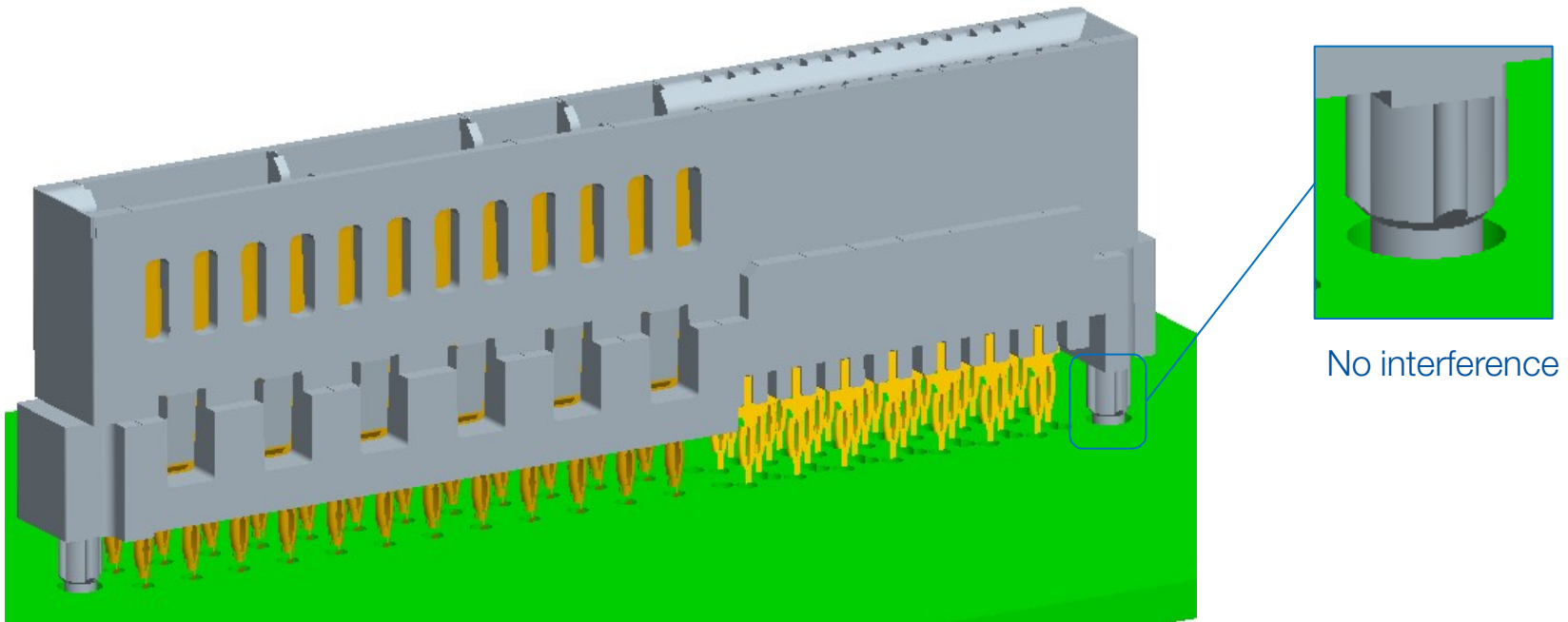
Hold down

# HPCE® Product Spec



## Vertical Press Fit Type

- Connector connected with PCB mechanically by EON(Eye Of Needle) feature
- Repair function: 3 times insertion and 2 times withdraw for PCB plate through hole
- No retention force created by hold down, so the press force of connector can be reduced

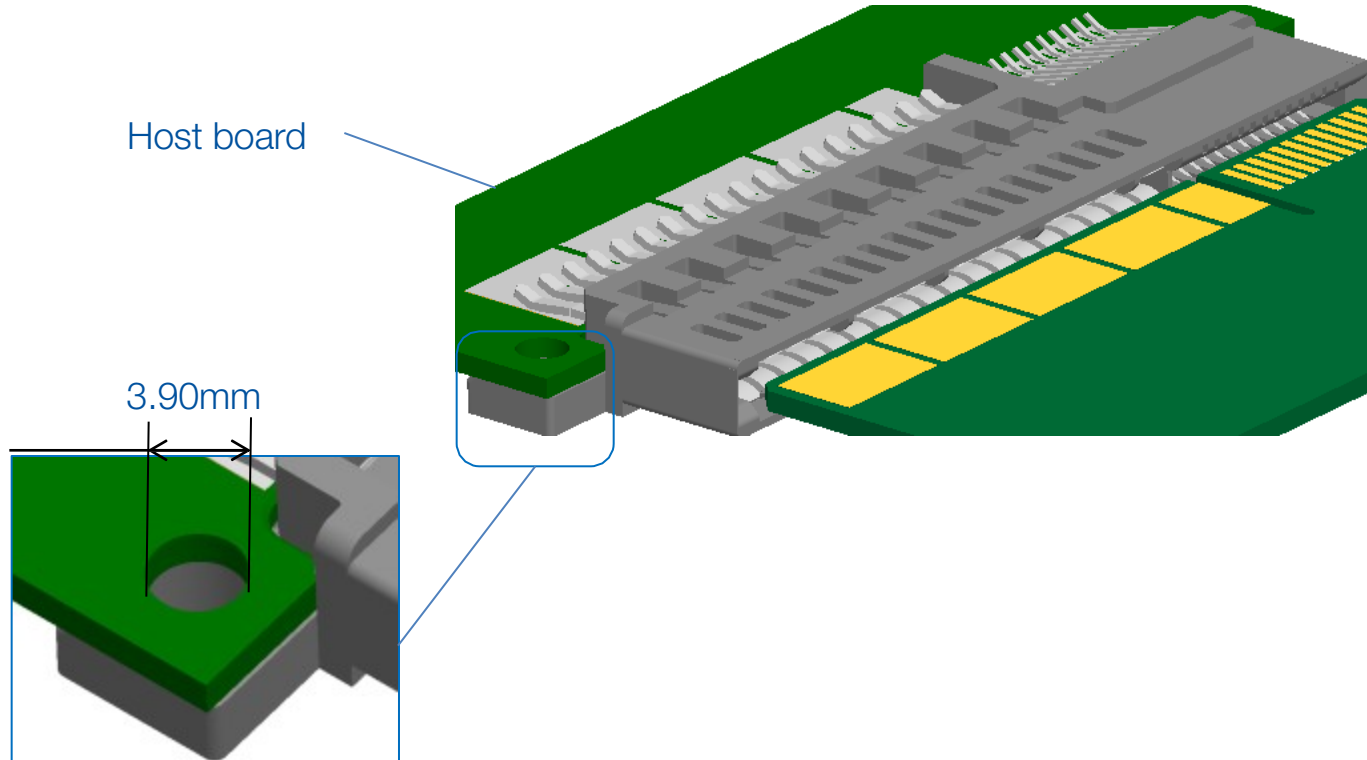




# HPCE® Product Spec

## Straddle Mount Type

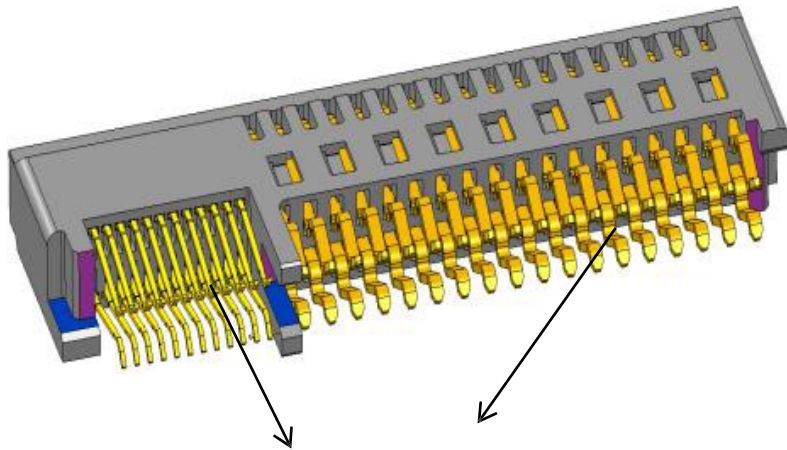
- Connector can be soldered to PCB by reflow process, 260°C, 60 seconds
- Two screws can be added to fix connector on solder board
- Available to solder to PCB boards with a thickness up to



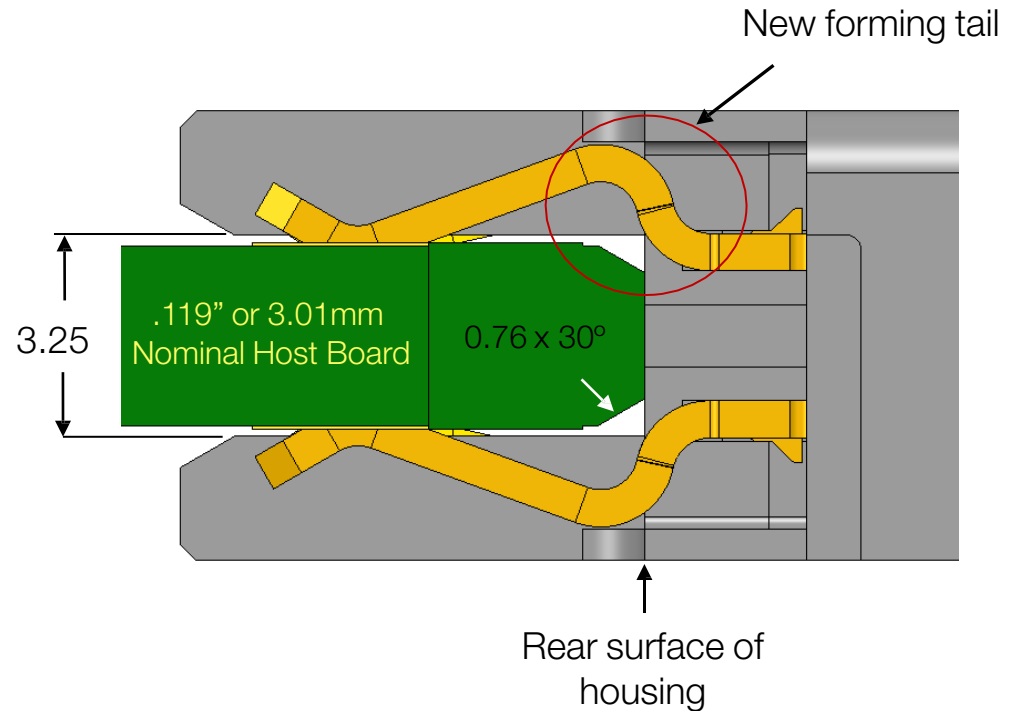
# HPCE® straddle mount for various thicker boards



**NEW!**



To be able to accommodate the host board >1.57mm, up to 3mm (with +/- 10% tolerance)



New Power contact

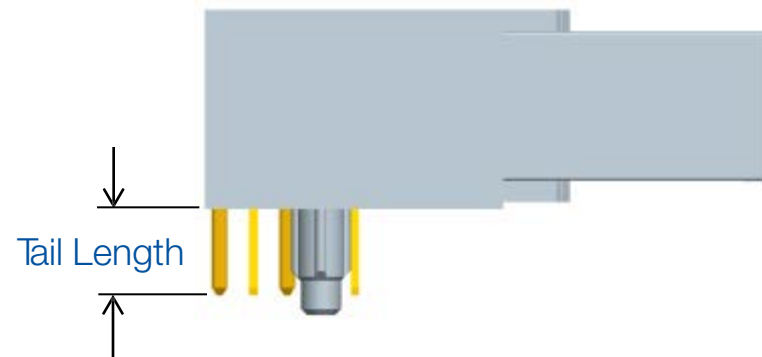
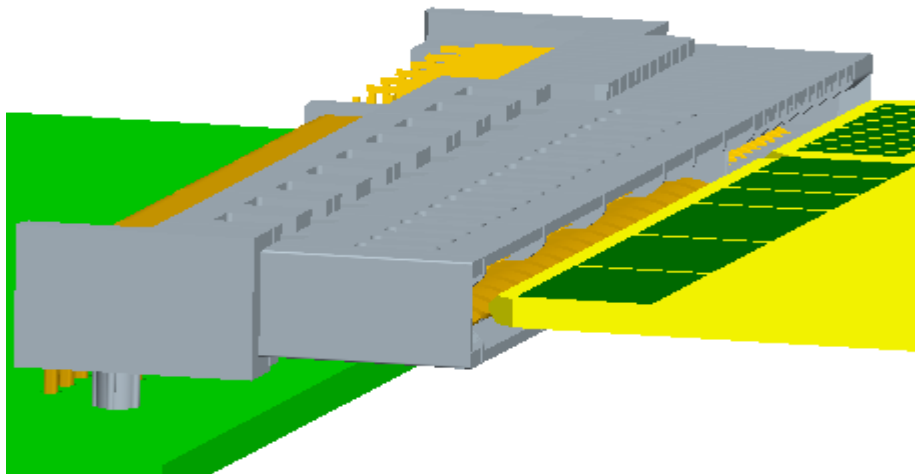


# HPCE® Product Spec



## Right Angle STB Type

- Connector can be soldered on PCB parallel, can be applied up to 260°C, 60 second reflow/PIP solder process, and wave soldering process
- 4 types of tail length options for different PCB thicknesses
- Tail length(Tol:+/-0.25mm): 2.60mm, 3.25mm, 4.05mm, 4.85mm



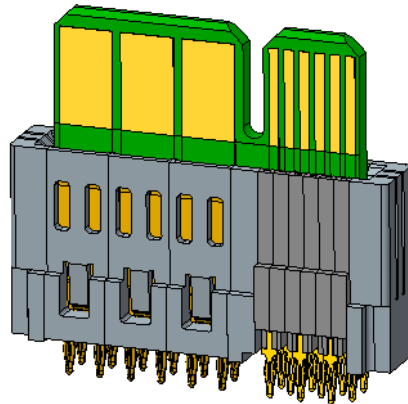
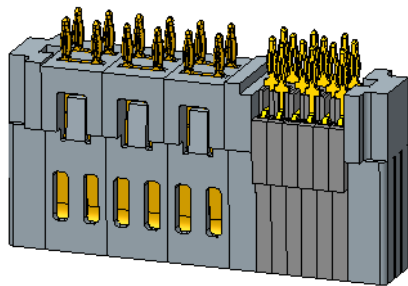
TAIL TYPE	TAIL LENGTH	RECOMMENDED BOARD THICKNESS	REMARK
SOLDER TAIL	2.60+/-0.25mm	1.57	STANDARD HPCE
	3.25+/-0.25mm	2.36	STANDARD HPCE
	4.05+/-0.25mm	2.36	THICKER STAND OFF
	4.85+/-0.25mm		APPOINTED BY CUSTOMER, NOT RECOMMENDED

# HPCE<sup>®</sup> Product Spec

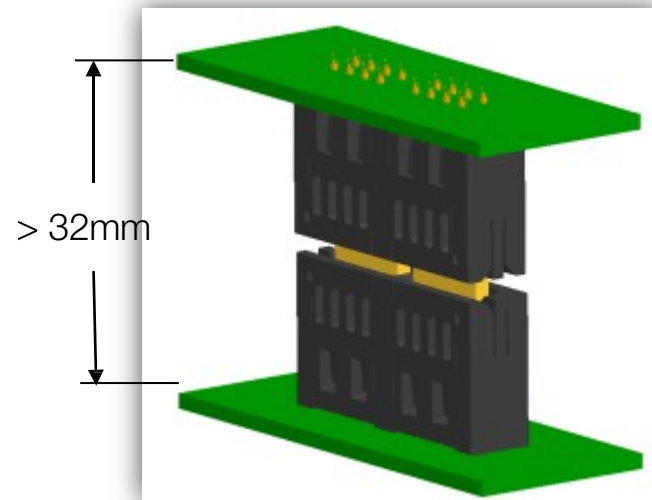


## Mezzanine Type

- HPCE & busbars/ PCB's achieve variable stack heights > 32mm
- Includes latching feature to retain busbar/printed circuit board
- Configurable with power or signal contacts to meet customer needs



*NEW!*



# HPCE® Product Spec

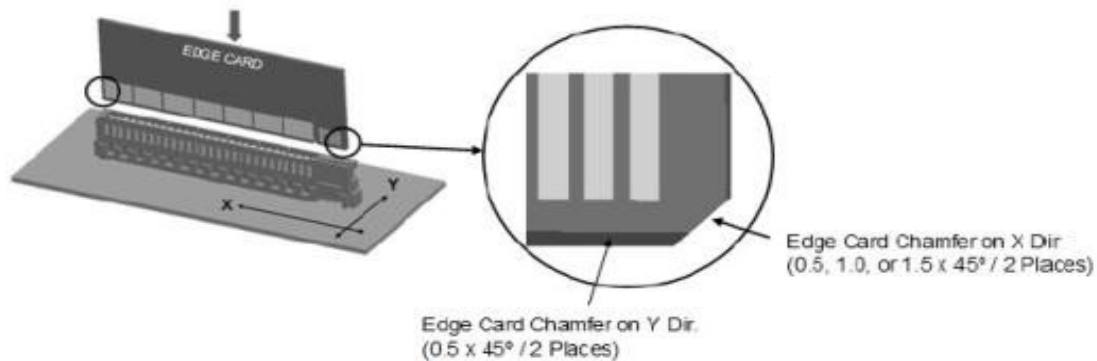


## Mating alignment (GS-20-128)

### MATING ALIGNMENT

#### 4.3.1 Under 100 mm connector length.

The HPCE connector design has not included a guide system therefore the design is not for a blind mate application. The mis-alignment allowance of the HPCE product is depended on the condition of the connector system and the chamfer of the edge card. Please see figure 5 and table 4 for explanation.



**Figure 5**

Connector Mating Condition	Edge Card Chamfer (mm)		Mis-Alignment Allowance (mm)	
	X	Y	X	Y
One Side is in Stationary condition, other side is in floating condition.	0.50	0.50	1.85 ± 0.125	1.46 ± 0.13
	1.00		2.35 ± 0.125	
	1.50		2.85 ± 0.125	
Both Side are in Stationary Condition			0.15 ± 0.056	0.115 ± 0.07

# HPCE® Product Spec



## Working Voltage (GS-20-128)

Vertical type

### VOLTAGE RATING

The Maximum Working Voltage of the HPCE connector system is rated base on UL 60950-1 Second Edition Table 2N.

- Pollution Degree : 2 (Office Environmental)
- Material Group : 1 (Based on UL rating)

HPCE - VERTICAL				
"DIFFERENT" CURRENT PATH IN THE ROW OF POWER CONTACTS				
POSITION	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.54	0.7	100	140
	5.08	3.24	639	903
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475

Column →

Row A

Row B

CURRENT-IN CURRENT-OUT

HPCE - VERTICAL				
"SAME" CURRENT PATH IN THE ROW OF POWER CONTACTS				
POSITION	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.7	2.1	420	594
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475

Column →

CURRENT - OUT Row B

CURRENT - IN Row A

# HPCE® Product Spec



## Working Voltage (GS-20-128)

Right Angle type

HPCE - RIGHT ANGLE				
"DIFFERENT" CURRENT PATH IN THE ROW OF POWER CONTACTS				
POSITION	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.54	0.7	100	140
	5.08	3.24	639	903
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475

HPCE - RIGHT ANGLE				
"SAME" CURRENT PATH IN THE ROW OF POWER CONTACTS				
DISTANCE	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.54	1.94	388	548
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475

# HPCE® Product Spec



## Working Voltage (GS-20-128)

### Straddle Mount

HPCE - STRADDLE MOUNT				
"DIFFERENT" CURRENT PATH IN THE ROW OF POWER CONTACTS				
POSITION	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.54	0.7	100	140
	5.08	3.24	639	903
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475

HPCE - STRADDLE MOUNT				
"SAME" CURRENT PATH IN THE ROW OF POWER CONTACTS				
POSITION	Tail Pitch (mm) between two contacts	MCD (mm)	AC RMS Working Voltage (Volt)	DC / AC peak Working Voltage (Volt)
Power to Power	2.54	2.1	420	594
Power to Signal	3.5	2.4	480	679
Signal to Signal	1.27	0.41	12	17
	2.54	1.68	336	475





**THANK YOU**

