



Thru can rotate 90°

All dimensions are in mm; tolerances according to ISO 2768 m-H

Interface

According to IEC 61169-40
Mechanically compatible with RPC-1.85

Contents and Documentation

- This kit is delivered with
- **Standard Definitions Card**
Printed Standard Definitions that can be used on nearly all Vector Network Analyzers
 - **Test Results Documentation**
 - **Hard Shell Case**
 - **Protection Caps**

Material and plating

Connector parts

Center conductor
Outer conductor
Coupling nut
Body
Dielectric
Substrate

Material

CuBe
Stainless steel
Stainless steel
Aluminum
PS
Al₂O₃

Plating

Gold, min. 1.27 µm, over nickel
Passivated
Passivated
black anodized

Electrical data

Frequency range DC to 50.0 GHz

Thru

Return loss ≥ 30 dB, DC to 4 GHz
 ≥ 24 dB, 4 GHz to 26.5 GHz
 ≥ 17 dB, 26.5 GHz to 50 GHz

Open

Error from nominal phase¹ $\leq 2.0^\circ$, DC to 4 GHz
 $\leq 4.0^\circ$, 4 GHz to 26.5 GHz
 $\leq 6.0^\circ$, 26.5 GHz to 50.0 GHz

Short

Error from nominal phase² $\leq 1.5^\circ$, DC to 4 GHz
 $\leq 3.0^\circ$, 4 GHz to 26.5 GHz
 $\leq 4.5^\circ$, 26.5 GHz to 50.0 GHz

Load

Return loss ≥ 36.0 dB, DC to 4 GHz
 ≥ 30.0 dB, 4 GHz to 26.5 GHz
 ≥ 22.0 dB, 26.5 GHz to 50.0 GHz

DC Resistance $50 \Omega \pm 0.5 \Omega$

Power handling (at 25 °C, sea level) ≤ 0.5 W, derate by 0.005 W/K

¹ The nominal phase is defined by the Offset Delay, the Offset Loss and the Fringing Capacitances

² The nominal phase is defined by the Offset Delay, the Offset Loss and the Short Inductance

Mechanical data

Mating cycles ≥ 500
 Maximum torque 1.65 Nm
 Recommended torque 0.90 Nm
 Gauge 0.00 mm to 0.05 mm

General standard definitions

For proper operation the vector network analyzer (VNA) needs a model describing the electrical behaviour of this calibration standard. The different models, units, and terms used will depend on the VNA type and they will have to be entered into the VNA. All values are based on typical geometry and plating.

Thru

Offset Z_0 / Impedance / Z_0 50 Ω
 Offset Delay 87.394 ps
 Length (electrical) / Offset Length 26.20 mm
 Offset Loss 4.00 G Ω /s
 Loss 0.0304 dB/ $\sqrt{\text{GHz}}$
 Line Loss @ 1GHz 0.0012 dB/mm

Open

Offset Z_0 / Impedance / Z_0 50 Ω
 Offset Delay 23.350 ps
 Length (electrical) / Offset Length 7.00 mm
 Offset Loss 3.20 G Ω /s
 Loss 0.0130 dB/ $\sqrt{\text{GHz}}$
 Fringing Capacitances $C_0 = 2.30000 \times 10^{-15}$ F / 2.30000 fF
 $C_1 = -810.000 \times 10^{-27}$ F/Hz / -0.81000 fF /GHz
 $C_2 = 35.0000 \times 10^{-36}$ F/Hz² / 0.03500 fF /GHz²
 $C_3 = -0.40000 \times 10^{-45}$ F/Hz³ / -0.00040 fF /GHz³