End Launch Bulkhead Jack Receptacle - Round Contact

<table>
<thead>
<tr>
<th>VSWR &amp; FREQ. RANGE</th>
<th>BOARD THICKNESS</th>
<th>GOLD PLATED</th>
<th>NICKEL PLATED</th>
<th>“A”</th>
<th>“B”</th>
<th>“O” RING</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSWR: N/A 0-18 GHz</td>
<td>.062 (1.57)</td>
<td>142-0701-871</td>
<td>142-0701-876</td>
<td>.068 (1.73)</td>
<td>.073 (1.85)</td>
<td>No</td>
</tr>
</tbody>
</table>

Cinch Connectivity Solutions
299 Johnson Avenue SW, Waseca, MN 56093 USA • 800.247.8256 • +1 507 833 8822 • cinchconnectivity.com
# SMA - 50 Ohm Connectors

## Specifications

### ELECTRICAL RATINGS

<table>
<thead>
<tr>
<th>Impedance:</th>
<th>50 ohms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range:</td>
<td>0.2 GHz to 12 GHz</td>
</tr>
</tbody>
</table>

#### VSWR (f = GHz)

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Straight Cabled</th>
<th>Right Angle Cabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG-178</td>
<td>1.20 + .025f</td>
<td>1.20 + .02f</td>
</tr>
<tr>
<td>RG-316, LMR-100</td>
<td>1.15 + .01f</td>
<td>1.15 + .02f</td>
</tr>
<tr>
<td>RG-58, LMR-195</td>
<td>1.15 + .01f</td>
<td>1.15 + .02f</td>
</tr>
<tr>
<td>RG-142</td>
<td>1.15 + .01f</td>
<td>1.15 + .02f</td>
</tr>
<tr>
<td>LMR-200, LMR-240</td>
<td>1.10 + .03f</td>
<td>1.10 + .06f</td>
</tr>
<tr>
<td>.086 semi-rigid</td>
<td>1.07 + .008f</td>
<td>1.18 + .015f</td>
</tr>
<tr>
<td>.141 semi-rigid (w/o contact)</td>
<td>1.05 + .008f</td>
<td>1.15 + .015f</td>
</tr>
<tr>
<td>.141 semi-rigid (w/o contact)</td>
<td>1.035 + .005f</td>
<td></td>
</tr>
</tbody>
</table>

**ECM: Bulkhead Mounting Nut Torque:**
- Mating Torque: 7 inch-pounds maximum
- Engagement/Disengagement Force: 2 inch-pounds maximum
- Bulkhead Mounting Nut Torque: 15 inch-pounds
- Coupling Proof Torque: 15 inch-pounds minimum
- Coupling Nut Retention: 60 pounds minimum
- Contact Retention:
  - 4 inch-ounce minimum torque (uncabled receptacles)
  - 6 lbs. minimum axial force (captivated contacts)

### MECHANICAL RATINGS

**Connector Retention:**
- Axial Force*: (lbs) Torque (in-oz)
  - Connectors for RG-178: 10
  - Connectors for RG-316, LMR-100: 20
  - Connectors for LMR-195, 200: 30
  - Connectors for RG-58, LMR-240: 40
  - Connectors for RG-142: 45
  - Connectors for .086 semi-rigid: 16
  - Connectors for .141 semi-rigid: 60

**Environmental Ratings:**

**Temperature Range:** -65°C to +165°C

**Conformal Coating:** MIL-STD-202D, Method 212, Condition I

**Vibration:** MIL-STD-202D, Method 204, Condition D

**Moisture Resistance:** MIL-STD-202D, Method 106

### ENVIRONMENTAL RATINGS

**Humidity:**
- Un-cabled receptacles: 100 cycles minimum
- Field replaceable connectors w/o contact: 100 cycles minimum

**Vibration:**
- 100 cycles minimum
- .141 semi-rigid connectors w/o contact: 100 cycles minimum

**Shock:**
- MIL-STD-202D, Method 212, Condition I
- MIL-STD-202D, Method 204, Condition D

**Corrosion:**
- MIL-STD-202D, Method 201, Condition B
- MIL-STD-202D, Method 106

**Durability:**
- 500 cycles minimum
- .141 semi-rigid connectors w/o contact: 500 cycles minimum

### RF Leakage:

- 60 dB
- 70 dB
- 90 dB

### RF High Potential Withstanding Voltage:

- 335 Volts
- 500 Volts

### RF High Potential Withstanding Voltage:

- 0.15 f (GHz), tested at 6 GHz
- 0.06 f (GHz), tested at 6 GHz
- 0.15 f (GHz), tested at 6 GHz
- 0.15 f (GHz), tested at 6 GHz
- 0.06 f (GHz), tested at 6 GHz
- N/A

---

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.
**Material Specifications**

**Bodies:** Brass per QQ-B-626, gold plated* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.
Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Nut Retention Spring:** Beryllium copper per QQ-C-533. Unplated

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 or Tefzel per ASTM D 3159 or PFA 340 per ASTM

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799 or brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Seal Rings:** Silicone rubber per ZZ-R-765

**EMI Gaskets:** Conductive silicone rubber per MIL-G-83528, Type M

* All gold plated parts include a .00005" min. nickel underplate barrier layer.

**Mating Engagement for SMA Series per MIL-C-39012**

---

**NOTES**
1. ID OF CONTACT TO MEET VSWR, CONTACT RESISTANCE AND INSERTION WITHDRAWAL FORCES WHEN MATED WITH DIA .0355-.0370 MALE PIN.

---

**Cinch Connectivity Solutions**
299 Johnson Avenue SW, Waseca, MN 56093 USA • 800.247.8256 • +1 507 833 8822 • cinchconnectivity.com
The **End Launch** connector is attached to the circuit board by inserting the board edge between the legs and soldering the legs and center conductor to pads on the board. For optimum high frequency performance, the connector to circuit board transition must be adjusted for low VSWR. To compensate for the transition from coax to microstrip, trace widths "A" and "B" must be adjusted based on circuit board thickness. When properly adjusted, this technique yields a low VSWR over a wide bandwidth.

The tabulated dimensions "A", "B", "C", "D", and "E" were determined experimentally to achieve low VSWR (typically less than 1.5 up to 18 GHz). The circuit board used for these tests was double-sided FR 4 with 1 oz. copper on both sides. The copper was left on the bottom of the board to create a ground plane for the 50 Ohm microstrip structure. While not all inclusive, these dimensions are given as reference information for selected **SMA End Launch** connectors. Further adjustments may be necessary depending upon the application. All dimensions are in inches.

---

**SMA End Launch Specifications**

**ELECTRICAL RATINGS**

- **Impedance**: 50 Ohms
- **Frequency Range**: 0-18 GHz
- **VSWR**: Dependent upon application
- **Working Voltage** (VRMS max.): 335 @ Sea Level, 85 @ 70K Feet
- **Dielectric Withstanding Voltage** (VRMS min. at sea level): 1000
- **Corona Level** (Volts min. at 70,000 feet): 250
- **Insulation Resistance**: 5000 megohms min.
- **Contact Resistance** (milliohms max.): 3.0 Initial, 4.0 after environmental
- **RF High Potential Withstanding Voltage** (VRMS min. tested at 4 and 7 MHz): 670

**MECHANICAL RATINGS**

- **Engagement Design**: MIL-C-39012, Series SMA
- **Engagement/Disengagement Force**: 2 inch-pounds max.
- **Mating Torque**: 7 to 10 inch-pounds
- **Coupling Proof Torque**: 15 inch-pounds min.
- **Nut Retention**: 60 pounds min.
- **Contact Retention Force**: 6 lbs min. axial force, 4 inch-ounce min. torque
- **Durability**: 500 cycles min.

---

**ENVIRONMENTAL RATINGS:**

(Meets or exceeds the applicable paragraph of MIL-C-39012)

- **Temperature Range**: -65° to + 165° C
- **Thermal Shock**: MIL-STD-202, Method 107, Condition B
- **Corrosion**: MIL-STD-202, Method 101, Condition B
- **Shock**: MIL-STD-303, Method 213, Condition I
- **Vibration**: MIL-STD-202, Method 204, Condition D
- **Moisture Resistance**: MIL-STD-202, Method 106

**MATERIAL SPECIFICATIONS**

- **Bodies**: Brass per QQ-B-626, gold plated* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290
- **Contacts**: Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min. Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.
- **Nut Retention Spring**: Beryllium copper per QQ-C-533. Unplated
- **Insulators**: PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457
- **Mounting Hardware**: Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

*All gold plated parts include a .00005" min. nickel underplate barrier layer.

---

**Part Number** | **Base Width** | **Board Thick** | **"A"** | **"B"** | **"C"** | **"D"** | **"E"**
--- | --- | --- | --- | --- | --- | --- | ---
142-0701-801/806 | .375 | .062 | .103 | .090 | .250 | .440 | .200
142-0701-851/861 | .375 | .062 | .103 | .090 | .250 | .440 | .200
142-0701-871/876 | .375 | .062 | .103 | .090 | .250 | .440 | .200
142-0711-821/826 | .250 | .062 | .103 | .070 | .170 | .380 | .165
142-0711-871/876 | .375 | .047 | .083 | .075 | .250 | .440 | .200
142-0711-881/886 | .375 | .047 | .083 | .075 | .250 | .440 | .200
142-0701-881/886 | .375 | .031 | .050 | .045 | .250 | .440 | .200

---

**Surface Mount Versions Available!**