



## Micro-D GRPM-CBR Right Angle Rear Panel Mount Wide Flange Printed Circuit Board Connectors



**Save Space On Your Circuit Board** – These Micro-D connectors feature .100 inch row spacing. The board footprint is reduced to match the size of the connector body.

**Solder-Dipped** – Terminals are coated with Sn60/Pb40 tin-lead solder for best solderability. Optional gold-plated terminals are available for RoHS compliance.

**High Performance** – These connectors meet the demanding requirements of MIL-DTL-83513.

### How To Order GRPM Right Angle Connectors

| Sample Part Number                      | GRPM                                                                                                                                       | 2 | L-                    | 15 | P               | CBR | R3              | T | N | -.110 | 513 |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------|----|-----------------|-----|-----------------|---|---|-------|-----|
| <b>Series</b>                           | GRPM - Glenair Right Angle Rear Panel Micro                                                                                                |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Shell Material and Finish</b>        | Aluminum Shell                                                                                                                             |   | Stainless Steel Shell |    |                 |     |                 |   |   |       |     |
|                                         | 1 - Cadmium                                                                                                                                |   | 2 - Nickel            |    | 3 - Passivated  |     |                 |   |   |       |     |
|                                         | 4 - Black Anodize                                                                                                                          |   |                       |    |                 |     |                 |   |   |       |     |
|                                         | 5 - Gold                                                                                                                                   |   | 6 - Chem Film         |    |                 |     |                 |   |   |       |     |
| <b>Insulator Material</b>               | L - LCP or Ryton                                                                                                                           |   |                       |    |                 |     |                 |   |   |       |     |
|                                         | LCP - 30% Glass-Filled Liquid Crystal Polymer                                                                                              |   |                       |    |                 |     |                 |   |   |       |     |
|                                         | PPS - 40% Glass-Filled Polyphenylene Sulfide                                                                                               |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Contact Layout</b>                   | 9, 15, 21, 25, 31, 37, 51, 69, 100 (See Table I)                                                                                           |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Contact Type</b>                     | P - Pin S - Socket                                                                                                                         |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Termination Type</b>                 | CBR - Condensed Board Right Angle                                                                                                          |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Rear Panel Mount Hardware Option</b> | B - No hardware                                                                                                                            |   | R1 - .032 panel       |    | R2 - .047 panel |     |                 |   |   |       |     |
|                                         | R3 - .062 panel                                                                                                                            |   | R4 - .093 panel       |    | R5 - .125 panel |     | R6 - .080 panel |   |   |       |     |
| <b>Threaded Insert Option</b>           | T - Threaded Insert in Board Mount Hole; 9 thru 69 Contacts use 2-56; 100 Contacts use 4-40<br>Omit for none                               |   |                       |    |                 |     |                 |   |   |       |     |
| <b>O-Ring</b>                           | C - Conductive N - Non Conductive (Nitrile)                                                                                                |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Lead Length</b>                      | .080, .110, .125, .140, .150, .172, .190, .250                                                                                             |   |                       |    |                 |     |                 |   |   |       |     |
| <b>Gold-Plated Terminal Mod Code</b>    | These connectors are solder-dipped in 60/40 tin-lead solder.<br>To delete the solder dip and change to gold-plated terminals, add code 513 |   |                       |    |                 |     |                 |   |   |       |     |

### Materials and Finishes

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| Connector Shell  | Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options |
| Insulator        | Liquid Crystal Polymer (LCP) or Polyphenylene Sulfide (PPS)                                           |
| Interfacial Seal | Fluorosilicone Rubber, Blue                                                                           |
| Pin Contact      | Beryllium Copper Gold over Nickel Plating                                                             |
| Socket Contact   | Copper Alloy Gold Over Nickel Plating                                                                 |
| Hardware         | 300 Series Stainless Steel                                                                            |
| Encapsulant      | Epoxy Resin Hysol EE4215                                                                              |

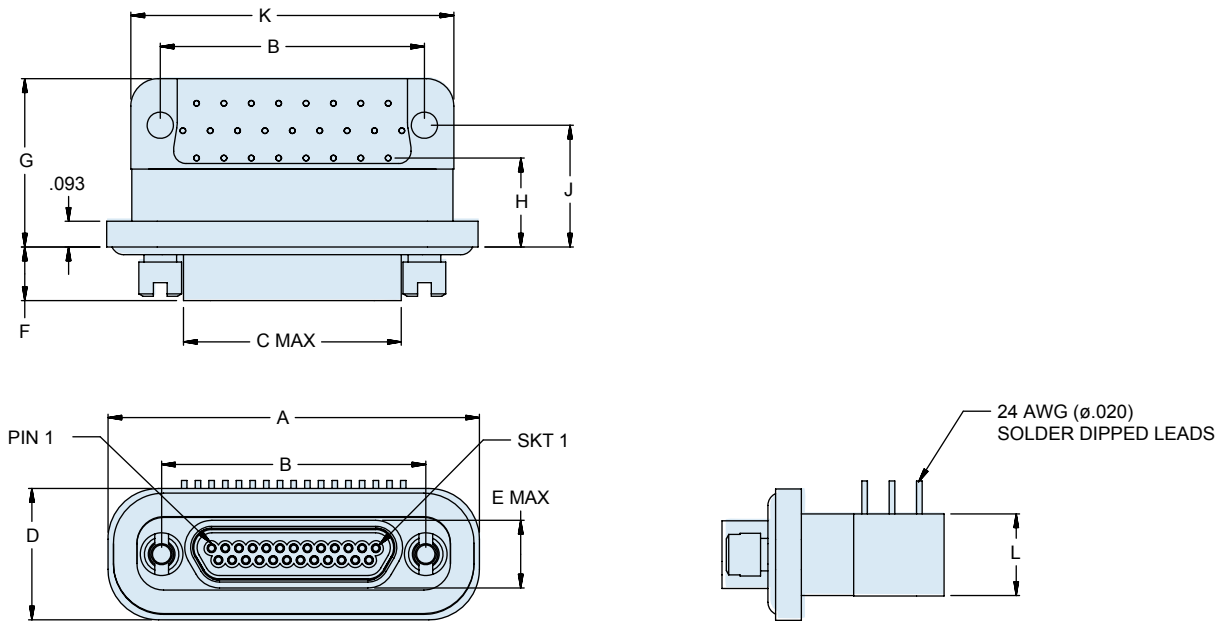
### Performance Specifications

|                           |                               |
|---------------------------|-------------------------------|
| Current Rating            | 3 AMP                         |
| DWV                       | 600 VAC Sea level             |
| Insulation Resistance     | 5000 Megohms Minimum          |
| Contact Resistance        | 8 Milliohms Maximum           |
| Low Level Contact Resist. | 32 Milliohms Maximum          |
| Magnetic Permeability     | 2 $\mu$ Maximum               |
| Operating Temperature     | -55° C. to +150° C.           |
| Shock, Vibration          | 50 g., 20g.                   |
| Mating Force              | (10 Ounces) X (# of Contacts) |

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Table I: Dimensions



| Layout | A             |              | B ± .003      |              | C Max |       | D             |              | E Max |      | F             |              | G Max |       | H             |              | J             |              | K Max |       | L Max |       |
|--------|---------------|--------------|---------------|--------------|-------|-------|---------------|--------------|-------|------|---------------|--------------|-------|-------|---------------|--------------|---------------|--------------|-------|-------|-------|-------|
|        | in.<br>± .005 | mm.<br>± .13 | in.<br>± .003 | mm.<br>± .08 | in.   | mm.   | in.<br>± .005 | mm.<br>± .13 | in.   | mm.  | in.<br>± .003 | mm.<br>± .08 | in.   | mm.   | in.<br>± .010 | mm.<br>± .25 | in.<br>± .010 | mm.<br>± .25 | in.   | mm.   | in.   | mm.   |
| 9P     | 0.960         | 24.38        | 0.565         | 14.35        | 0.334 | 8.48  | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.625 | 15.88 | 0.421         | 10.69        | 0.441         | 11.20        | 0.787 | 19.99 | 0.310 | 7.87  |
| 9S     | 0.960         | 24.38        | 0.565         | 14.35        | 0.400 | 10.16 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.625 | 15.88 | 0.421         | 10.69        | 0.441         | 11.20        | 0.787 | 19.99 | 0.310 | 7.87  |
| 15P    | 1.110         | 28.19        | 0.715         | 18.16        | 0.484 | 12.29 | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 0.937 | 23.80 | 0.310 | 7.87  |
| 15S    | 1.110         | 28.19        | 0.715         | 18.16        | 0.550 | 13.97 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 0.937 | 23.80 | 0.310 | 7.87  |
| 21P    | 1.260         | 32.00        | 0.865         | 21.97        | 0.634 | 16.10 | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 1.087 | 27.61 | 0.310 | 7.87  |
| 21S    | 1.260         | 32.00        | 0.865         | 21.97        | 0.700 | 17.78 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 1.087 | 27.61 | 0.310 | 7.87  |
| 25P    | 1.360         | 34.54        | 0.965         | 24.51        | 0.734 | 18.64 | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 1.187 | 30.15 | 0.310 | 7.87  |
| 25S    | 1.360         | 34.54        | 0.965         | 24.51        | 0.800 | 20.32 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.625 | 15.88 | 0.321         | 8.15         | 0.441         | 11.20        | 1.187 | 30.15 | 0.310 | 7.87  |
| 31P    | 1.510         | 38.35        | 1.115         | 28.32        | 0.884 | 22.45 | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.725 | 18.42 | 0.321         | 8.15         | 0.441         | 11.20        | 1.337 | 33.96 | 0.310 | 7.87  |
| 31S    | 1.510         | 38.35        | 1.115         | 28.32        | 0.950 | 24.13 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.725 | 18.42 | 0.321         | 8.15         | 0.441         | 11.20        | 1.337 | 33.96 | 0.310 | 7.87  |
| 37P    | 1.660         | 42.16        | 1.265         | 32.13        | 1.034 | 26.26 | 0.480         | 12.19        | 0.184 | 4.67 | 0.183         | 4.65         | 0.725 | 18.42 | 0.321         | 8.15         | 0.441         | 11.20        | 1.487 | 37.77 | 0.310 | 7.87  |
| 37S    | 1.660         | 42.16        | 1.265         | 32.13        | 1.100 | 27.94 | 0.480         | 12.19        | 0.250 | 6.35 | 0.195         | 4.95         | 0.725 | 18.42 | 0.321         | 8.15         | 0.441         | 11.20        | 1.487 | 37.77 | 0.310 | 7.87  |
| 51P    | 1.660         | 42.16        | 1.215         | 30.86        | 0.984 | 24.99 | 0.525         | 13.34        | 0.224 | 5.69 | 0.183         | 4.65         | 0.860 | 21.84 | 0.341         | 8.66         | 0.491         | 12.47        | 1.435 | 36.45 | 0.351 | 8.92  |
| 51S    | 1.660         | 42.16        | 1.215         | 30.86        | 1.050 | 26.67 | 0.525         | 13.34        | 0.293 | 7.44 | 0.195         | 4.95         | 0.860 | 21.84 | 0.341         | 8.66         | 0.491         | 12.47        | 1.435 | 36.45 | 0.351 | 8.92  |
| 69P    | 1.960         | 49.78        | 1.515         | 38.48        | 1.284 | 32.61 | 0.525         | 13.34        | 0.224 | 5.69 | 0.183         | 4.65         | 0.860 | 21.84 | 0.341         | 8.66         | 0.491         | 12.47        | 1.740 | 44.20 | 0.351 | 8.92  |
| 69S    | 1.960         | 49.78        | 1.515         | 38.48        | 1.350 | 34.29 | 0.525         | 13.34        | 0.293 | 7.44 | 0.195         | 4.95         | 0.860 | 21.84 | 0.341         | 8.66         | 0.491         | 12.47        | 1.740 | 44.20 | 0.351 | 8.92  |
| 100P   | 2.385         | 60.58        | 1.800         | 45.72        | 1.384 | 35.15 | 0.600         | 15.24        | 0.270 | 6.86 | 0.183         | 4.65         | 1.210 | 30.73 | 0.391         | 9.93         | 0.591         | 15.01        | 2.175 | 55.25 | 0.394 | 10.01 |
| 100S   | 2.385         | 60.58        | 1.800         | 45.72        | 1.451 | 36.86 | 0.600         | 15.24        | 0.333 | 8.46 | 0.195         | 4.95         | 1.210 | 30.73 | 0.391         | 9.93         | 0.591         | 15.01        | 2.175 | 55.25 | 0.394 | 10.01 |

**Notes:**

1. Assembly to be identified with Glenair's name, part number, date code, and pin 1 identification
2. Performance data per MIL-DTL-83513
3. Interface dimensions per MIL-DTL-83513
4. PCB layout per Glenair MWDM CBR catalog data except for dimension shown. See Section C