Impedance Standard Substrate For Up to 67 GHz

**Pitch:** 150 μm - 3000 μm, **Configuration:** Ground-Signal-Ground

**P/N:** 108-010

**S/N:**
**Substrate specifications:**
- **Material:** Alumina
- **Thickness:** 625 μm ± 25 μm
- **Dielectric constant:** 9.9

---

**Thru**
- **Thru delay:** 4 ps
- **Impedance:** Nominally 50 Ω
- **Dimensions:** Length: 645 μm

**Load**
- **Precision 50 Ω Load**
- **DC accuracy:** +/- 0.3 %
- **Note:** Ensure the bias supply is turned off during calibration. Applying bias to the probe during calibration could cause the resistance of the load to change.

**Verification Lines**
- **Thru Delay:** 25 ps
- **Length:** 3150 μm

**Alignment Marks**
- **Thru Delay:** 50 ps
- **Length:** 6150 μm

---

All of the above specifications are based on an overtravel (downward movement of probe after initial touchdown on the substrate) of 75-125 μm. This amount of overtravel can be set before calibration on the Impedance Standard Substrate (ISS) using the alignment marks (allows precise setting of probe separation and overtravel). Figure 1 shows that initial contact with the edge of the probe tips should be made at reference plane X (midpoint between the outer flat edge and the internal apex). The desired overtravel and thus skate (forward movement of probe tips after initial contact with substrate) is then achieved by adjusting the Z height on the positioner to move the edge of the probe tips to reference plane Y (midpoint between the internal apex and the flag points). This can also be seen from the photographic images shown in Figure 2.

---

**Calibration Coefficients**

Calibration coefficients are dependent on the probe tip configuration, placement on a standard, and the shape and configuration of the set of standards. This leads to unique calibration coefficients for a unique pair of probe and ISS. Therefore, the calibration coefficients are supplied with the probe not with the ISS.

---

© Copyright 2018 FormFactor, Inc. All rights reserved. FormFactor and the FormFactor logo are trademarks of FormFactor, Inc. All other trademarks are the property of their respective owners. All information is subject to change without notice.

Corporate Headquarters
7005 Southfront Road
Livermore, CA 94551
Phone: 925-290-4000
www.formfactor.com

ISSMAP_108010-0718