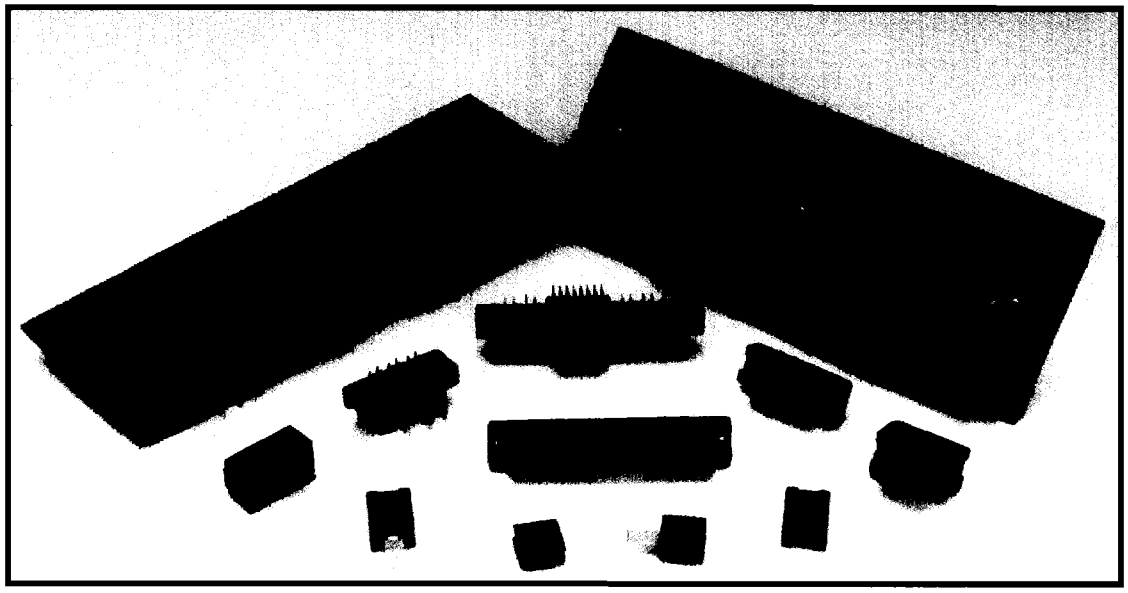
FLATPAQ™



BOARD-TO-BOARD POWER CONNECTORS

FEATURES

- Custom Configurable Modular Design
- 35 Amp Hot Pluggable Contacts
- Blind Mateable
- Sequenced Mating for Power & Signal
- Solder or Press Fit Terminals
- UL, CSA & TUV Approved

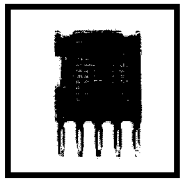
APPLICATIONS

- Board-to-Board Power Connections
- Power Supplies, UPS
- Telecommunications
- Computer, File Servers
- Aerospace

ELCON's FLATPAQ™ connector line provides hot pluggable 35 Amp power in a board-to-board configuration. **FLATPAQ** assemblies are custom configured to your needs using off-the-shelf modular components. Each module houses a specific contact type, allowing you to mix 35 Amp hot-pluggable AC or DC power contacts, signal contacts and even coax contacts in the same assembly. Simply define which modules are required and in what sequence — Elcon will provide assembled connectors to your layout.

The **FLATPAQ** design requires a minimum of PC board real estate, has low insertion forces (typically 2 lbs. insertion force per power module), and is blind mateable. Assembled connectors are available in both right angle and straight PC board mounting styles, with either compliant press-fit terminals or solder tails. Different power contact lengths allow sequenced mating.

THE HEART OF THE FLATPAQ



The **CROWN** contact (shown actual size) is a small louvered receptacle of Beryllium Copper. Manufactured on progressive dies to provide consistent insertion and withdrawal forces, its design ensures maximum surface contact area for minimum voltage drop and minimum heat generation. **CROWN** contacts also provide excellent shock and vibration performance.

ELCNS004

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LEADERS IN CURRENT THINKING

Connector Layout

COPY THIS FORM PRIOR TO COMPLETION TO ALLOW REUSE.
USE ONE FORM PER MATED PAIR.

Indicate the layout of the connectors by filling in the "FP" number of each module required in the boxes below, one per box. The left to right order of the modules should match the mating face view of the connector. Cross out any unused boxes. Upon receipt of this form, ELCON will generate a Customer Use Drawing (CUD) for your approval. No parts will be manufactured until you have checked and approved the CUD.

FAX THIS FORM TO: 510-490-3740

Customer Name _____
Company _____
Telephone ( ) _____ ext. _____
FAX _____

Quantity Required	Date
Signature	Title

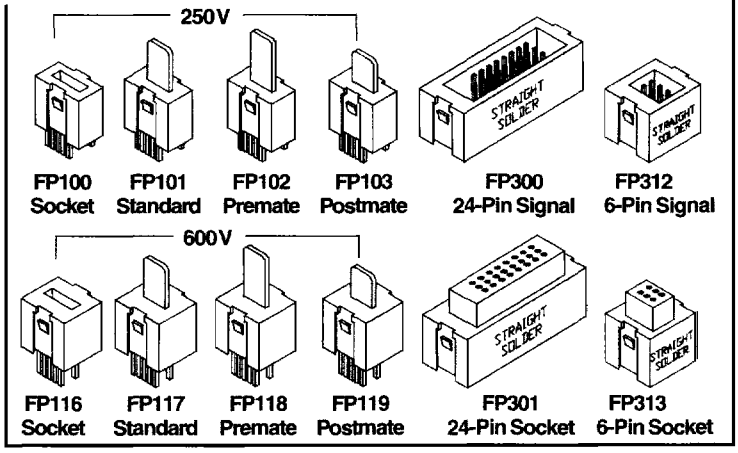
Insert the applicable "FP" number in the boxes below to indicate the layout of one half of the connector assembly.

FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP

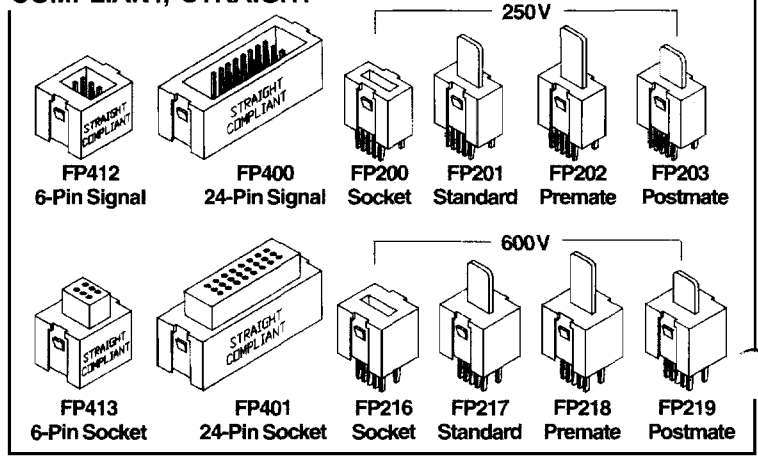
Insert the applicable "FP" number in the boxes below to indicate the layout of the mate to the above connector.

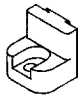
FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP

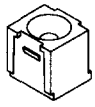
SOLDER, STRAIGHT

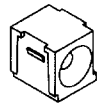


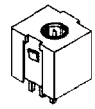
COMPLIANT, STRAIGHT



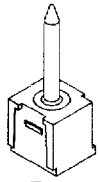

FP500
Left Flange Mount

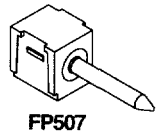

FP502
Straight Guide Socket

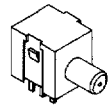

FP506
Right Angle Guide Socket


FP600
Coaxial Receptacle

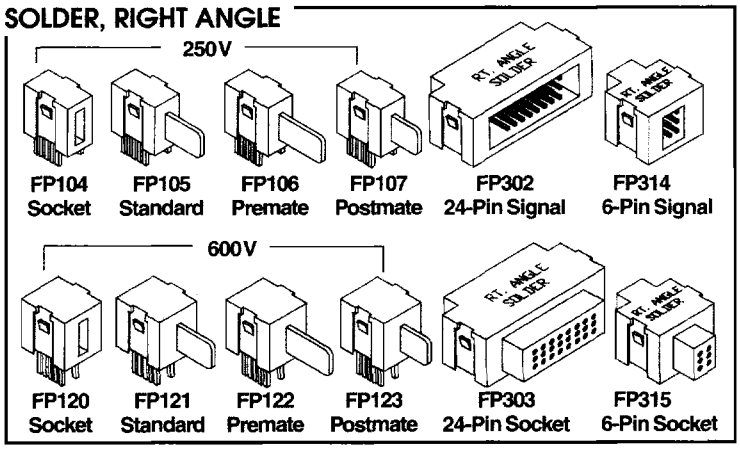

FP501
Right Flange Mount


FP503
Straight Guide Pin

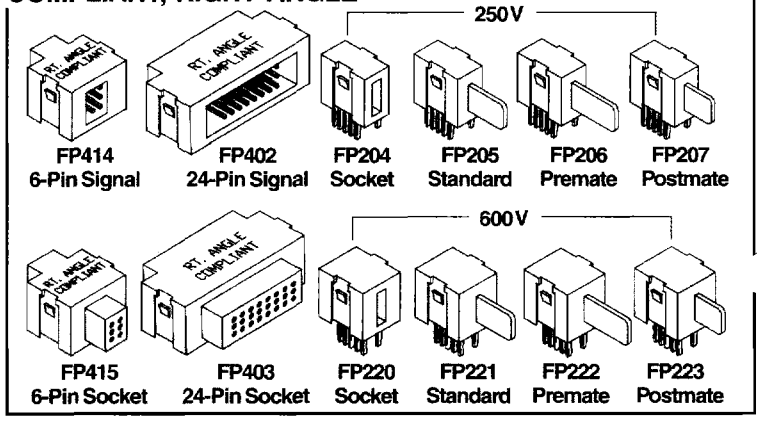

FP507
Right Angle Guide Pin


FP601
Coaxial Plug

SOLDER, RIGHT ANGLE



COMPLIANT, RIGHT ANGLE

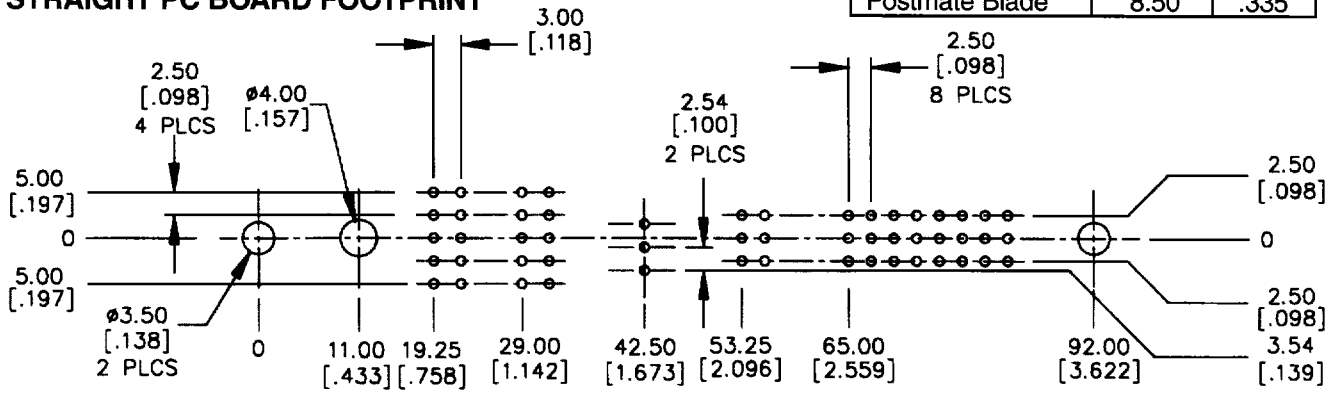


Straight Dimensions

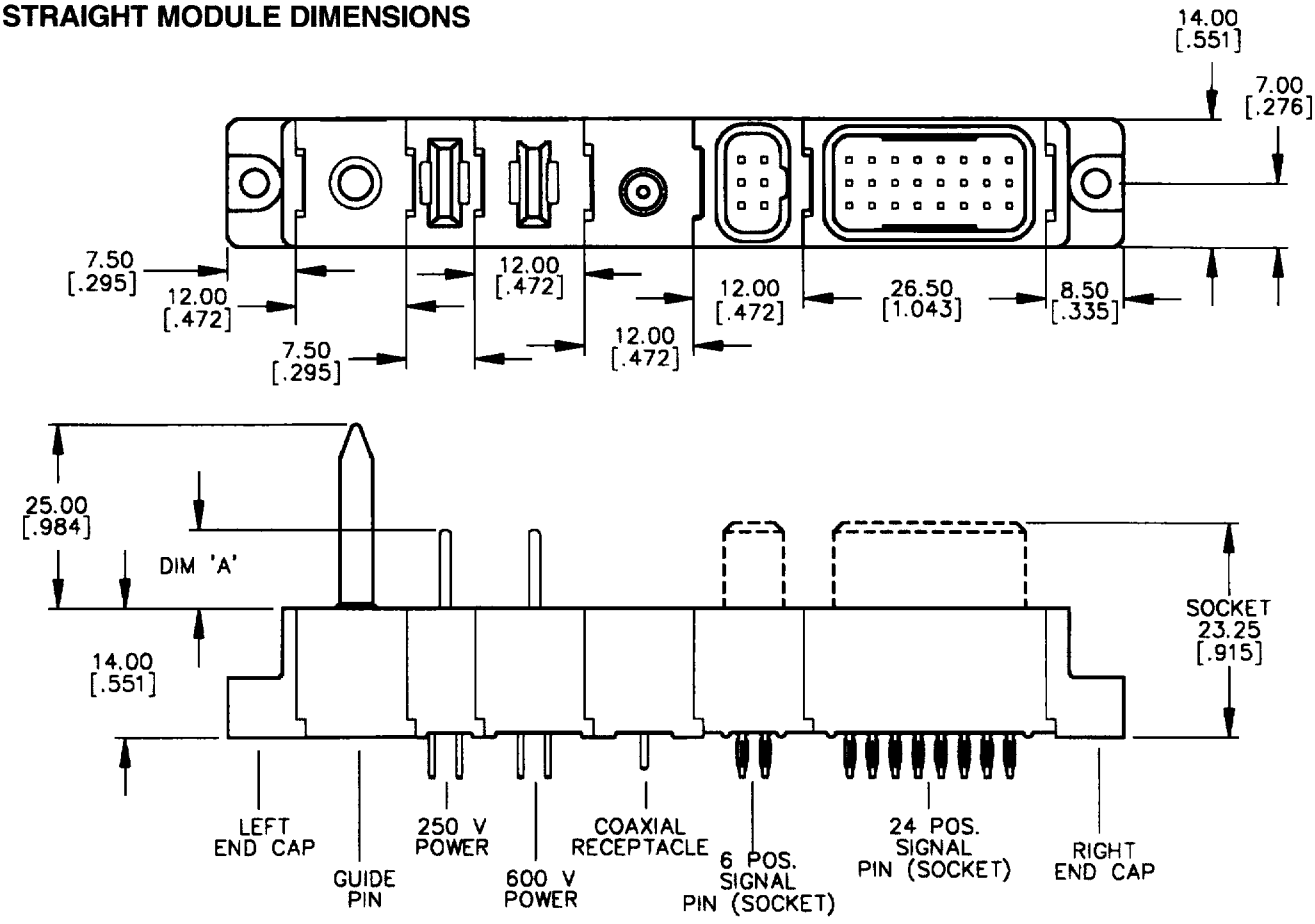
Dimensions listed in millimeters; U.S. dimensions are in parentheses. Layout is an example only, intended to show dimensions of available module types.

Contact Type	Dim. A	
	mm	in
Socket	0	0
Premate Blade	12.50	.492
Standard Blade	10.50	.413
Postmate Blade	8.50	.335

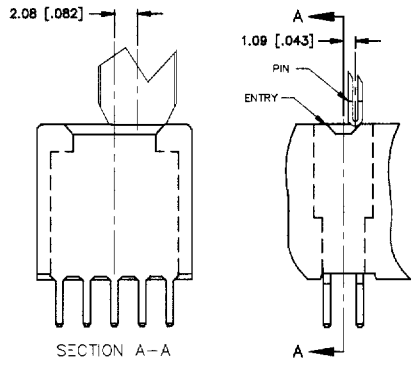
STRAIGHT PC BOARD FOOTPRINT



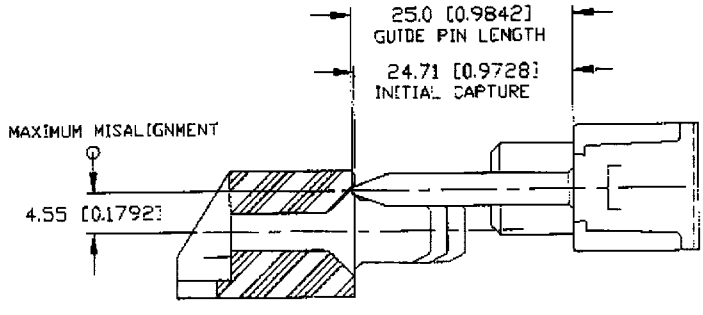
STRAIGHT MODULE DIMENSIONS



MISMATING ALIGNMENT



Without Guides



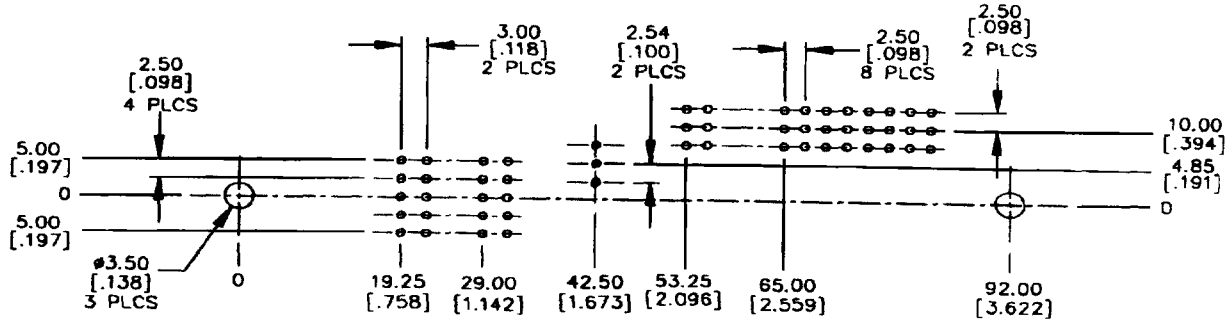
With Guide Pin/Socket

Right Angle Dimensions

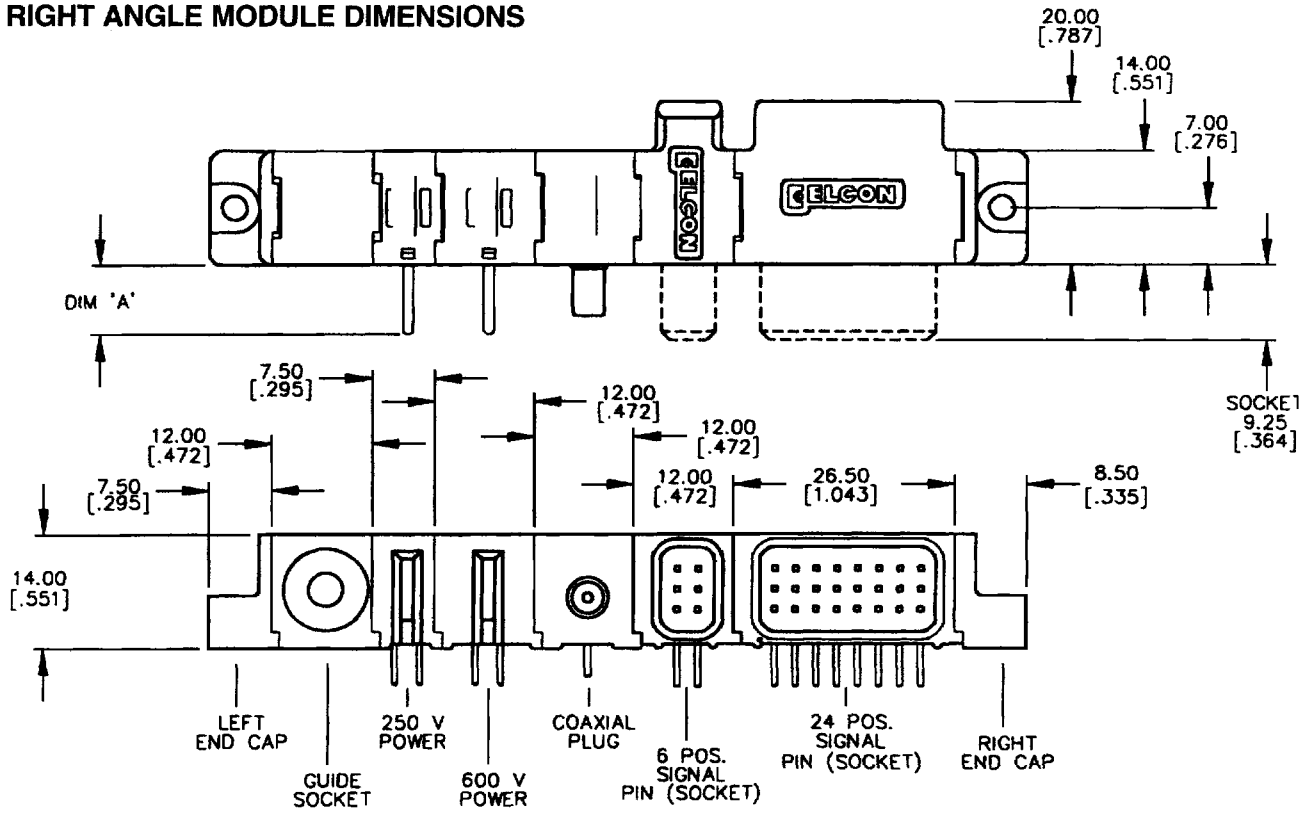
Dimensions listed in millimeters; U.S. dimensions are in parentheses. Layout is an example only, intended to show dimensions of available module types.

Contact Type	Dim. A	
	mm	in
Socket	0	0
Premate Blade	12.50	.492
Standard Blade	10.50	.413
Postmate Blade	8.50	.335

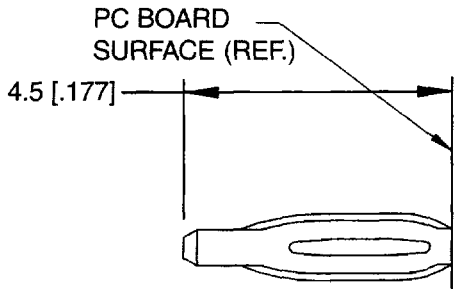
RIGHT ANGLE PC BOARD FOOTPRINT



RIGHT ANGLE MODULE DIMENSIONS

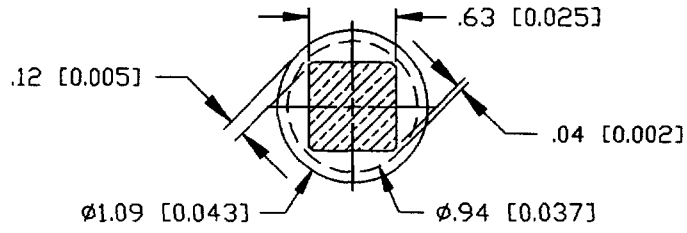


COMPLIANT PRESS FIT PIN DETAIL



Forces:	Tested per MIL-C-28859	(Reference Only)
Push In:	50-100N per pin	(11.2-22.5 lbs.)
Push Out:	45-90N per pin	(10.1-20.2 lbs.)

RECOMMENDED PRINTED CIRCUIT HOLE (SOLDER OR COMPLIANT PRESS-FIT)



Solder Termination Area

Finished Hole: ø1.02 ± .08 (ø.040 ± .0030)
Drilled Hole: ø1.15 ± .013 (ø .0453 ± .0005)
Copper Plate: .025 (.0010) min. (per surface)
Tin Plate: .008 (.0003) min. (per surface)

FLATPAQ Performance Specifications

MATERIALS

Insulators
PPA, UL 94V-0 flammability rated, Color Black.

Signal Contacts
Solder termination Brass Alloy per ASTM-B-36; Compliant termination Phosphor Bronze Alloy per ASTM-B-103, selectively plated with Gold per MIL-G-45204, Type II, Grade C, Class 0 (30 µin minimum) and bright Tin/Lead per MIL-T-10727, Type 1 (100 µin minimum) on terminations, all over Nickel per QQ-N-290, Class 2 (50 µin minimum).

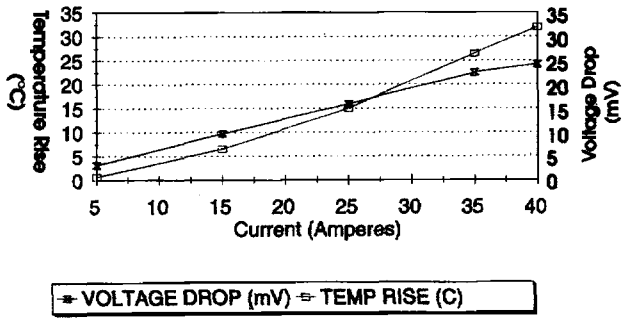
Crown Bands
Beryllium Copper Alloy per ASTM-B-194, selectively plated with Gold per MIL-G-45204, Type II, Grade C, Class 0 (30 µin minimum), over Nickel per QQ-N-290, Class 2 (50 µin minimum).

Power Socket Contacts
Phosphor Bronze Alloy per ASTM-B-103, selectively plated with bright Tin/Lead per MIL-T-10727, Type 1 (100 µin minimum) on terminations, over Nickel per QQ-N-290, Class 2 (50 µin minimum).

Power Blade Contacts
Copper Alloy per ASTM-B-152, selectively plated with Gold per MIL-G-45204, Type II, Grade C, Class 0 (30 µin minimum), over Nickel per QQ-N-290, Class 2 (50 µin minimum).

ELECTRICAL

Current Capacity, Power Contacts
Non Hot Plug: (see chart below)



Hot Plug: Power modules are agency approved for 50 cycles with a rating of 250VAC at 35 Amps by UL, and 250VAC at 20 Amps for use in Canada.

Current Capacity, Signal Contacts
3 Amps maximum

Contact Resistance, Power Contacts
2 mΩ maximum initial, (3 mΩ maximum after 500 cycles durability), at 35 Amps per MIL-STD 1344, Method 3004.

Contact Resistance, Signal Contacts
15 mΩ maximum initial, (30 mΩ maximum after 500 cycles durability), at 100 mA, 20 mV, per MIL-STD 1344, Method 3002.

Insulation Resistance
5,000 MΩ minimum at 500 VDC for 2 minutes, per MIL-STD 1344, Method 3003.

Dielectric Strength
1,500 VDC for 1 minute, per MIL-STD 1344, Method 3001.

MECHANICAL

Insertion Force, Power Contacts
4.0 lbf maximum

Insertion Force, Signal Contacts
5.0 ozf maximum using .0305" diameter steel test pin.

Extraction Force, Power Contacts
1.0 lbf minimum

Extraction Force, Signal Contacts
0.5 ozf minimum using .0295" diameter steel test pin.

Durability
500 cycles, per MIL-STD-1344, Method 2016.

Contact Retention, Power Contacts
10.0 lbf minimum

Contact Retention, Signal Contacts
5.0 lbf minimum

ENVIRONMENTAL

Temperature Rating
-40ºC to +105ºC.

Vibration
MIL-STD 1344, Method 2005, Test Condition II.

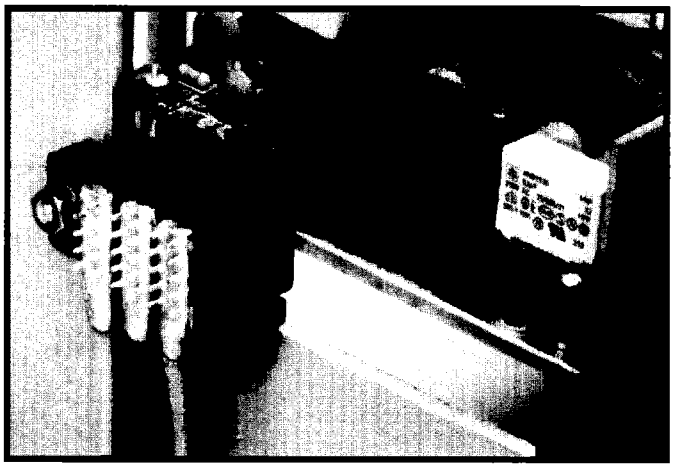
Shock
MIL-STD 1344, Method 2004, Test Condition I.

Humidity
MIL-STD 1344, Method 1002, Type 1, Test Condition B.

Temperature Life
MIL-STD 1344, Method 1005, Test Condition 4D (105 ±2°C, 1,000 hours).

Solderability
MIL-STD 202, Method 208.

APPLICATION NOTES



CABLE CONNECTIONS

FLATPAQ power connectors can be adapted for wire-to-board applications (pictured above), consult factory for details.

ALIGNMENT

As in any interconnect interface, adequate guides on board-to-board or board-to-chassis must be considered. **FLATPAQ** guide pin modules are offered to provide increased gatherability for aligning connectors during mating.

TOOLING

Press plates are recommended for compliant pin assemblies. Consult factory for details.

AGENCY RECOGNITION & RATINGS

FLATPAQ contacts and housings are listed or recognized by UL, CSA and TUV. **ELCON** is continually working with the safety agencies to expand our connector and contact ratings; consequently, **ELCON** connectors and contacts are being listed and recognized for additional ratings based upon specific applications. Consult the factory if further assistance is required regarding agency approvals for a specific application.

All information and specifications contained herein are believed to be accurate at the date of publication. **ELCON** reserves the right to make technical or design changes at any time in the future.

FPSF0596

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