SMA 50 Ohm
Right Angle Clamp Type Plug - Captivated Contact

<table>
<thead>
<tr>
<th>CABLE TYPE</th>
<th>VSWR &amp; FREQ. RANGE</th>
<th>GOLD PLATED</th>
<th>NICKEL PLATED</th>
<th>“A”</th>
<th>“B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG-161/U, 174, 188, 316</td>
<td>1.15 + .03 f (GHz) 0-12.4 GHz</td>
<td>142-0203-101</td>
<td>142-0203-106</td>
<td>.574 (14.58)</td>
<td>.433 (11.00)</td>
</tr>
</tbody>
</table>

1. Identify connector parts. (4 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide clamp nut and clamp cone onto cable as shown. Clamp cone must be oriented as shown for each size of cable. The RG-58/142 clamp cone slides over braid and against jacket.
3. Flare braid and slide cable into body making certain that the cable insulation bottoms on center contact. Stepped down diameter of stem must slide under braid and jacket. Arrange braid uniformly around crimp stem. Slide clamp nut against clamp cone and braid and tighten to 10 in.-lb. torque.
4. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.** Place expansion cap in access port and seat with .187 (4.75) diameter flat punch.
## SMA - 50 Ohm Connectors

### Specifications

**Impedance:** 50 ohms  
**Frequency Range:**
- Dummy loads: 0-2 GHz  
- Flexible cable connectors: 0-12.4 GHz  
- Uncabled receptacles, RA semi-rigid and adapters: 0-18.0 GHz  
- Straight semi-rigid cable connectors and field replaceable connectors: 0-26.5 GHz  

**VSWR:** (f = GHz)
- Straight Cabled Connectors: 1.20 + 0.02f  
- Right Angle Cabled Connectors: 1.20 + 0.03f  
- Straight Uncabled Connectors: 1.15 + 0.02f  
- Right Angle Uncabled Connectors: 1.15 + 0.03f  
- .141 semi-rigid cable w/o contact: 1.07 + 0.01f  
- .141 semi-rigid cable w/contact: 1.15 + 0.015f  
- LMR-200, LMR-240 cable: 1.10 + 0.03f  
- RG-142 cable: 1.15 + 0.01f  
- RG-316, LMR-100 cable: 1.15 + 0.02f  
- RG-58, LMR-195 cable: 1.15 + 0.01f  
- RG-178 cable: 1.20 + 0.025f  

### ELECTRICAL RATINGS

#### Insertion Loss:
- (dB maximum)
- Straight flexible cable connectors and adapters: 0.06 \(\sqrt{f} \text{ (GHz), tested at 6 GHz}\)
- Right angle flexible cable connectors: 0.15 \(\sqrt{f} \text{ (GHz), tested at 6 GHz}\)
- Straight semi-rigid cable connectors: 0.03 \(\sqrt{f} \text{ (GHz), tested at 10 GHz}\)
- Right angle semi-rigid cable connectors: 0.05 \(\sqrt{f} \text{ (GHz), tested at 10 GHz}\)
- Straight semi-rigid cable connectors w/o contact: 0.03 \(\sqrt{f} \text{ (GHz), tested at 16 GHz}\)
- Straight low loss flexible cable connectors: 0.06 \(\sqrt{f} \text{ (GHz), tested at 1 GHz}\)
- Right Angle low loss flexible cable connectors: 0.15 \(\sqrt{f} \text{ (GHz), tested at 1 GHz}\)
- Uncabled receptacles, field replaceable, dummy loads: N/A

#### Insulation Resistance:
- 5000 megohms minimum

#### Contact Resistance:
- (milliohms maximum)
  - Center contact (straight cabled connectors) and uncabled receptors: 8.0
  - Center contact (right angle cabled connectors and adapters): 4.0
  - Field replaceable connectors: 6.0
  - Outer contact (all connectors): 2.0
  - Straight semi-rigid cable connectors w/o contact, uncabled receptacles: 1.05 + 0.05f
  - Flexible cable connectors, adapters and .141 semi-rigid connectors w/o contact, dummy loads: N/A

#### Cable Retention:
- (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: 30
- Connectors for .141 semi-rigid: 60

#### Power Rating (Dummy Load):
- 0.5 watt @ +25°C, derated to 0.25 watt @ +125°C

### MECHANICAL RATINGS

#### Engagement Design:
- MIL-C-39012, Series SMA

#### Engagement/Disengagement Force:
- 2 inch-pounds maximum

#### Mating Torque:
- 7 to 10 inch-pounds

#### Bulkhead Mounting Nut Torque:
- 15 inch-pounds

#### Coupling Proof Torque:
- 15 inch-pounds minimum

#### Coupling Nut Retention:
- 60 pounds minimum

#### Contact Retention:
- 6 lbs. minimum axial force (captivated contacts)
- 4 inch-ounce minimum torque (uncabled receptacles)

### ENVIRONMENTAL RATINGS

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

#### Thermal Shock:
- MIL-STD-202, Method 107, Condition B

#### Corrosion:
- MIL-STD-202, Method 101, Condition B

#### Shock:
- MIL-STD-202, Method 213, Condition I

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

#### Moisture Resistance:
- MIL-STD-202, Method 106

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†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.