

N-type Calibration Standard SOL-63-NM+

50 Ω DC to 6 GHz

THE BIG DEAL

- Precision N-type calibration standard up to 6 GHz
- Works out of the box with Mini-Circuits' eVNA-63+
- N-Male Short / Open / Load standard
- Performs a one-port calibration on a VNA
- Cardboard storage case



Generic photo used for illustration purposes only

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

APPLICATIONS

- VNA Calibration

| | |
|--------------|------------|
| Model Number | SOL-63-NM+ |
| Case Style | VR3263 |
| Connector | N-Male |

PRODUCT OVERVIEW

Mini-Circuits' SOL-63-NM+ is an N-Male short, open, & load calibration standard intended for VNA measurements of any N-Male DUT (device under test). The standard is supplied in a cardboard storage and display case.

SOL-63-NM+ is offered in Mini-Circuits' calibration kit, KSOLT-63-N+, which is supported by Mini-Circuits eVNA-63+ vector network analyzer right out of the box, with all calibration definitions pre-loaded within the eVNA Studio software. The standards can also be used as a cost-effective, high-performance alternative to calibration kits from a wide range of VNA suppliers.

KEY FEATURES

| Feature | Advantages |
|--|---|
| Cost effective | Cost effective when comparing against competitors with similar specifications |
| 1 Port Calibration | Single standard is all you need for one-port calibration of N-type Male devices |
| 2 Port Calibration | Combine with a thru to make fully calibrated 2-port or greater measurements with a VNA |
| Excellent return loss, 42 dB typ. at load port | Precision calibration standards with high return loss minimize the measurement errors within a VNA system |



PRECISION

N-type Calibration Standard **SOL-63-NM+**

Mini-Circuits®

ELECTRICAL SPECIFICATIONS

| Standard | Parameter | Min | Typ | Max | Units |
|----------|--------------------------|-----|-----|-----|----------|
| | Frequency Range | DC | | 6 | GHz |
| | Impedance | | 50 | | Ω |
| SHORT | Phase Error ¹ | | 1.5 | 3.0 | ° |
| OPEN | Phase Error ¹ | | 1.5 | 3.5 | ° |
| LOAD | Return Loss | 36 | 42 | | dB |

1. Phase error is the phase deviation from the calkit model definition

MAXIMUM RATINGS²

| Parameter | Ratings |
|------------------------------------|---------------|
| Operating Temperature ³ | 20°C to 26°C |
| Storage Temperature | -20°C to 75°C |
| Supply Voltage | 0.5 W |

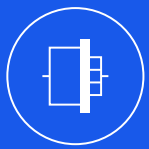
2. Permanent damage may occur if any of these limits are exceeded.

3. Operating temperature specified for optimal performance

CALKIT MODEL DEFINITION

| P/N | Standard Label | Parameter | Value | Units | Additional Format |
|------------|----------------|--------------|---------|---------------------------|-------------------------------|
| SOL-63-NM+ | SHORT -M- | Offset Delay | 59.44 | ps | 17.83 mm |
| | | Offset Loss | 1 | G Ω /s | 0.003 dB/ $\sqrt{\text{GHz}}$ |
| | | Z0 | 50 | Ω | 50 Ω |
| | | L0 | 0.000 | (1E-12) H | 0 pH |
| | | L1 | 0.000 | (1E-24) H/Hz | 0 pH/GHz |
| | | L2 | 0.000 | (1E-33) H/Hz ² | 0 pH/GHz ² |
| | | L3 | 0.000 | (1E-42) H/Hz ³ | 0 pH/GHz ³ |
| | OPEN -M- | Offset Delay | 59.44 | ps | 17.83 mm |
| | | Offset Loss | 1 | G Ω /s | 0.003 dB/ $\sqrt{\text{GHz}}$ |
| | | Z0 | 50 | Ω | 50 Ω |
| | | C0 | -4.000 | (1E-15) F | -4 fF |
| | | C1 | 200.000 | (1E-27) F/Hz | 0.2 fF/GHz |
| | | C2 | 0.000 | (1E-36) F/Hz ² | 0 fF/GHz ² |
| | | C3 | 1.100 | (1E-45) F/Hz ³ | 0.0011 fF/GHz ³ |
| | LOAD | Offset Delay | 0 | ps | 0 mm |
| | | Offset Loss | 0 | G Ω /s | 0 dB/ $\sqrt{\text{GHz}}$ |
| | | Z0 | 50 | Ω | 50 Ω |

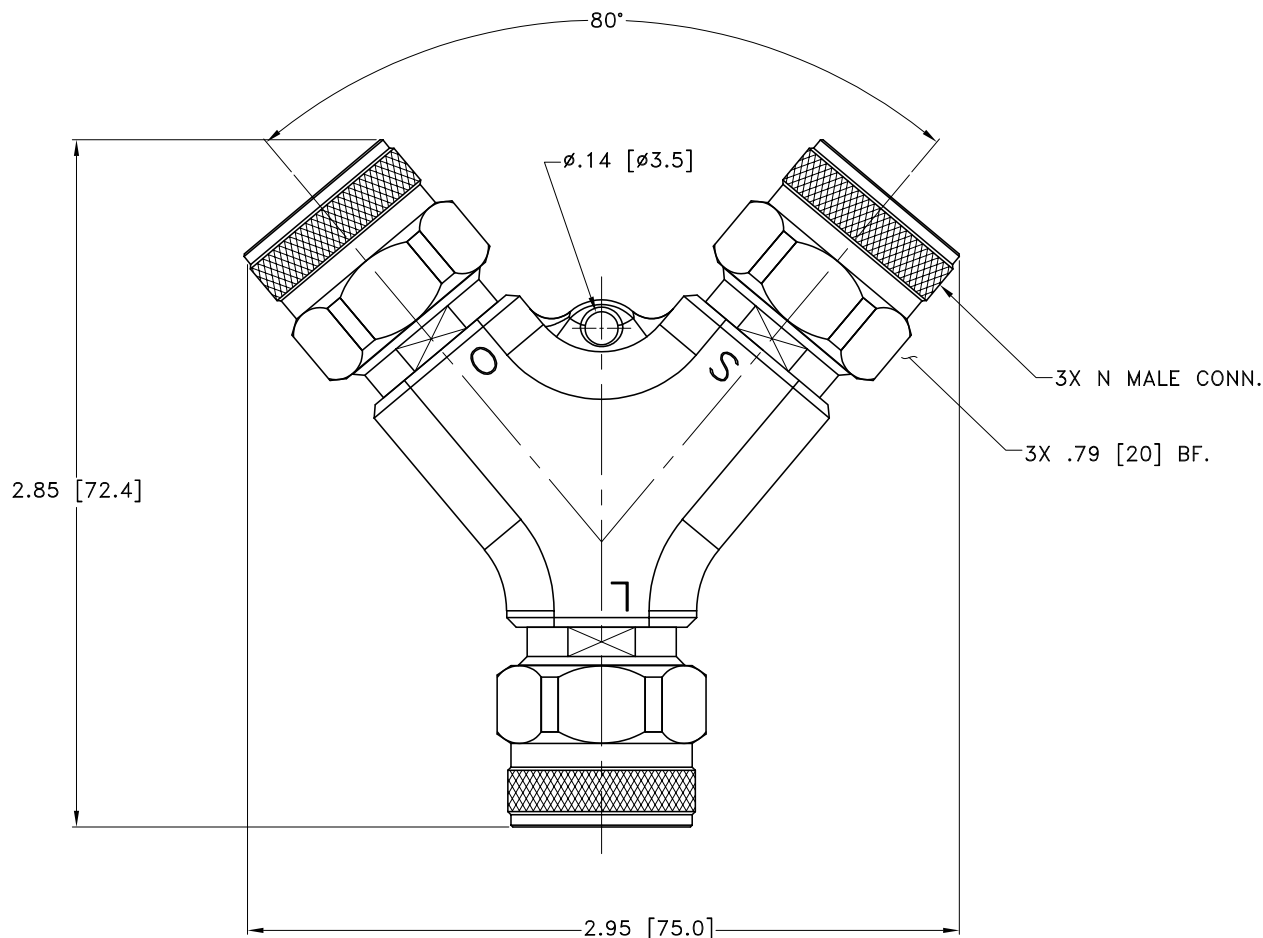




PRECISION

N-type Calibration Standard **SOL-63-NM+**

OUTLINE DRAWING



Weight: 178.0 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl. ± 0.03 ; 3 Pl. ± 0.015

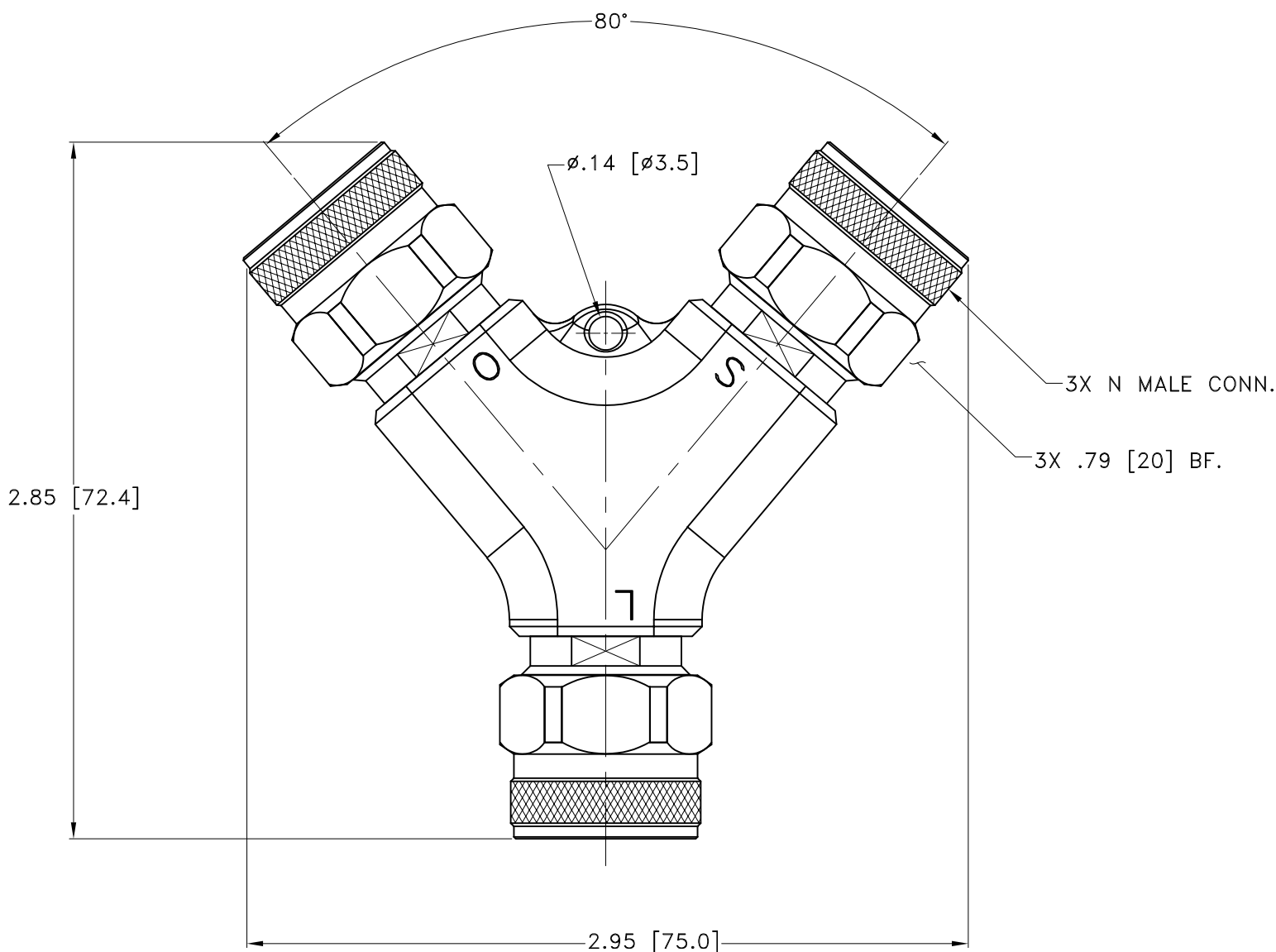
Notes:

1. Case material: Aluminum
2. Case Finish: Blue Anodize

NOTES

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp





Weight: 178.0 grams

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

1. Case material: Aluminum
2. Case Finish: Blue Anodize



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|-----------------------|--------------------------------------|-----------------------------|
| Operating Temperature | 20° to 26° C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -20° to 75° C Ambient Environment | Individual Model Data Sheet |