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Composants & Technologies pour l'Electronique
Power Connectors Hotmate

HIGH POWER HOT PLUGGABLE INTERCONNECTION SYSTEM

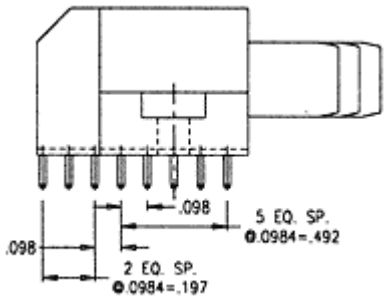
US Patent # 6,299,492 B1

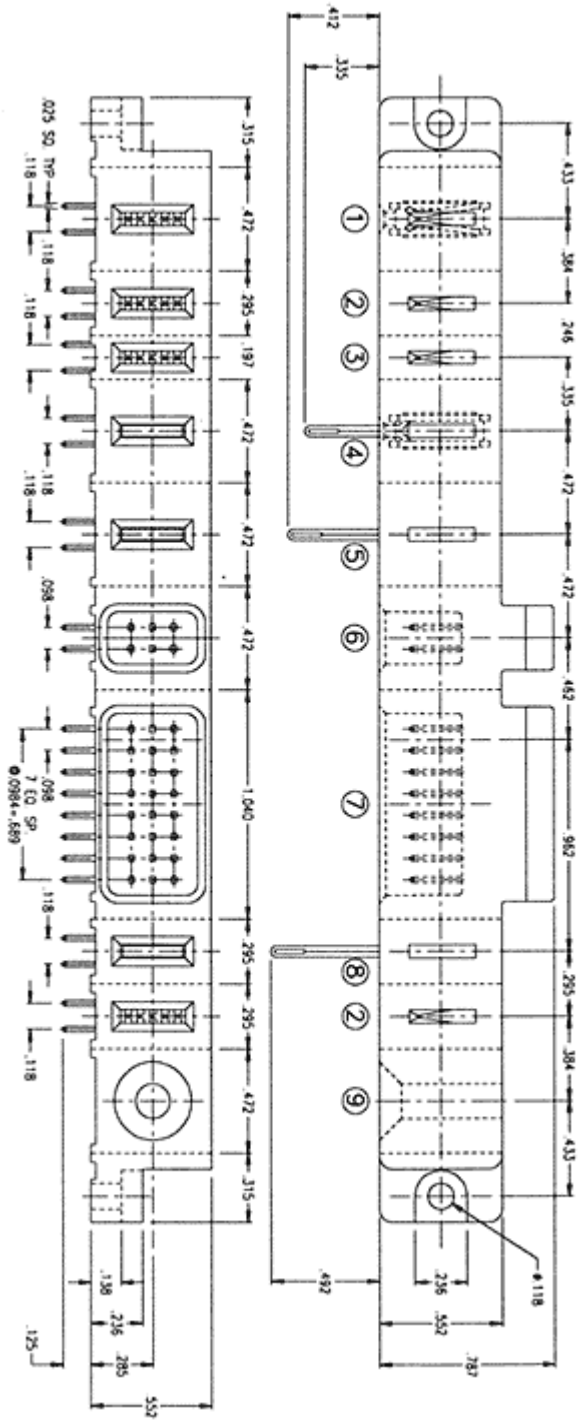
TEKA Interconnection Systems

The **HOTMATE**™ board to board interconnection system provides a unique method of transferring hot pluggable power requirements within a small area. A one piece contact and insulator design ensures minimum voltage drop and heat generation while still maintaining a variety of connector sequencing capabilities.

EXAMPLE OF RIGHT ANGLE CONFIGURATION, SOLDER TAILS, WITH MOUNTING EARS

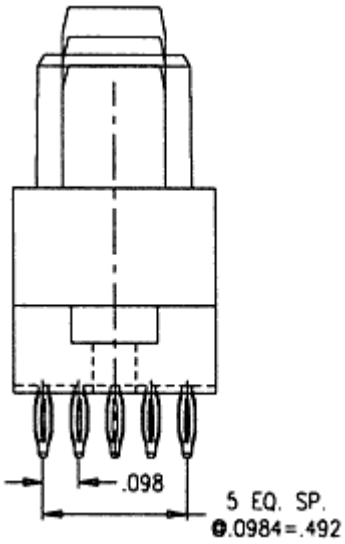
1. POWER, RIGHT ANGLE EARLY MAKE, FEMALE 600V
2. POWER, RIGHT ANGLE EARLY MAKE, FEMALE 250V
3. POWER, RIGHT ANGLE EARLY MAKE, FEMALE 200V
4. POWER, RIGHT ANGLE LATE MAKE, MALE 600V
5. POWER, RIGHT ANGLE STANDARD FEMALE 600V
6. SIGNAL, RIGHT ANGLE MALE 6 POSITION
7. SIGNAL, RIGHT ANGLE MALE 24 POSITION
8. POWER, RIGHT ANGLE EARLY MAKE, MALE 250V
9. RIGHT ANGLE GUIDE PIN SOCKET

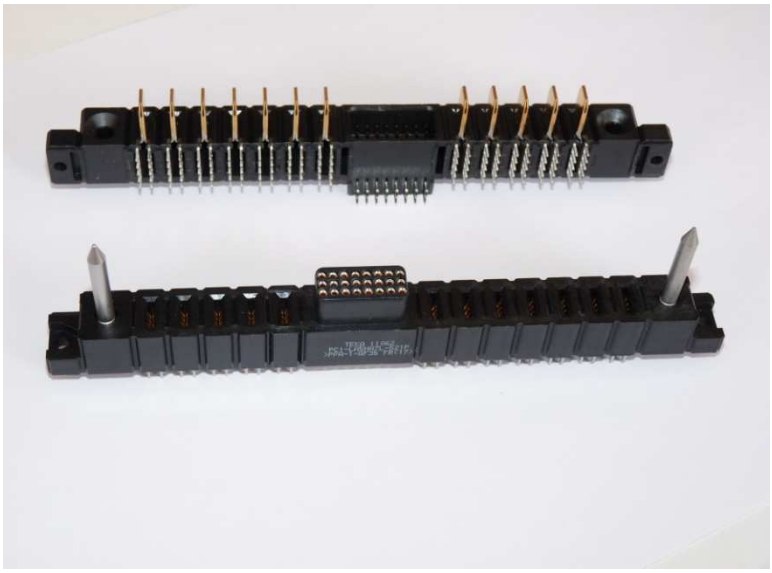


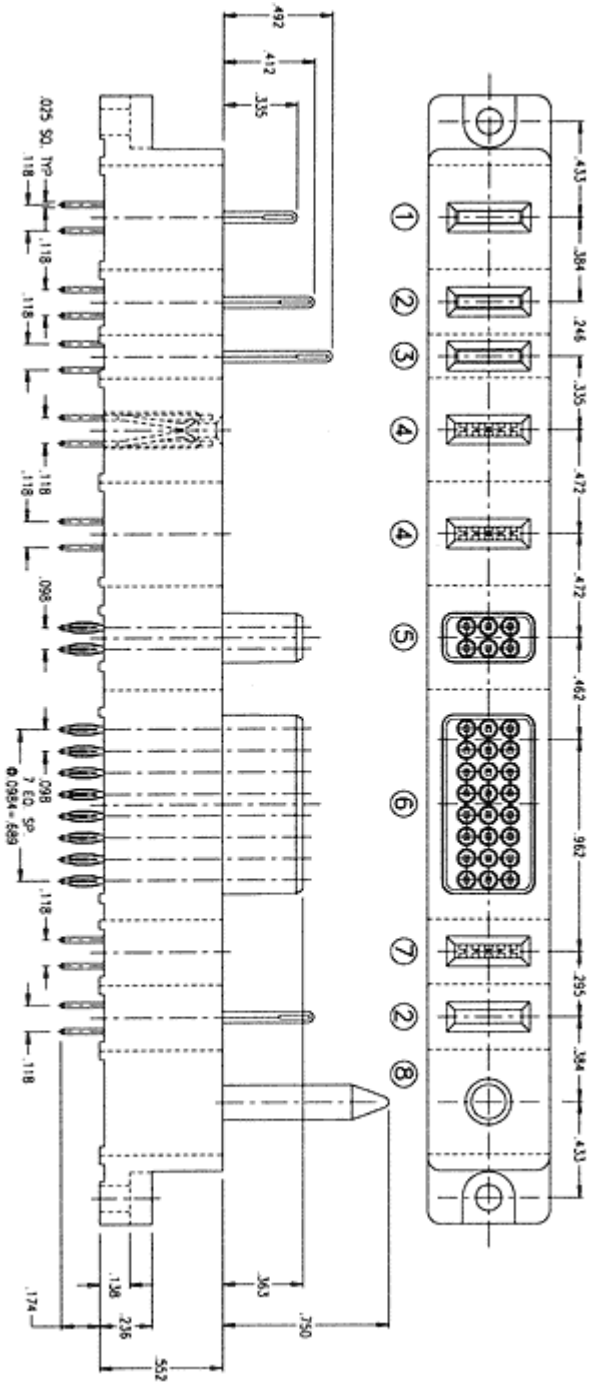


EXAMPLE OF STRAIGHT CONFIGURATION, PRESS FIT TAILS, WITH MOUNTING EARS

1. POWER, STRAIGHT, LATE MAKE MALE 600V
2. POWER, STRAIGHT, STANDARD MALE 250V
3. POWER, STRAIGHT EARLY MAKE FEMALE 200V
4. POWER, STRAIGHT, EARLY MAKE FEMALE 600V
5. SIGNAL, STRAIGHT, FEMALE 6 POSITION
6. SIGNAL, STRAIGHT FEMALE 24 POSITION
7. POWER, STRAIGHT, EARLY MAKE FEMALE 250V
8. STRAIGHT GUIDE PIN





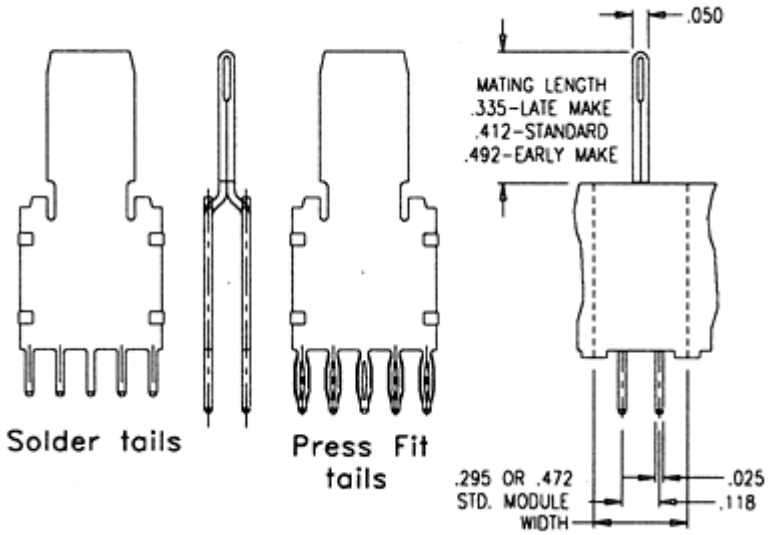


Power

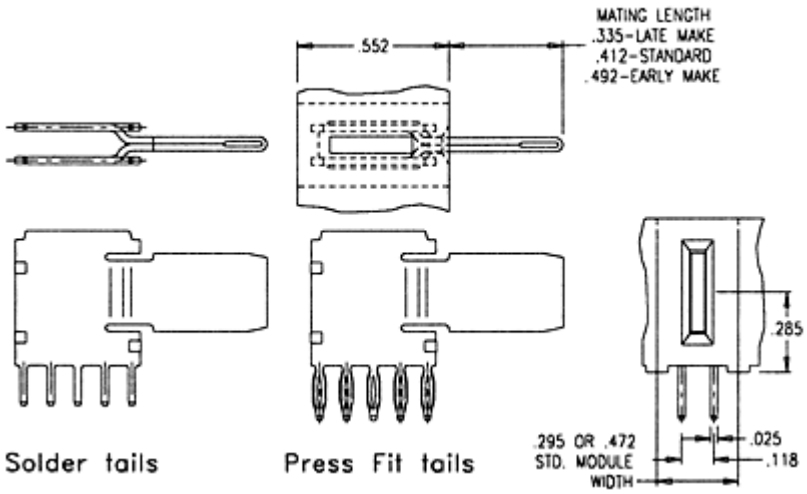
Characteristic:

Unique one-piece male contact design ensures minimum voltage drop and minimum heat generation. Different blade lengths allow design of your own mating sequence. Available in both solder and flatrock pressfit varieties (recommended PTH: ø.040+/-.003).

VERTICAL MALE



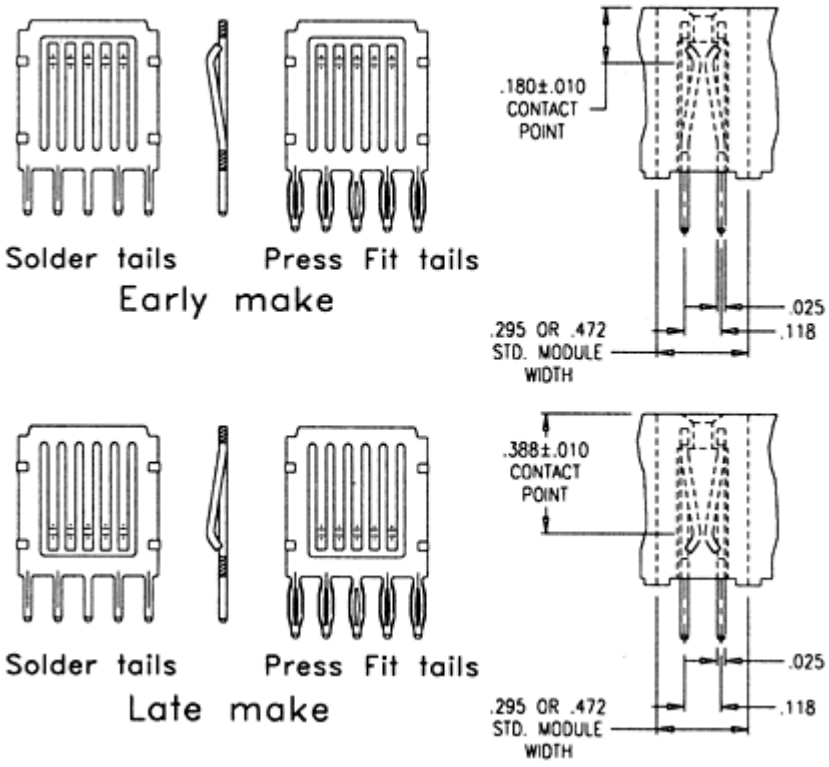
RIGHT ANGLE MALE



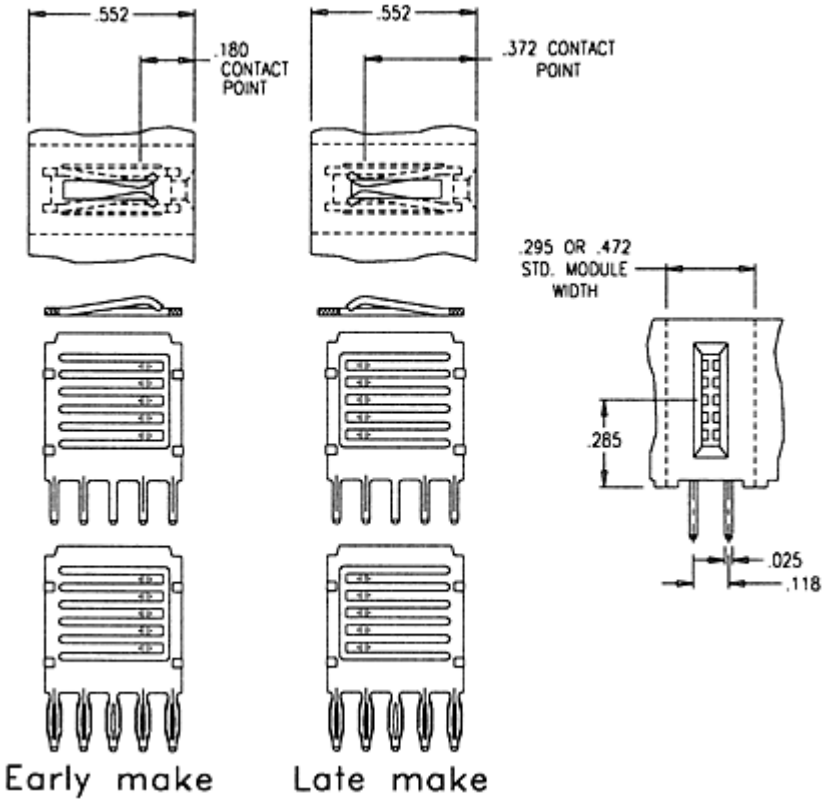
CHARACTERISTIC:

Unique one-piece female contact design with independent cantilever beams ensures good electrical contact. Low insertion force (2 Ibs. average per power position) and long wiping areas ensure high reliability of the contact connections which are available in solder, press fit, early make and late make configurations. Contacts are assembled into the insulator to customer specification, standard spacing is .472 (12 mm) for 600 V and .295 (7.5 mm) for 250 V (min. recommended spacing is .197 (5 mm)). The flexible design permits any combination of power and signal contacts using a one piece insulator to ensure dimensional stability. Contacts can be used in non-hot and hot pluggable applications rated at 40 A.

VERTICAL FEMALE



RIGHT ANGLE FEMALE

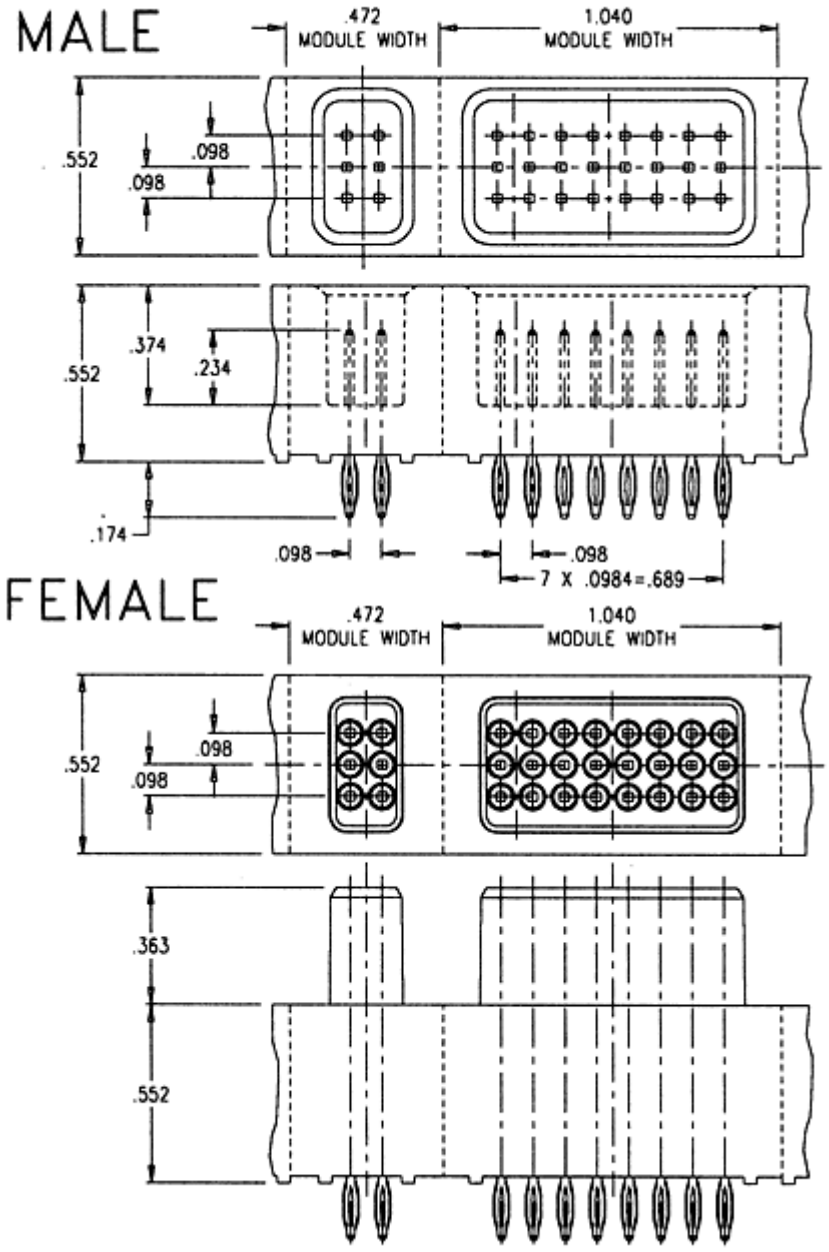


SIGNAL

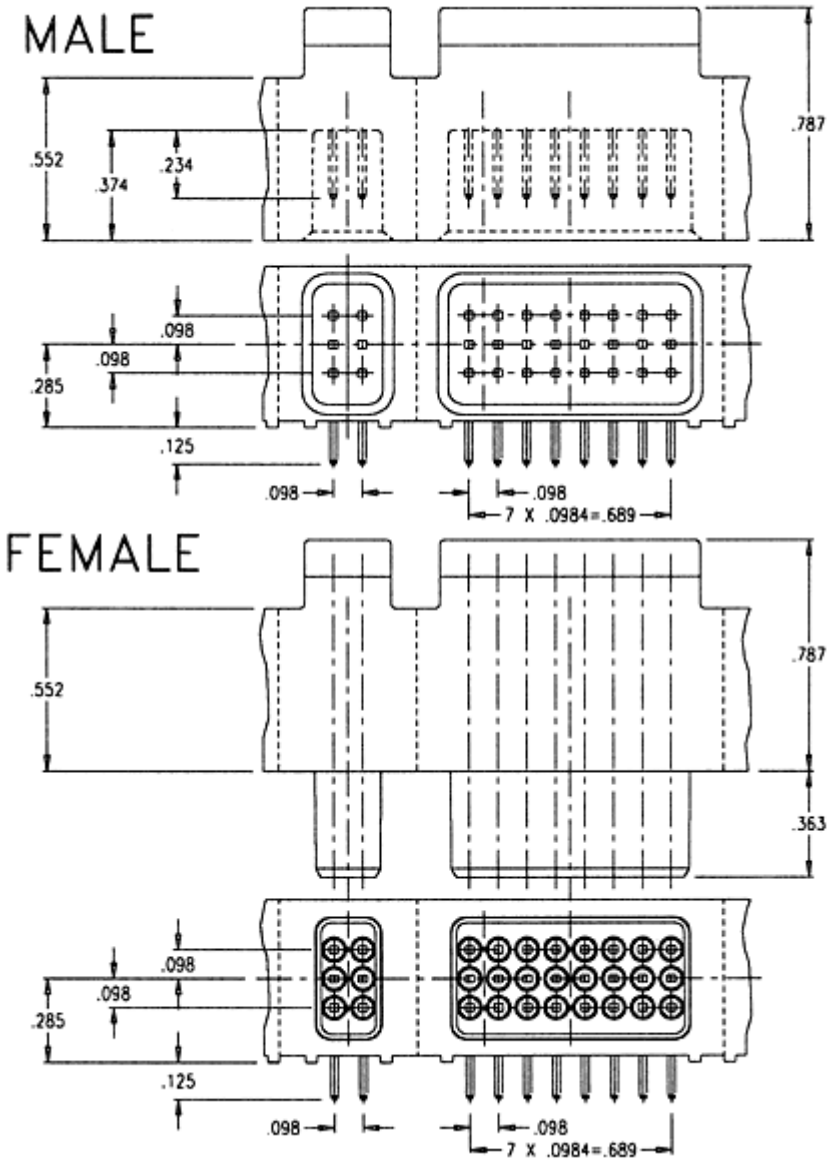
CHARACTERISTIC:

Signal contacts are designed for high reliability at a low cost. Standard modules of 6 and 24 pins are available in both straight and right angle configurations with solder or press fit terminations. Different male contact lengths are available for early make late break configurations.

VERTICAL


MALE
.472
MODULE WIDTH
1.040
MODULE WIDTH
.552
.098
.098
.552
.374
.234
.174
.098
.098
7 X .0984=.689
FEMALE
.472
MODULE WIDTH
1.040
MODULE WIDTH
.552
.098
.098
.363
.552

RIGHT ANGLE


MALE
.552
.374
.234
.787
.098
.098
.285
.125
.098
.098
7 X .0984=.689
FEMALE
.552
.787
.363
.098
.098
.285
.125
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.098
7 X .0984=.689

HIGH POWER HOT PLUGGABLE INTERCONNECTION SYSTEM

MATERIALS & FINISH:
Insulators:
Thermoplastic polyphthalamide (PPA) 30% glass reinforced UL 94V-O flammability rating, color black.

Signal Contacts:
Male:
One Piece Design: Phosphor Bronze CDA 510 per ASTM-B103 selectively plated with 30µin minimum Gold per MIL-G-45204 in the contact area and 100 µin minimum Tin-Lead per MIL-T-10727 in the termination area (solder or compliant), all over 50 µin minimum Nickel per QQ-N-290.

Female:
One-piece design: Phosphor Bronze CDA 510 per ASTM-B103 selectively plated with 30 µin minimum Gold per MIL-G-45204 in the contact area and 100 µin minimum Tin-Lead per MIL-T-10727 in the termination area (solder or compliant), all over 50 µin minimum Nickel per QQ-N-290.

Two-piece design: Body Brass CDA 260 per ASTM-B36 plated with 50 µin minimum Nickel per QQ-N-290 all over. Contact insert beryllium copper CDA 172 per ASTM-B194 plated with 30 µin minimum Gold per MIL-G-45204 all over.

Power Contacts:
Male:
One Piece Design: Phosphor Bronze CDA 510 per ASTM-B103 selectively plated with 30 µin minimum Gold per MIL-G-45204 in the contact area and 100 µin minimum Tin-Lead per MIL-T-10727 in the termination area (solder or compliant), all over 50 µin minimum Nickel per QQ-N-290.

Female:
One Piece Design: Phosphor Bronze CDA 510 per ASTM-B103 selectively plated with 30 µin minimum Gold per MIL-G-45204 in the contact area and 100 µin minimum Tin-Lead per MIL-T- 10727 in the termination area (solder or compliant), all over 50 µin minimum Nickel per QQ-N-290.

Guide Pin:
Brass CDA 260 per ASTM-B36 plated with 50 µin minimum Nickel per QQ-N-290.

MECHANICAL:
Durability - 500 cycles (Ref MIL-STD-1344, Method 2016)
Compliant Section Insertion force - 30 lb. max. per pin. Compliant Section Withdrawal force - 10 lb. min. per pin. Printed Circuit Board Hole Requirements:
Drilled Hole - ø.0453±.001
Copper Plate - .001 to .003
Solder Plate - .0003 to .0008
Finished Hole - ø.040±.003

Power Contacts:
Insertion force - 4 lb. max. with .050 thick steel test blade.
Withdrawal force - l lb. min. with .050 thick steel test blade.
(Ref. MIL-STD-l344, Method 2014)
Retention force - 10 lb. min. per contact.
(Ref. MIL-STD-1344, Method 2007)

Signal Contacts:
Insertion force - 5 oz. max. with .030 dia. steel test pin.
Withdrawal force - 1 oz. min. with .030 dia. steel test pin.
(Ref. MIL-STD-l344, Method 20l4)
Retention force - 5 lb. min. per contact.
(Ref. MIL-STD- 1344, Method 2007)

ELECTRICAL:
Insulation Resistance - 5000 MegOhms minimum.
(Ref. MIL-STD-1344, Method 3003)
Dielectric Withstanding Voltage - 2000 V (rms) minimum.
(Ref. MIL-STD-1344, Method 3001)

Power Contacts:
Current-carrying capacity - 40 Amps Maximum.
(Ref. IEC 512.3, Test 5a)
Contact Resistance - 2 miliOhms maximum at 35 Amps
(Ref. MIL-STD-1344, Method 3004)

Signal Contacts:
Current-carrying capacity - 3 Amps Maximum.
(Ref. IEC 512.3, Test 5c)
Contact Resistance - 15 miliOhms maximum
(Ref. MIL-STD-1344, Method 3002)

ENVIRONMENTAL:
Solderability - (Ref. MIL-STD-202, Method 208)
Operating Temperature - -55 °C to 125-°C
Processing Temperature - 230'°C maximum for 60 seconds.

Power Connectors
Hotmate

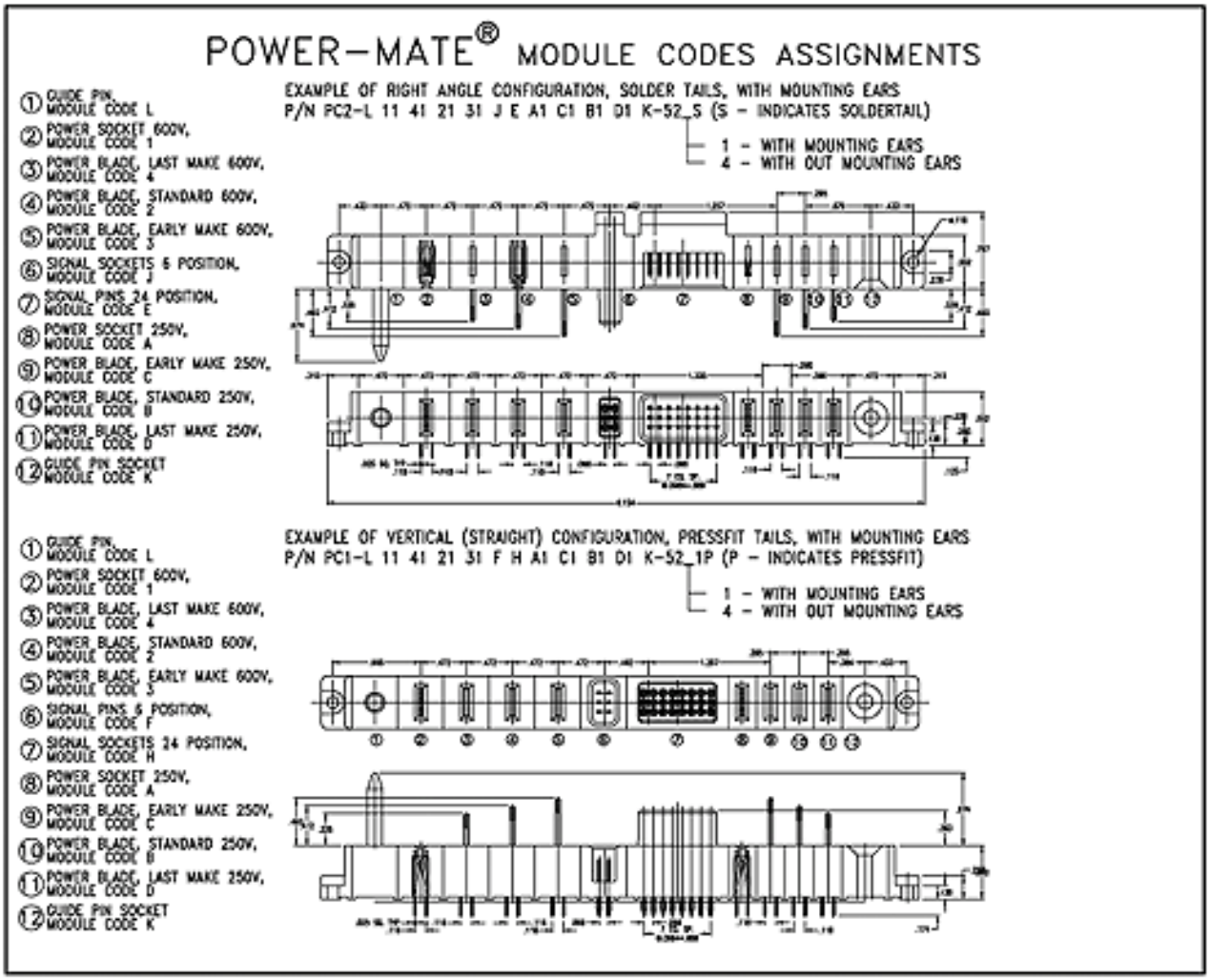
PC1 Straight Press Fit and Solder Tail

PC1-XXXthroughXX...XX-52XX

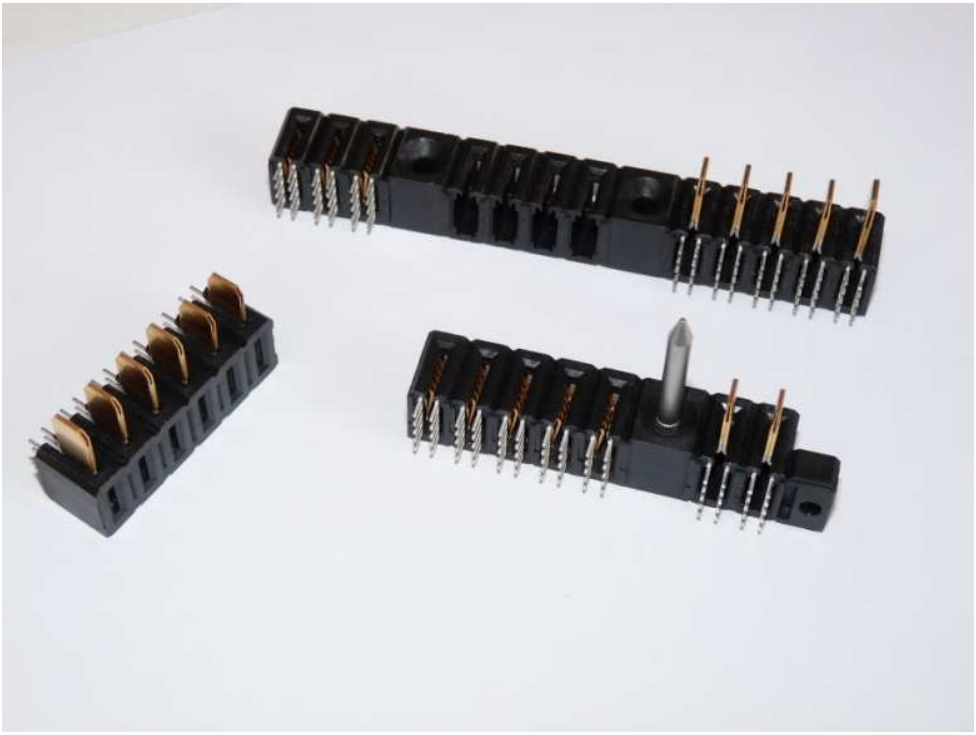
PC2 Right Angle Press Fit and Solder Tail

PC2-XXXthroughXX...XX-52XX

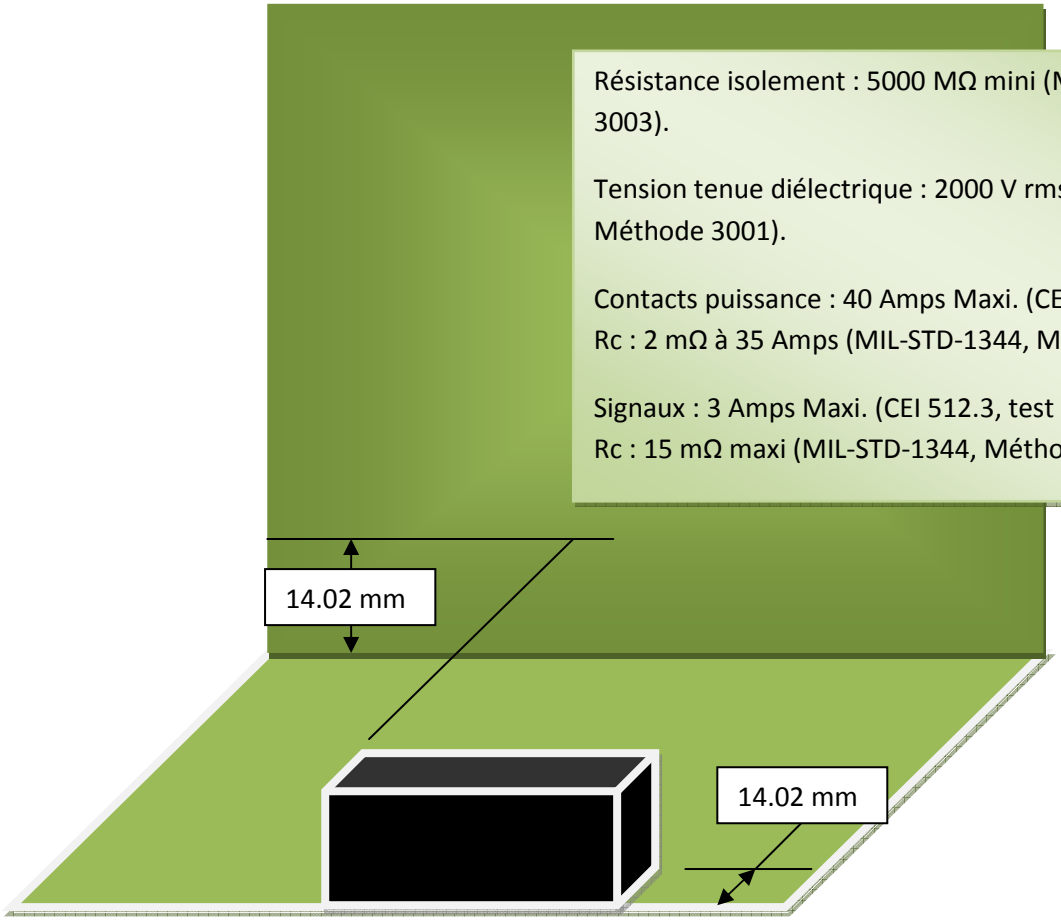
PC1 Straight Press Fit and Solder Tail and PC2 Right Angle Press Fit and Solder Tail



- **Target Markets**
  Data
  Telecommunications
  Data / Networking
  Industrial Production Equipment
  Medical
- **Applications**
  Power supplies
  Servers
  Storage enclosures
  Communications equipment
  Power monitoring devices
  Computing systems
  Power media



Connecteurs de puissance Hotmate TEKA

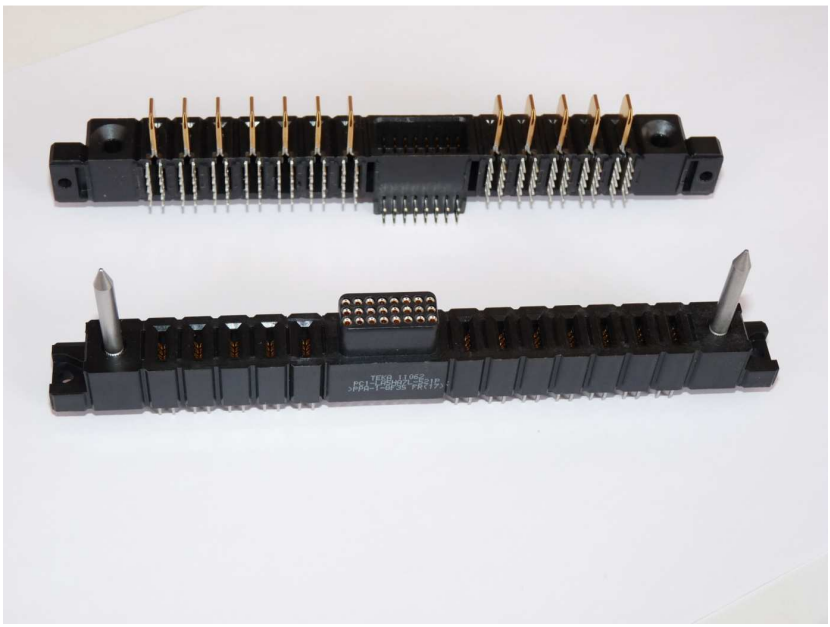


Résistance isolement : 5000 MΩ mini (MIL-STD-1344, Méthode 3003).

Tension tenue diélectrique : 2000 V rms mini ((MIL-STD-1344, Méthode 3001).

Contacts puissance : 40 Amps Maxi. (CEI 512.3, test 5a)
Rc : 2 mΩ à 35 Amps (MIL-STD-1344, Méthode 3004).

Signaux : 3 Amps Maxi. (CEI 512.3, test 5c)
Rc : 15 mΩ maxi (MIL-STD-1344, Méthode 3002).



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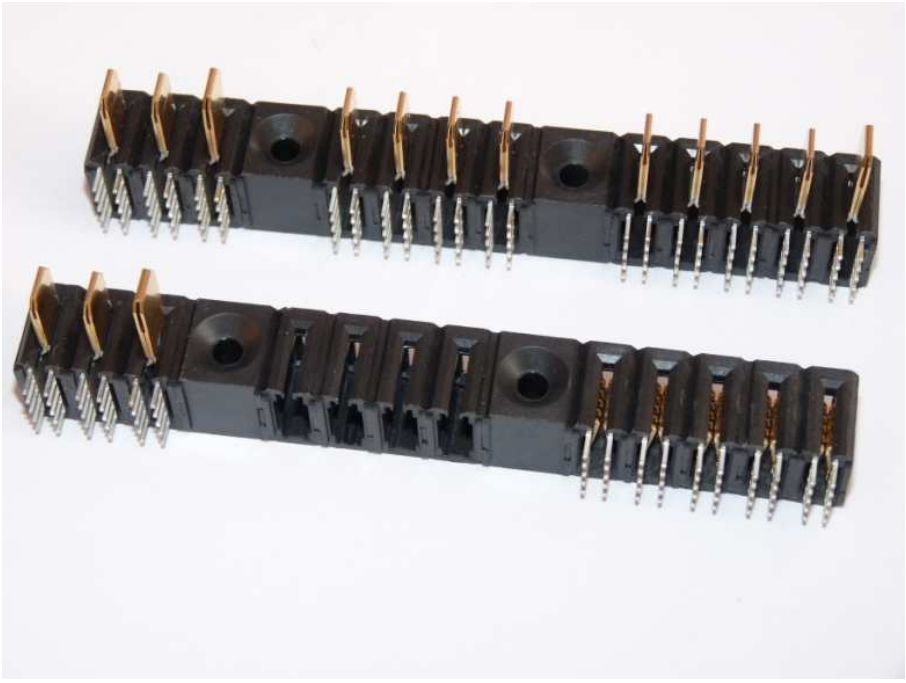

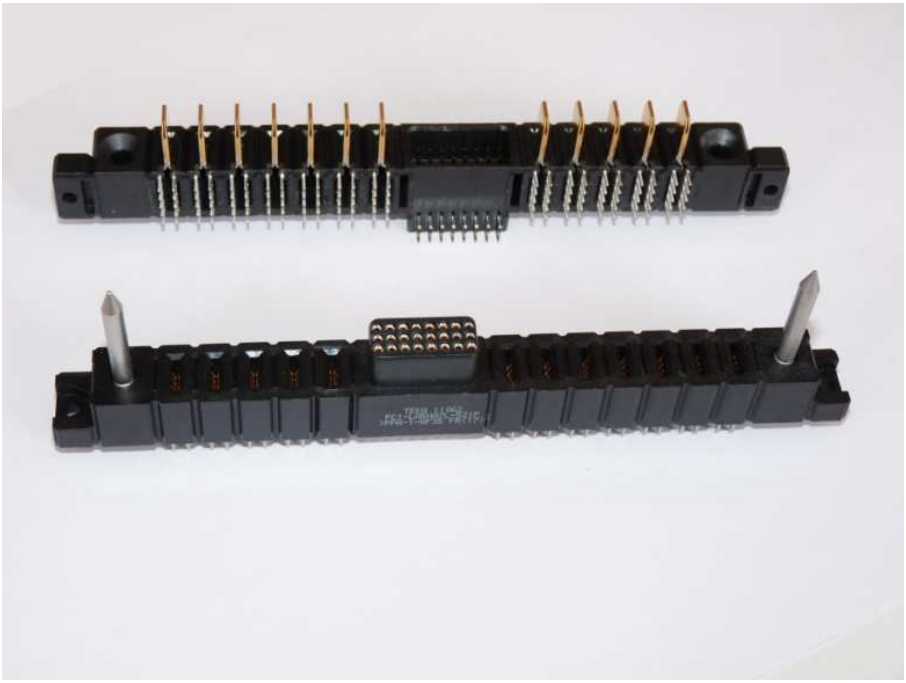

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