

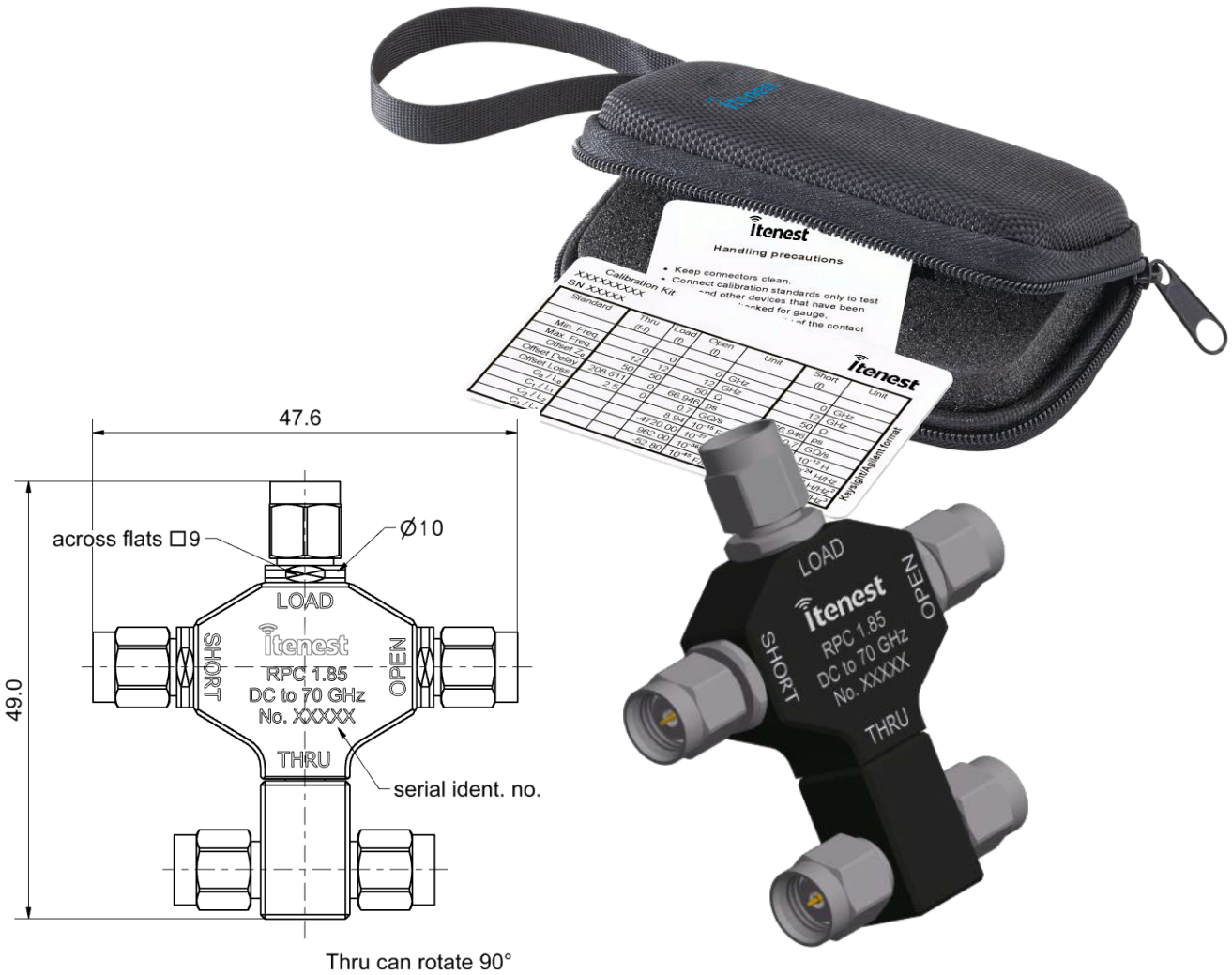
Technical Specification



RPC-1.85

Calibration Kit  
Plug

MCK67A-M



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

Interface

According to  
Mechanically compatible with

IEC 61169-32  
RPC-2.40

Contents and Documentation

This kit is delivered with

- **Standard Definitions Card**  
Printed Standard Definitions that can be used on nearly all Vector Network Analyzers
- **Certificate of Testing**
- **Hard Shell Case**
- **Protection Caps**
- **User Manual**

Material and plating

Connector parts

Center conductor  
Outer conductor  
Coupling nut  
Body  
Dielectric  
Substrate

Material

CuBe  
Stainless steel  
Stainless steel  
Aluminum  
PS  
Al<sub>2</sub>O<sub>3</sub>

Plating

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

## Technical Specification



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**Electrical data**

Frequency range DC to 70 GHz

**Thru**

Return loss

- ≥ 28 dB, DC to 4 GHz
- ≥ 21 dB, 4 GHz to 26.5 GHz
- ≥ 20 dB, 26.5 GHz to 50 GHz
- ≥ 17 dB, 50 GHz to 70 GHz

**Open**

Error from nominal phase<sup>1</sup>

- ≤ 2.0°, DC to 4 GHz
- ≤ 5.0°, 4 GHz to 26.5 GHz
- ≤ 7.0°, 26.5 GHz to 50 GHz
- ≤ 10.0°, 50 GHz to 70 GHz

**Short**

Error from nominal phase<sup>2</sup>

- ≤ 2.0°, DC to 4 GHz
- ≤ 5.0°, 4 GHz to 26.5 GHz
- ≤ 7.0°, 26.5 GHz to 50 GHz
- ≤ 10.0°, 50 GHz to 70 GHz

**Load**

Return loss

- ≥ 35.0 dB, DC to 4 GHz
- ≥ 25.0 dB, 4 GHz to 26.5 GHz
- ≥ 22.0 dB, 26.5 GHz to 50 GHz
- ≥ 20.0 dB, 50 GHz to 70 GHz

DC Resistance 50 Ω ± 0.5 Ω

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

<sup>1</sup> The nominal phase is defined by the Offset Delay, the Offset Loss and the Fringing Capacitances<sup>2</sup> 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<sub>0</sub> / Impedance / Z<sub>0</sub> 50 Ω

Offset Delay 84.492 ps

Length (electrical) / Offset Length 25.33 mm

Offset Loss 4.00 GΩ/s

Loss 0.0294 dB/√GHz

Line Loss @ 1GHz 0.0012 dB/mm

**Load**

Offset Z<sub>0</sub> / Impedance / Z<sub>0</sub> 50 Ω

Offset Delay 0.0000 ps

Length (electrical) / Offset Length 0.000 mm

Offset Loss 0.00 GΩ/s

Loss 0.0000 dB/√GHz

# Technical Specification

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## Open

|                                     |                                                 |                                 |
|-------------------------------------|-------------------------------------------------|---------------------------------|
| Offset $Z_0$ / Impedance / $Z_0$    | 50 $\Omega$                                     |                                 |
| Offset Delay                        | 16.678 ps                                       |                                 |
| Length (electrical) / Offset Length | 5.00 mm                                         |                                 |
| Offset Loss                         | 3.75 G $\Omega$ /s                              |                                 |
| Loss                                | 0.0109 dB/ $\sqrt{\text{GHz}}$                  |                                 |
| Fringing Capacitances               | $C_0 = 10.0000 \times 10^{-15} \text{ F}$       | / 10.0000 fF                    |
|                                     | $C_1 = -500.000 \times 10^{-27} \text{ F/Hz}$   | / -0.50000 fF /GHz              |
|                                     | $C_2 = 11.5000 \times 10^{-36} \text{ F/Hz}^2$  | / 0.01150 fF /GHz <sup>2</sup>  |
|                                     | $C_3 = -0.10000 \times 10^{-45} \text{ F/Hz}^3$ | / -0.00010 fF /GHz <sup>3</sup> |

## Short

|                                     |                                                 |                                |
|-------------------------------------|-------------------------------------------------|--------------------------------|
| Offset $Z_0$ / Impedance / $Z_0$    | 50 $\Omega$                                     |                                |
| Offset Delay                        | 16.678 ps                                       |                                |
| Length (electrical) / Offset Length | 5.00 mm                                         |                                |
| Offset Loss                         | 4.17 G $\Omega$ /s                              |                                |
| Loss                                | 0.0121 dB/ $\sqrt{\text{GHz}}$                  |                                |
| Short Inductance                    | $L_0 = -12.0000 \times 10^{-12} \text{ H}$      | / -12.000 pH                   |
|                                     | $L_1 = 250.000 \times 10^{-24} \text{ H/Hz}$    | / 0.25000 pH/GHz               |
|                                     | $L_2 = -8.10000 \times 10^{-33} \text{ H/Hz}^2$ | / -0.00810 pH/GHz <sup>2</sup> |
|                                     | $L_3 = 0.08000 \times 10^{-42} \text{ H/Hz}^3$  | / 0.00008 pH/GHz <sup>3</sup>  |

## Environmental data

|                                             |                  |
|---------------------------------------------|------------------|
| Operating temperature range <sup>3</sup>    | +20 °C to +26 °C |
| Rated temperature range of use <sup>4</sup> | 0 °C to +50 °C   |
| Storage temperature range                   | -40 °C to +85 °C |
| RoHS                                        | compliant        |

<sup>3</sup> Temperature range over which these specifications are valid.

<sup>4</sup> This range is underneath and above the operating temperature range, within the calibration kit is fully functional and could be used without damage

## Declaration of documentation

Standard delivery for this kit includes Test Results. The documentation issued reports which quantities were tested individually, traceable to national / international standards.

## Inspection interval

|                |           |
|----------------|-----------|
| Recommendation | 12 months |
|----------------|-----------|

## Packing

|        |          |
|--------|----------|
| Weight | 34 g/pce |
|--------|----------|

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

For the installation of the electrotechnical equipment, particular electrotechnical expertise is required.



Rev.

Date

c00

12.04.18

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