



# PRODUCT SPECIFICATION

## 1.0 SCOPE

This Product Specification covers the SMA product family (Interface Only) and is a general performance guideline. Please contact Molex RFMS Engineering for specific design iteration performance ratings. As customer end use applications vary greatly, the performance requirements stated within are superseded by performance requirements stated on the Molex Sales Drawing(s).

## 2.0 PRODUCT DESCRIPTION

**2.1 PRODUCT NAME**  
SMA

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

MIL-STD-348B

## 4.0 RATINGS

**4.1 VOLTAGE**  
500 Vrms at Sea Level

**4.2 TEMPERATURE**  
Rating: - 65°C TO + 165°C

**4.3 FREQUENCY RATING**  
DC to 18 GHz (Standard)  
DC to 27 GHz (Precision/Field Replaceable)

**4.4 NOMINAL IMPEDANCE**  
50 Ohm

|   |   |   |                            |
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| REVISION:<br><b>A9</b>                  | ECR/ECN INFORMATION:<br>EC No: <b>174266</b><br>DATE: <b>2018 / 04 / 05</b> | TITLE:<br><b>SMA PRODUCT FAMILY</b><br>INTERFACE ONLY | SHEET No.<br><b>1 of 4</b> |
| DOCUMENT NUMBER:<br><b>PS-89675-346</b> | CREATED / REVISED BY:<br><b>S. SHAH/AZR</b>                                 | CHECKED BY:<br><b>SSS</b>                             | APPROVED BY:<br><b>WES</b> |



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## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION                         | TEST CONDITION   | REQUIREMENT   |
|------|-------------------------------------|--|---|
| 1    | Insulation Resistance               | MIL-PRF-39012, paragraph 3.11  | 5000 MΩ Min   |
| 2    | Dielectric Withstanding Voltage     | MIL-PRF-39012, paragraph 3.17<br>Cable group I<br>Cable group II, IIa, III, IV<br>Cable group VI, VIa, VIb | 500 Vrms Min<br>750 Vrms Min<br>1000 Vrms Min   |
| 3    | Low Level Contact Resistance (LLCR) | MIL-PRF-39012, paragraph 3.16<br><br>Center Contact<br><br>Outer Contact                                   | Initial: Baseline (Reference Only)<br>Post Environment:<br>10.0 Milliohms Max Increase<br><br>Initial: Baseline (Reference Only)<br>Post Environment:<br>10.0 Milliohms (Nobel Plating)<br>20.0 Milliohms (Non-Nobel Plating)<br>Max Increase |
| 4    | Voltage Standing Wave Ratio         | MIL-PRF-39012, paragraph 3.14  | See Sales Drawing   |
| 5    | RF Insertion Loss                   | MIL-PRF-39012, paragraph 3.27  | Application specific. See Sales Drawing where applicable.   |

### 5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION                   | TEST CONDITION  | REQUIREMENT   |
|------|-------------------------------|---|---|
| 6    | Material/Finish               | MIL-PRF-39012, paragraph 3.3                                  | See Sales Drawing   |
| 7    | Design                        | MIL-PRF-39012, paragraph 3.4                                  | See Sales Drawing   |
| 8    | Panel Nut Torque              | N/A   | See Sales Drawing   |
| 9    | Recommended Mating Torque     | MIL-PRF-39012   | 7-10 inch-pounds (steel part)<br>4-5 inch-pounds (brass part) |
| 10   | Force to Engage and Disengage | MIL-PRF-39012, paragraph 3.5.1<br>Axial Force<br>Radial Force | N/A<br>2 in-lb  |
| 11   | Coupling Proof Torque         | MIL-PRF-39012, paragraph 3.6                                  | 15 inch-pounds  |
| 12   | Coupling Nut Retention Force  | MIL-PRF-39012, paragraph 3.25                                 | 60 pounds   |

|                        |   |  |                            |
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## 5.2 MECHANICAL REQUIREMENTS (continued)

| ITEM | DESCRIPTION                     | TEST CONDITION   | REQUIREMENT  |
|------|---------------------------------|--|--|
| 13   | <b>Mating Characteristics</b>   | MIL-PRF-39012, paragraph 3.7   | MIL-STD-348B dimensions                                    |
| 14   | <b>Connector Durability</b>     | MIL-PRF-39012, paragraph 3.15  | 500 Cycles   |
| 15   | <b>Center Contact Retention</b> | MIL-PRF-39012, paragraph 3.12<br>Axial Force (Cable Connectors)<br>Axial Force (Adapters)<br>Axial Force (PCB Connectors)<br>Radial Torque | 6 lbs MIN (terminated to cable)<br>4 lbs MIN<br>N/A<br>N/A |
| 16   | <b>Cable Retention</b>          | MIL-PRF-39012, paragraph 3.24<br>Axial Force   | Per Cable Specification                                    |

## 5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION      | TEST CONDITION   | REQUIREMENT   |
|------|------------------|--|---|
| 17   | <b>Vibration</b> | MIL-PRF-39012, paragraph 3.18<br>Per MIL-STD-202, Method 204 | Test Condition D<br><br><u>Signal (Center) LLCRC:</u><br>10.0 Milliohms Max Increase (Post Environment)<br><br><u>Outer Conductor LLCRC:</u><br>10.0 Milliohms (Nobel Plating)<br>20.0 Milliohms (Non-Nobel Plating)<br>Max Increase Post Environment |
| 18   | <b>Shock</b>     | MIL-PRF-39012, paragraph 3.19<br>Per MIL-STD-202, Method 213 | Test Condition I<br><br><u>Signal (Center) LLCRC:</u><br>10.0 Milliohms Max Increase (Post Environment)<br><br><u>Outer Conductor LLCRC:</u><br>10.0 Milliohms (Nobel Plating)<br>20.0 Milliohms (Non-Nobel Plating)<br>Max Increase Post Environment |

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|----|-------------------------------|--|--|
| 19 | <b>Shock (Thermal)</b>        | MIL-PRF-39012, paragraph 3.2<br>Per MIL-STD-202, Method 107  | Test Condition B (165 °C)<br><br><u>Signal (Center) LLCR:</u><br>10.0 Milliohms Max Increase (Post Environment)<br><br><u>Outer Conductor LLCR:</u><br>10.0 Milliohms (Nobel Plating)<br>20.0 Milliohms (Non-Nobel Plating)<br>Max Increase Post Environment |
| 20 | <b>Corrosion (Salt Spray)</b> | MIL-PRF-39012, paragraph 3.13<br>Per MIL-STD-202, Method 101 | Test Condition B   |
| 21 | <b>Moisture Resistance</b>    | MIL-PRF-39012, paragraph 3.21<br>Per MIL-STD-202, Method 106 | Insulation resistance 200 MΩ MIN<br>(after drying)   |

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