# 0500-3005

## DATA SHEET
**D38999 Series III Type Connector**
**With 4.25GBPS Electro-Optical and El Ochito Contacts**

<table>
<thead>
<tr>
<th>REV</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preliminary</td>
<td>05/14/2018</td>
<td>GC/CA/SZ</td>
</tr>
<tr>
<td>2</td>
<td>Updated part to use 050-355 shell</td>
<td>07/06/2018</td>
<td>GC</td>
</tr>
<tr>
<td>3</td>
<td>Add ECCN 5E991</td>
<td>07/09/2018</td>
<td>GC</td>
</tr>
<tr>
<td>4</td>
<td>Add Empty Cavity Options</td>
<td>07/17/2018</td>
<td>GC</td>
</tr>
<tr>
<td>5</td>
<td>Add environmentally seal description</td>
<td>07/18/2018</td>
<td>GC</td>
</tr>
<tr>
<td>6</td>
<td>Add different El Ochito Contact options on P/N</td>
<td>08/16/2018</td>
<td>GC</td>
</tr>
<tr>
<td>7</td>
<td>Update insert arrangement and recommended PCB layout</td>
<td>10/19/2018</td>
<td>GC</td>
</tr>
<tr>
<td>8</td>
<td>Clarified 4.25Gbps Optical transmitter or Receiver</td>
<td>11/29/2018</td>
<td>RAS</td>
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<tr>
<td>9</td>
<td>Updated the mating plug specs. Add FO Inspection &amp; Cleaning Tools</td>
<td>03/11/2019</td>
<td>YA</td>
</tr>
<tr>
<td>10</td>
<td>Changed Cavity Contact Type “X” description</td>
<td>03/11/2019</td>
<td>JLL</td>
</tr>
<tr>
<td>11</td>
<td>Updated 2D drawing on clinch nut version/ Remove the Export Control Shield</td>
<td>03/21/2019</td>
<td>DJM/YA</td>
</tr>
</tbody>
</table>
**D38999 Hybrid Connector with Size 8 Opto-Electronic and El Ochito Contacts**

Glenair 0500-3005 is a D38999 Series III hybrid connector that offers customers the power to transmit electrical and fiber optic signals within a D38999 receptacle connector to support high-speed transmissions in harsh environments. The 0500-3005 incorporates Glenair’s Active Size 8 contacts (050-301) and Glenair’s El Ochito contacts (858-003) in multiple configurations. The opto-electronic and electrical performance parameters of the 0500-3005 are defined by the performance of the Active Size 8 contacts and the El Ochito contacts that are incorporated**. The connector is environmentally sealed using a potting compound that protects customer electronics if the connector is left in an unmated condition.

0500-3005’s Electro-Optical contacts are compatible for data 100Mbps to 4.25 Gbps. The El Ochito contacts can support 1000BASE-T Ethernet.

**KEY FEATURES/BENEFITS**

- 050-301 contacts to support ARINC 801 1.25mm fiber optic interconnect, up to 4.25Gbps per contact
- 858-003 El Ochito contacts to support Gigabit Ethernet
- 059-0058 Adapters available to support converting PLUG D38999 Size 8 cavities into ARINC 801 fiber optic compatible connectors
- PC tail electrical interfaces or custom micro-coax or flex to PCB interfaces available
- PC tail electrical interfaces or custom micro-coax or flex to PCB interfaces available

**APPLICATIONS**

- Harsh Environment Airborne, Tactical and Shipboard applications
- Ethernet, Fast Ethernet, Gigabit Ethernet, AFDX, 1x/2x/4x Fiber Channel, DVI, HDMI, SFDP, Serial Rapid I/O (sRIO) and other high speed communication all over Multimode Fiber

**How To Order**

<table>
<thead>
<tr>
<th>Cavity Contact Type Table</th>
<th>Cavity F Contact Type Table</th>
<th>Cavity B Contact Type Table</th>
<th>38999 Polarization A, B, C, D, E N = Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic PN 050-3005</td>
<td>07 - T E R E - N</td>
<td>See Cavity Contact</td>
<td>T = Electro-Optical TX</td>
</tr>
<tr>
<td>Material/Finish for Shell</td>
<td></td>
<td>Type Table</td>
<td>R = Electro-Optical RX</td>
</tr>
<tr>
<td>MT = Aluminum, Nickel-PTFE</td>
<td></td>
<td></td>
<td>E = Electrical El Ochito White</td>
</tr>
<tr>
<td>NF = Aluminum, Cad. Olive Drab</td>
<td></td>
<td></td>
<td>U = Electrical El Ochito Blue</td>
</tr>
<tr>
<td>Other finishes available</td>
<td></td>
<td></td>
<td>D = Electrical El Ochito Red</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>X = Dummy Contact</td>
</tr>
</tbody>
</table>

**Shell Mounting Options**

- CS – Wall Mount, Clinch Nut Standard (38999/20 Modified)
- 00 – Wall Mount, Slotted (38999/20)
- 07 – Jam Nut Mount

**Note:** For electrical ratings and specifications, please refer to 050-301 and El Ochito datasheets
Functional Block Diagram

**Electro-Optical TX Functional Block Diagram per cavity**

OPTICAL INTERFACE
- Light to Fiber

TRANSMITTER
- VCSEL
- Laser driver & safety circuitry

ELECTRICAL INTERFACE
- TX_DISABLE
- TD+ (TRANSMIT DATA)
- TD- (TRANSMIT DATABAR)
- TX_FAULT

**Receiver Functional Block Diagram per cavity**

OPTICAL INTERFACE
- Light from Fiber

RECEIVER
- Photodetector
- Amplification & Quantization

ELECTRICAL INTERFACE
- RD+ (RECEIVE DATA)
- RD- (RECEIVE DATABAR)
- LOS (LOSS OF SIGNAL)
Recommended Interface Circuit for Electro-Optical Contacts

Transmitter (050-301-04T)

RECOMMENDED INTERFACE CIRCUIT

Receiver (050-301-04R)

RECOMMENDED INTERFACE CIRCUIT
Connectors

<table>
<thead>
<tr>
<th>NAME</th>
<th>Insert Arrangement</th>
<th>Function</th>
<th>Mating PLUG Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1</td>
<td>Receptacle Interface</td>
<td>Electro-Optical Conversion and/or High-Speed Electrical signal transmission</td>
<td>Glenair PN 233-217-G6#19-18BN 181-076-P-126 126.0 micron, pull proof design, MMF, ARINC 801 style 059-0058 Size #8 cavity adapter 858-004 El Ochito Socket</td>
</tr>
</tbody>
</table>

Note: # = Environmental Class (Material/Finish)

Note: For electrical ratings and specifications, please refer to 050-301 and El Ochito datasheets.
Ratings and Specifications

Compliance Specifications

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>Standard</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Shock</td>
<td>MIL-STD-810</td>
<td>40g</td>
<td>6 ms</td>
</tr>
<tr>
<td>Mechanical Vibration</td>
<td>MIL-STD-810</td>
<td>30g rms</td>
<td></td>
</tr>
<tr>
<td>ESD</td>
<td>MIL-STD-883</td>
<td>Class 1C</td>
<td>1000V HBM</td>
</tr>
<tr>
<td>Eye Safety</td>
<td>CDRH and IEC-825</td>
<td>Class 1 Laser Product</td>
<td>No safety interlocks required</td>
</tr>
</tbody>
</table>

Material/Finish

<table>
<thead>
<tr>
<th>Item</th>
<th>Material/Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>0500-3005 Shell</td>
<td>Aluminum, 300 Series CRES</td>
</tr>
<tr>
<td>Contact Shell</td>
<td>Shell 300 Series CRES/Passivate or NM6</td>
</tr>
<tr>
<td>Seal</td>
<td>Silicone elastomer</td>
</tr>
<tr>
<td>Fiber Ferrule &amp; sleeve</td>
<td>Zirconia ceramic</td>
</tr>
<tr>
<td>PC tail contacts</td>
<td>Copper alloy/gold plated</td>
</tr>
<tr>
<td>PCB flex</td>
<td>FR4 &amp; Polyimide</td>
</tr>
<tr>
<td>Encapsulant</td>
<td>HYSOL EE4215</td>
</tr>
<tr>
<td>Solder type</td>
<td>RoHS compliant Sn95/Sb5 (232°C melting temp) &amp; RoHS compliant Sn96.5/Ag3.0/Cu0.5 (217° melting)</td>
</tr>
</tbody>
</table>
Active MIL-DTL-38999 type Wall-Mount Clinch Nut Receptacle

Active MIL-DTL-38999 type Wall-Mount Slotted Receptacle

Label includes part number, serial number, date code, manufacturer and cage code.

Dimensions inches
x.x ± 0.1”
xx.x ± 0.03”
xxx.x ± 0.005”
Active MIL-DTL-38999 type Jam Nut Receptacle

Label includes part number, serial number, date code, manufacturer and cage code.

Dimensions inches
- $x.x \pm 0.1”$
- $x.xx \pm 0.03”$
- $x.xxx \pm 0.005”$

Recommended Panel Cut Out

Front Panel Mount

Back Panel Mount

Jam Nut Mount
Recommended PCB Layout

Note: For pinout definition, please refer to 050-301, and El Ochito datasheets.
Recommended Inspection & Cleaning Tools/Kits

The following recommendations are suggested for this product:

- GBS-1001 Inspection Kit which includes GIT-003 tip for ARINC 801 fiber contacts.
- GCLT-H200 or GCLT-HA125 cleaning tool for ARINC 801 system.

GBS1001 Specifications

- Weight: .11 Kg / .25 lb
- Resolution: Better than 1.5 Microns
- Cable: Integrated USB 2.0 coil cable 2.5 relaxed, 10.5 fully extended
- Certification: CE
- Warranty: 1 year

Fiber Chek Software

Fiber Chek is an integrated hardware/software package engineered with the single purpose of critically and consistently grading fiber end-faces. Works hand in hand with the Quick Capture Analog Probe for visual inspection, taking pictures and testing fibers.

- Automatic debris and defect detection, including fine scratches
- Measures epoxy ring for out-of-tolerance conditions
- Inspection results, including image data, can be printed or archived
- Utilizes industry standards or user defined threshold settings
Recommended Inspection & Cleaning Tools/Kits – (Continued)

Dry action cleaning tool for ARINC 801 systems

- A simple push motion engages tool
- Audible click when tool is fully engaged
- Durable — over 525 engagements per tool
- Crush resistant to over 250N
- Impact resistant to survive drops over 1.5M