

# Elcon MINIPAK High-density Power Connectors

**MINIPAK is a family of board-to-board power connectors designed to deliver more current using less board real estate. This goal is achieved by combining Elcon high-performance contact technology with high-density packaging, and the ability to mix and match AC and DC power contacts with various spacings to meet different output current and voltage requirements while using the least space on the board.**

## KEY FEATURES TO DELIVER MORE POWER USING LESS SPACE

### High-performance Crown Band contact technology

For the ultimate in current carrying capacity, MINIPAK connectors use Elcon's Crown Band contact. To achieve its superior electrical performance, the Crown Band contact mounts to the board through a 10 pin DIP footprint, and has a design that ensures the most points of contact at the mating interface for less contact resistance. Current ratings for any given configuration will depend on contact layout, pitch, and thickness of copper on the board. One individual contact can reach a maximum of 65A<sup>(1)</sup>.

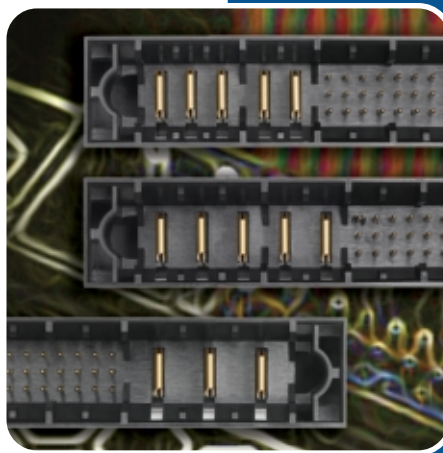
<sup>(1)</sup> UL current rating for an individual power contact.

### Configurability to closely meet design requirements

Elcon will configure your MINIPAK connector to meet system requirements. AC input current and voltage, DC output currents and voltage spacings, number of signal contacts, board mounting style, and available board space will determine the most suited configuration. Just specify your requirements using the "MINIPAK Configuration Form" on the last page, and Elcon will recommend the best solution for your application.

### Tight 4.5mm contact pitch for highest current output density

In MINIPAK connectors, contact pitch can be as tight as 4.5mm, allowing the highest power density for a board-to-board power connector. Contact spacings of 6.0 and 7.5mm are also available and can be combined to meet the DC current and voltage spacing requirements of the application using the least possible space on the board (see sample configuration sketch in page 3). The 4.5mm pitch allows a very dense form factor ideal for space-constrained power designs. The AC input side supports 125/250VAC voltage spacing.



*MINIPAK connectors can be configured with a combination of contacts on 4.5, 6.0 and 7.5mm pitch to meet different output current and voltage requirements while using the least space on the board.*



Leaders in Current Thinking™



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## KEY FEATURES

- High current per linear inch
- Up to 65A per individual Crown Band contact
- Configurable to meet requirements while using less board space
- Built-in alignment feature
- Shrouded insulator design
- Meets safety regulatory requirements

## SAMPLE APPLICATIONS

- Telecom and computer applications
- Routers
- Servers, mini and supercomputers
- Uninterruptible power systems (UPS)
- Hot-swap N+1 power distribution

## ORDERING INFORMATION

Unique part numbers are issued for customer-specific MINIPAK configurations. See the "MINIPAK Configuration Form" on the last page for details.

For more information about this or any other Elcon product, visit the Elcon website at:

**[www.elconproducts.com](http://www.elconproducts.com)**

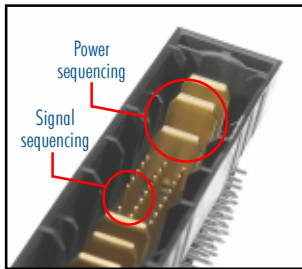
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## MORE FEATURES

### Power and signal sequencing

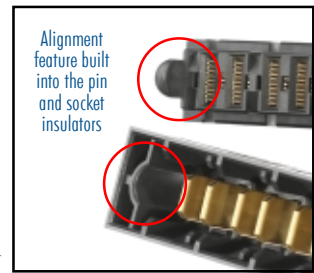
Sequencing of both power and signal contacts is available to allow use of MINIPAK connectors for hot-swapping of power supplies<sup>(1)</sup>. Specify your sequencing requirements using the “MINIPAK Configuration Form” on the last page of this brochure.



<sup>(1)</sup> Device not intended for current interruption.

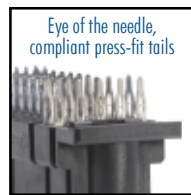
### Guides for extra alignment

In addition to the blind mating capabilities built into the MINIPAK connector housing, a robust guide feature is optionally available for designs that need improved gatherability due to the mechanical requirements of the design.



### Multiple choices for termination to the board

MINIPAK connectors can be mounted on the board or backplane using solder or press-fit tails<sup>(2)</sup>. Truly compliant eye of the needle press-fit tails with a non-collapsible structure are used to provide reliable solderless mounting. Solder tails are available in two lengths to support boards of different thicknesses. For right angle blades, long solder tails with a *retentive feature* to hold the connector during soldering can also be used.



<sup>(2)</sup> Press-fit tails available only on the socket side.

### Fully shrouded housing and probe-proof socket contacts

For full protection of the power contacts, MINIPAK pin housings are fully shrouded and the socket contacts are recessed to be finger probe-proof. The AC socket contacts are further recessed into the socket cavity to offer compliance with UL 1950/IEC 950 safety requirements.



## PRODUCT SPECIFICATIONS

MATERIAL	
Insulators	Thermoplastic, glass reinforced, color black, UL 94V-0 flammability rated
Socket contacts	Phosphor bronze alloy
Signal pins	Brass alloy
Power blades	Copper alloy
PLATING	
Contacts	Selective 30µin gold over nickel
Terminals	Tin/lead over nickel
ENVIRONMENTAL/MECHANICAL	
Connector operating temperature range	-40°C to +130°C
Mating forces	Power: 1.5lb/contact typical Signal: 0.2lb/contact typical
Tooling	Press fixture recommended for compliant press-fit socket. Consult Elcon for details.
ELECTRICAL	
Contact current rating	Individual power contact: 65A max. <sup>(3)</sup>
Voltage ratings	AC Power: 125/250VAC; signal & DC power: up to 60V
Insulation resistance	5,000MΩ minimum at 500V DC for 2 minutes, per MIL-STD 1344, Method 3003
Dielectric strength	Power 1,500VAC, signal 250VAC; for 1 minute, per MIL-STD 1344, Method 3001

<sup>(3)</sup> This is the UL rating for an individual power contact. Current rating for any given configuration with multiple contacts will depend on contact layout, quantity and spacing.

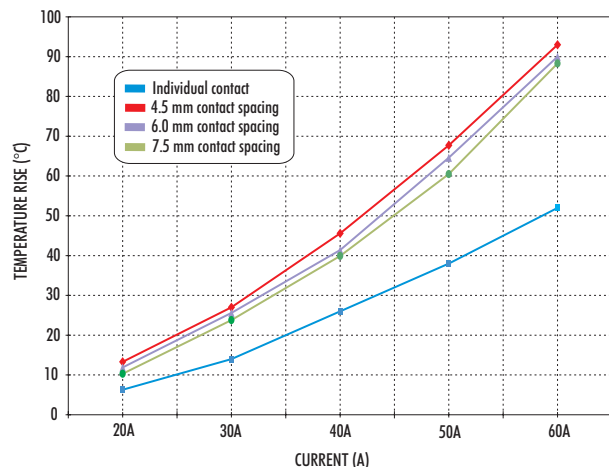
### Contact current ratings

The graph to the right shows the current carrying capabilities of an individual power contact, and that of multiple contacts at 4.5, 6.0 and 7.5mm contact spacing.

### Safety regulatory agency compliance

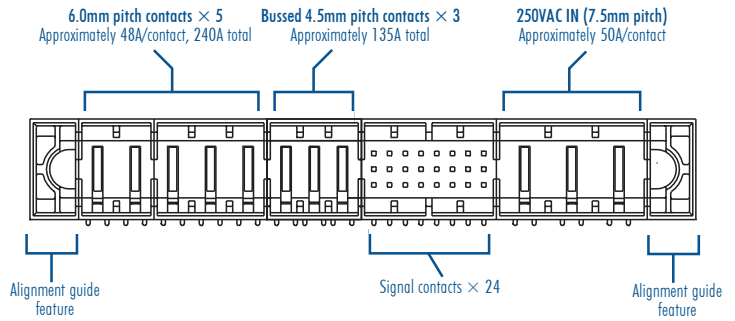
MINIPAK connectors have been evaluated and found to comply with the UL1977 standard and the CSA standard C22.2 No. 182.3-M1987. Elcon will work with customers to obtain application-specific regulatory certifications if needed.

Note: TÜV certification pending.



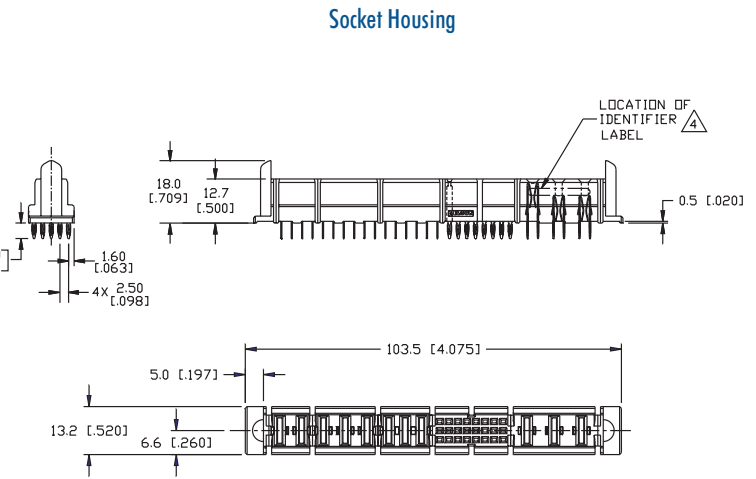
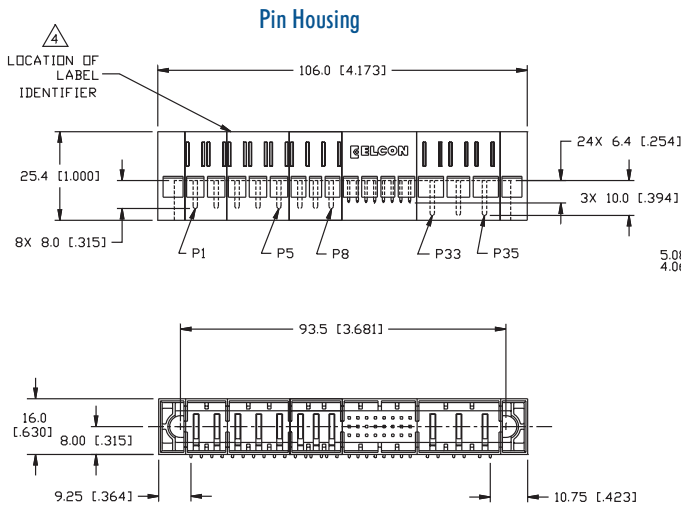
## SAMPLE CONFIGURATION

The sketch to the right shows an example of a MINIPAK connector configured with a combination of AC input, signal, DC output and alignment guides. This configuration includes the three contact spacings available in the MINIPAK line (4.5, 6.0 and 7.5mm). The approximate current ratings for the power contacts are also shown as a reference.

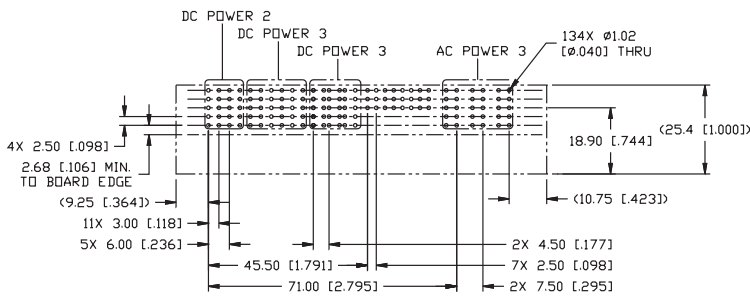


## REFERENCE DIMENSIONS

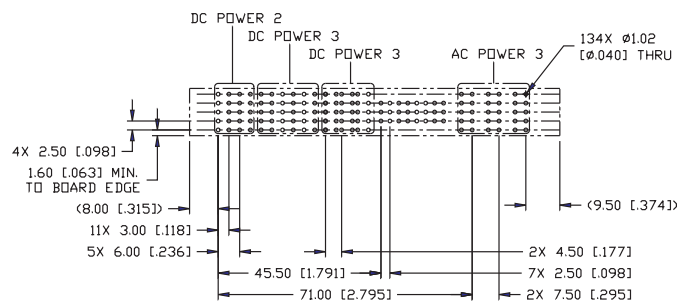
The drawings below show the dimensions of this sample configuration. **These dimensions are just for reference. Actual engineering work should ONLY be done using a Customer Use Drawing issued by Elcon specifically for your configuration.**



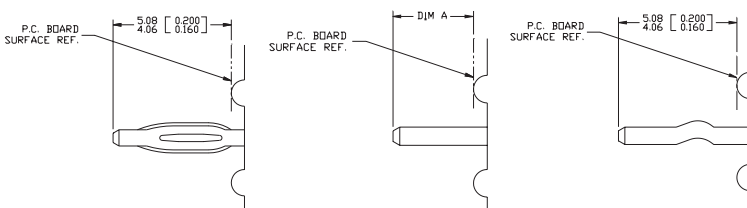
Pin Side Footprint (viewed from connector side)



Socket Side Footprint (viewed from connector side)



Termination Tails



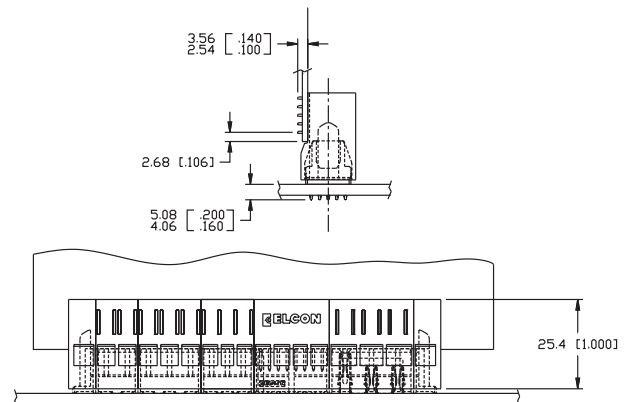
**Compliant press-fit**  
.093" min. thick PCB recommended

**Solder tail**

Dimension "A"	
Long Tail	Short Tail
5.08 - 4.06mm (.200 - .160")	3.56 - 2.54mm (.140 - .100")

**Solder tail retentive feature**

Mating Condition



# MINIPAK Configuration Form

- a Enter your information on the table to the right.
- b Specify the design requirements for your MINIPAK configuration in steps 1 through 5 shown below.
- c Sign, date and return this form by fax to the nearest Elcon office (fax numbers at the bottom) or to your Elcon Sales Representative.

Elcon will recommend a MINIPAK configuration based on the specified requirements and issue a Customer Use Drawing (CUD) for your approval. **This CUD will have a unique Elcon part number specific to your configuration, which you should reference whenever you make an inquiry or place an order.**

Enter customer information here		
Company	Location	
Contact Name	Title	
Telephone ( )	Fax ( )	
Signature	EMail Address	
	Estimated Production Qty.	Date

**Sign, date and FAX back to Elcon.**

## 1 AC INPUT

- No AC input required       125VAC/250VAC spacing

## 2 SIGNAL CONTACTS

- No signal contacts required     6 contacts     24 contacts     30 contacts     Other: \_\_\_\_\_
- Signal sequencing required (two pin lengths available; write requirements under NOTES below.)

## 3 DC INPUT/OUTPUT

Write the current, voltage and sequencing requirements for each of the DC lines required by your application. Elcon will use this information to configure the DC side of your MINIPAK connector with the appropriate number of contacts and contact spacing.

		DC Requirements							
		DC1	DC2	DC3	DC4	DC5	DC6	DC7	DC8
Current (A)									
Voltage (V)									
Blade length	Standard								
	Premate								

## 4 BOARD MOUNTING STYLE

**Straight socket** (choose one)

- Short solder tail (.062" thick boards)
- Long solder tail (.093/.125" thick boards)
- Compliant press-fit tails (.093" min. thick board recommended)

**Right angle blade** (choose one)

- Short solder tail (for .062" thick boards)
- Long solder tail (.093/.125" thick boards)
- Long solder tail w/retentive feature (.093/.125" thick boards)

## 5 OTHER REQUIREMENTS

- Alignment guides required
- Connector length restriction, if any: \_\_\_\_\_" (\_\_\_\_\_ mm)

For further clarity, you can attach a sketch to this form if necessary.

- Sketch attached: \_\_\_\_\_ pages

### NOTES:

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To find out more about this or any other Elcon product, visit the Elcon website at [www.elconproducts.com](http://www.elconproducts.com) or simply contact the Elcon office nearest you:



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