

# 8-inch Calibration Substrate CAL Disc 200 x 3

Advanced TLP/HMM/HBM Solutions

## 1 Features

- High accurate ceramic calibration substrate for VF-TLP/TLP/HMM/HBM wafer-level calibration using ground-signal (GS) probes
- Ø200 mm x 3 mm thick aluminum carrier disc for convenient handling of the calibration substrate on wafer prober chucks
- Probe-tip pitch range from 50 µm up to >3 mm
- 9 reference resistors in the range of 0.1, 0.2, 0.5, 1, 5, 10, 50, 100 and 500 Ω for calibration of the current measurement channel
- 7 reference Z-diodes in the range of 5, 7, 10, 18, 33, 68 and 120 V for calibration of the voltage measurement channel
- 1 silicon transient voltage suppressor (TVS) diode for reference measurement of the calibrated TLP system. Maximum rating of the TVS diode: 30 A at 100 ns pulse width
- 45 open-load and 45 short-circuit test-structures
- 7 custom reference device locations
- Rugged top layer metal hard gold coating

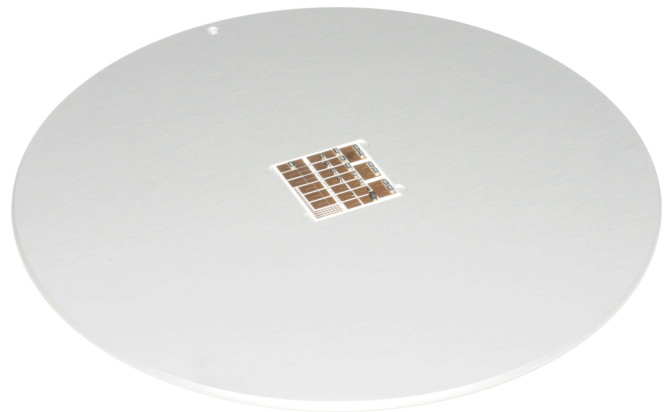


Figure 1: CAL Disc 200 x 3

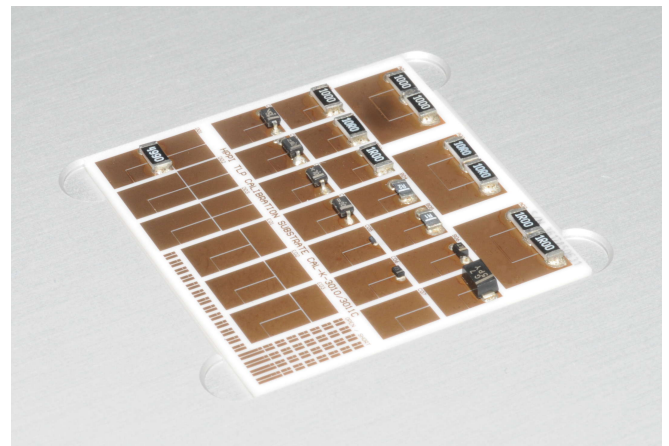


Figure 2: Calibration substrate detail view

## 2 Description

Different values of the reference devices are available on the CAL Disc 200 x 3 substrate in order to calibrate the system in the desired voltage and current range where the device under test is to be expected. This gives maximum accuracy of the measurement result.

The values of the reference resistors have been evaluated at production of the CAL substrate with a SMU using a 4-point Kelvin DC probing method at T=27 °C.

The reference Z-diodes are characterized by the breakdown voltage  $V_{BDO}$  at zero current. This number was extracted at production of the CAL substrate at T=27 °C with a least squares fit of the IV-characteristic in the DC low current regime up to 40 mA depending on the breakdown voltage of the Z-diode to avoid self heating. The least squares extrapolation of the IV-characteristic to the voltage axis gives the breakdown voltage  $V_{BDO}$  at zero current.

The calibration of the TLP system is done successful if the IV-characteristic of the Z-Diode in the low current DC region fits to the IV-characteristic in the high current TLP region.

## 3 Physical Dimensions

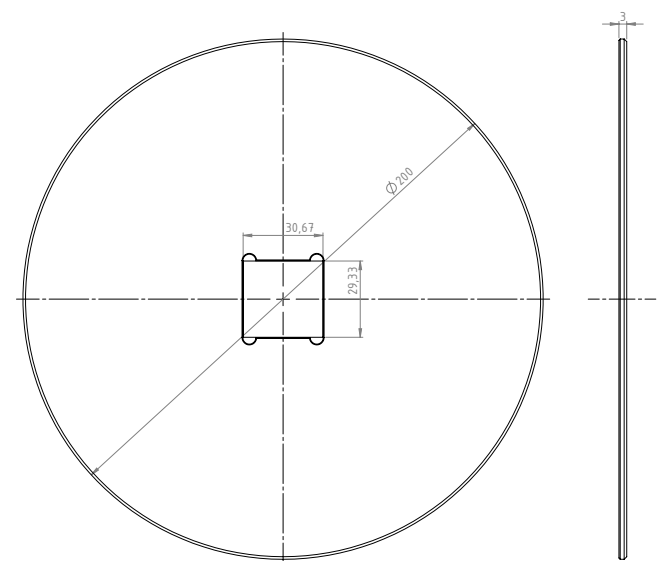


Figure 3: Physical dimensions in [mm]

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## 4 Ordering Information

Pos.	Description	Part No.
01	Calibration Substrate	CAL Disc 200 x 3

### General

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