**SMA 50 Ohm**

**End Launch Jack Receptacle - Tab Contact**

![Diagram](image)

<table>
<thead>
<tr>
<th>VSWR &amp; FREQ. RANGE</th>
<th>BOARD THICKNESS</th>
<th>GOLD PLATED</th>
<th>NICKEL PLATED</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSWR: N/A 0-18 GHz</td>
<td>.062 (1.57)</td>
<td>142-0701-851</td>
<td>142-0701-856</td>
<td>.068 (1.73)</td>
<td>.083 (2.11)</td>
</tr>
</tbody>
</table>
ELECTRICAL RATINGS

Insertion Loss: (dB maximum)
- Straight flexible cable connectors and adapters .................. 0.06 $\sqrt{f}$ (GHz), tested at 6 GHz
- Right angle flexible cable connectors ............................... 0.15 $\sqrt{f}$ (GHz), tested at 6 GHz
- Straight semi-rigid cable connectors with contact ............ 0.03 $\sqrt{f}$ (GHz), tested at 10 GHz
- Right angle semi-rigid cable connectors ......................... 0.05 $\sqrt{f}$ (GHz), tested at 10 GHz
- Straight semi-rigid cable connectors w/o contact ............. 0.06 $\sqrt{f}$ (GHz), tested at 1 GHz
- Right Angle low loss flexible cable connectors ................. 0.15 $\sqrt{f}$ (GHz), tested at 1 GHz

Uncabled receptacles, field replaceable, dummy loads ............ N/A

Insulation Resistance: 5000 megohms minimum

Contact Resistance: (milliohms maximum) Initial After Environmental
- Center contact (straight cabled connectors and uncabled receptacles) 3.0* 4.0*
- Center contact (right angle cabled connectors and adapters) ................. 4.0 6.0
- Field replaceable connectors ............................................ 6.0 8.0
- Outer contact (all connectors) ............................................ 2.0 N/A
- Braid to body (gold plated connectors) ................................. 0.5 N/A
- Braid to body (nickel plated connectors) ............................... 5.0 N/A

RF Leakage: (dB minimum, tested at 2.5 GHz)
- Flexible cable connectors, adapters and .141 semi-rigid connectors w/o contact .................. -60 dB
- Field replaceable w/o EMI gasket ...................................... -70 dB
- .086 semi-rigid connectors and .141 semi-rigid connectors with contact, and field replaceable with EMI Gasket -90 dB
- Two-way adapters ............................................................. -90 dB
- Uncabled receptacles, dummy loads .................................. N/A

RF High Potential Withstanding Voltage: (Volts minimum, tested at 4 and 7 MHz)
- Connectors for RG-178 ......................................................... 335
- Connectors for RG-316; LMR-100, 195, 200 .................... 500
- Connectors for RG-58, RG-142, LMR-240, .086 semi-rigid, .141 semi-rigid cable w/o contact, uncabled receptacles 670
- Connectors for .141 semi-rigid with contact and adapters 1000

Power Rating (Dummy Load): 0.5 watt @ +25°C, derated to 0.26 watt @ +125°C

MECHANICAL RATINGS

Cable Retention: Axial Force*(lbs) Torque (in-oz)
- Connectors for RG-178 ......................................................... 10 N/A
- Connectors for RG-316, LMR-100 ................................. 20 N/A
- Connectors for LMR-195, 200 ....................................... 30 N/A
- Connectors for RG-58, LMR-240 ................................. 40 N/A
- Connectors for RG-142 ....................................................... 45 N/A
- Connectors for .086 semi-rigid ................................. 30 16
- Connectors for .141 semi-rigid ................................. 60 55

*Or cable breaking strength whichever is less.

Durability: 500 cycles minimum

100 cycles minimum for .141 semi-rigid connectors w/o contact

Environmental Ratings (Meets or exceed the applicable paragraph of MIL-C-39012)

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

†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: Brass per QQ-B-626 or 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.

NOTES
1. ID OF CONTACT TO MEET VSWR, CONTACT RESISTANCE AND INSERTION WITHDRAWAL FORCES
   WHEN MATED WITH DIA .0355-.0370 MALE PIN.
SMA - 50 Ohm Connectors
End Launch Connectors - A Johnson Components™ Original

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.

Tabulated Dimensions “A”, “B”, “C” and “D” are symmetrical about the center line.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Base Width</th>
<th>Board Thick</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
<th>&quot;D&quot;</th>
<th>&quot;E&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>142-0701-801/806</td>
<td>.375</td>
<td>.062</td>
<td>.103</td>
<td>.090</td>
<td>.250</td>
<td>.440</td>
<td>.200</td>
</tr>
<tr>
<td>142-0701-851/861</td>
<td>.375</td>
<td>.062</td>
<td>.103</td>
<td>.090</td>
<td>.250</td>
<td>.440</td>
<td>.200</td>
</tr>
<tr>
<td>142-0701-871/876</td>
<td>.375</td>
<td>.062</td>
<td>.103</td>
<td>.090</td>
<td>.250</td>
<td>.440</td>
<td>.200</td>
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<tr>
<td>142-0711-821/826</td>
<td>.250</td>
<td>.062</td>
<td>.103</td>
<td>.070</td>
<td>.170</td>
<td>.380</td>
<td>.165</td>
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<tr>
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<td>.375</td>
<td>.047</td>
<td>.083</td>
<td>.075</td>
<td>.250</td>
<td>.440</td>
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<td>142-0711-881/886</td>
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<td>.083</td>
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<td>.250</td>
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<tr>
<td>142-0701-881/886</td>
<td>.375</td>
<td>.031</td>
<td>.050</td>
<td>.045</td>
<td>.250</td>
<td>.440</td>
<td>.200</td>
</tr>
</tbody>
</table>

Surface Mount Versions Available!

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

MATERIAL SPECIFICATIONS
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*All gold plated parts include a .00005" min. nickel underplate barrier layer.
Mouser Electronics

Authorized Distributor

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