HYBRID POWER & SIGNAL

- For use in power supplies, server equipment and related hardware
- Machined power contacts paired with formed signals offer very high performance-to-cost ratio
OVERVIEW

Positronic power connectors are widely known to offer the highest degree of linear current density in the marketplace. That is achieved by 1) selecting copper alloys low in resistance; 2) by the precision machining process; and 3) by the female contact geometry that provides excellent normal force against the male contact. Although the machining process is fundamental to the Eclipse’s power density, machining may not be required for the signal contact cluster. In some applications, this results in unnecessary cost escalation without the added value to the application. The Eclipse is the solution. It offers machined power contacts for world-class current density paired with a cost-effective signal contact cluster. Retain the performance without the cost implications.

TECH SPECS

PART NUMBER PREFIX | EC
---|---
PERFORMANCE LEVEL | Industrial
CONTACT STYLE | Fixed
FEMALE CONTACT DESIGN | LSA (power)
| Formed (signal)
MATING CYCLES | 250
CONTACT TERMINATIONS | Straight solder
| Right angle solder
CONTACT RETENTION | Signal - 4.9N [1.1 lbs] min
| Size 16 - 31.1N [7 lbs] min
| Size 8 - 66.7N [15 lbs] min
RETENTION MECHANISM | Press-in
PROOF VOLTAGE (RMS) | Signal - 1000 V
| Size 16 - 1750 V
| Size 8 - 2200 V
WORKING VOLTAGE (RMS) | Signal - 300 V
| Size 16 - 600 V
| Size 8 - 700 V
SEQUENTIAL MATING | Contact Technical Sales
CLEARANCE AND CREEPAGE DISTANCE (MINIMUM) | 1.00mm [0.039 inch]
INSULATOR MATERIAL | LCP (halogen-free)
INSULATOR COLOR | Black
INSULATOR CONSTRUCTION | Monoblock
INSULATION RESISTANCE | 5G Ω (min)
POLARIZATION | Insulator
BLIND MATING SYSTEM | Integral guide feature allows for misalignment up to 1.70mm [0.067 inch]
TEMPERATURE RANGE | -55°C to 125°C
RESISTANCE TO WAVE SOLDER HEAT | 260°C for 10 seconds
RoHS COMPLIANCE | All parts are RoHS 5/6 compliant (< 4% lead). Select parts are RoHS 6/6 compliant (< 0.1% lead).
QUALIFICATIONS | UL (in process)

---

*1 The listed qualification may not apply to all products within the family. Safety agency certifications not listed here may be pending at the time of printing. Contact Technical Sales for current status.
## CONTACT LAYOUTS

<table>
<thead>
<tr>
<th>LAYOUT</th>
<th>42</th>
<th>34</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>#16</td>
<td>18</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Signal</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Contact Current Rating (A) at 30°C Temperature Rise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8 Standard</td>
<td>TBD</td>
<td>TBD</td>
<td>25</td>
</tr>
<tr>
<td>#8 High Conductivity</td>
<td>TBD</td>
<td>TBD</td>
<td>31.5</td>
</tr>
<tr>
<td>#16 Standard</td>
<td>11.5</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>#16 High Conductivity</td>
<td>20</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>Signal</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Contact Current Rating (A) per UL1977</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8 Standard</td>
<td>TBD</td>
<td>TBD</td>
<td>50</td>
</tr>
<tr>
<td>#8 High Conductivity</td>
<td>TBD</td>
<td>TBD</td>
<td>65</td>
</tr>
<tr>
<td>#16 Standard</td>
<td>22.5</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>#16 High Conductivity</td>
<td>36</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>Signal</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Contact Resistance (mΩ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8 Standard</td>
<td>TBD</td>
<td>TBD</td>
<td>0.6</td>
</tr>
<tr>
<td>#8 High Conductivity</td>
<td>TBD</td>
<td>TBD</td>
<td>0.4</td>
</tr>
<tr>
<td>#16 Standard</td>
<td>3</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>#16 High Conductivity</td>
<td>1</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>Signal</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

**Dimensions**

- Width (mm): 61.60
- Height (mm): 11.30

**Availability**

- Summer 2017
- Contact Technical Sales
- Contact Technical Sales

---

**EXPLODED VIEW**

- Male pins
- Male formed pins
- Male insulator
- Female sockets
- Female formed sockets
- Female insulator
- Male pins
- Alignment bar
- Screws
- Angle bracket, integrated boardlock
- Boardlock

---

**THE SCIENCE OF CERTAINTY**

www.connectpositronic.com
INSULATOR DIMENSIONS

FACE VIEW

<table>
<thead>
<tr>
<th>Size 8</th>
<th>Size 16</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mating face</td>
<td>Mating face</td>
<td>Mating face</td>
</tr>
<tr>
<td>61.60 [2.425]</td>
<td>18.90 [0.744]</td>
<td>22.70 [0.894]</td>
</tr>
<tr>
<td>11.30 [0.445]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONTACT TERMINATIONS

<table>
<thead>
<tr>
<th>SIZE 8</th>
<th>SIZE 16</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight solder</td>
<td>Straight solder</td>
<td>Straight solder</td>
</tr>
<tr>
<td>ø3.18±0.08 [0.125±0.003] Typ.</td>
<td>ø3.18±0.08 [0.125±0.003] Typ.</td>
<td>ø3.18±0.08 [0.125±0.003] Typ.</td>
</tr>
<tr>
<td>3.80 [0.150]</td>
<td>3.80 [0.150]</td>
<td>3.80 [0.150]</td>
</tr>
</tbody>
</table>

Right angle solder

<table>
<thead>
<tr>
<th>SIZE 8</th>
<th>SIZE 16</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø3.18±0.08 [0.125±0.003] Typ.</td>
<td>ø1.60±0.08 [0.063±0.003] Typ.</td>
<td>ø1.60±0.08 [0.063±0.003] Typ.</td>
</tr>
<tr>
<td>3.80 [0.150]</td>
<td>3.80 [0.150]</td>
<td>3.80 [0.150]</td>
</tr>
<tr>
<td>8.42 [0.331] Typ.</td>
<td>5.40 [0.213] Typ.</td>
<td>0.50±0.08 [0.020±0.003] Typ.</td>
</tr>
<tr>
<td>ø3.18±0.08 [0.125±0.003] Typ.</td>
<td>9.70 [0.382] Typ.</td>
<td>0.20±0.08 [0.008±0.003] Typ.</td>
</tr>
</tbody>
</table>

Notes
1. For clarification purposes, select mechanical details have been removed.
CREATE A PART

EC 42 - M B 40 A - XX B3

Series

EC Eclipse

Layout

42 (18) #16, (24) signal
34 (4) #8, (6) #16, (24) signal
30 (6) #8, (24) signal

Contact Gender

M Male pin
F Female socket

Body Style

B PCB Mount

Termination

30 Straight solder*1
31 Straight solder, high conductivity alloy on #16 and larger*1
40 Right angle solder*2
41 Right angle solder, high conductivity alloy on #16 and larger*2

*1 For female gender only
*2 For male gender only

Notes
1 All EC Series parts are RoHS 5/6 compliant (< 4% lead). Select parts are available RoHS 6/6 compliant (< 0.1% lead). Contact Technical Sales for more information.
2 First mate ground and last mate enable available upon request. Contact Technical Sales.

FOR MODIFICATIONS TO STANDARD PARTS, PLEASE CONTACT TECHNICAL SALES.
TEMPERATURE RISE CURVES

Tested per IEC Publication 512-3, Test 5a

SIZE 8

![Graph showing temperature rise curves for SIZE 8 contacts.]

- **A** Tested with (6) #8 contacts, high conductivity
- **B** Tested with (6) #8 contacts, standard conductivity

SIZE 16

![Graph showing temperature rise curves for SIZE 16 contacts.]

- **A** Tested with (18) #16 contacts, high conductivity
- **B** Tested with (18) #16 contacts, standard conductivity

Notes

1. All (24) signal contacts were charged with 1.0 amps continuous for the duration of the test.

LINEAR CURRENT DENSITY

At a 30°C temperature rise, linear current density reaches 240A per inch.

At the maximum operating temperature, it increases to 430A per inch.
42 Thousand Servers.
21 Megawatts of Power.
Zero Margin of Error.

When you’re managing a data center that draws more power than a small city, you can’t afford a meltdown. At Positronic, we build high reliability, power-efficient connectors. But our true call is to provide certainty. Rock solid, mission-critical performance upon which you can bank life and limb, family and fortune. We consider it an honor. We consider it an inviolable trust.

POSITRONIC. THE SCIENCE OF CERTAINTY. / www.connectpositronic.com
All dimensional tolerances are ±0.38 [0.015], unless otherwise specified. Dimensions are in millimeter [inches]. All dimensions are subject to change. Product pictures may not be identical in appearance to actual production parts.

Information in this catalog is proprietary to Positronic and its subsidiaries. Positronic believes the data contained herein to be reliable. Since the technical information is given free of charge, the user employs such information at his own discretion and risk. Positronic assumes no responsibility for results obtained or damages incurred from use of such information in whole or in part.

The following trademarks are owned by Positronic Industries, Inc.: Positronic Industries, Inc.®, Positronic®, Connector Excellence®, P+ logo®, PosiBand®, PosiShop®, Optik-D™, and The Science of Certainty™. The color blue as it appears on various connectors is a trademark of Positronic Industries, Inc., Registered in U.S. Patent and Trademark Office.