

Cascade Impedance Standard Substrate Map

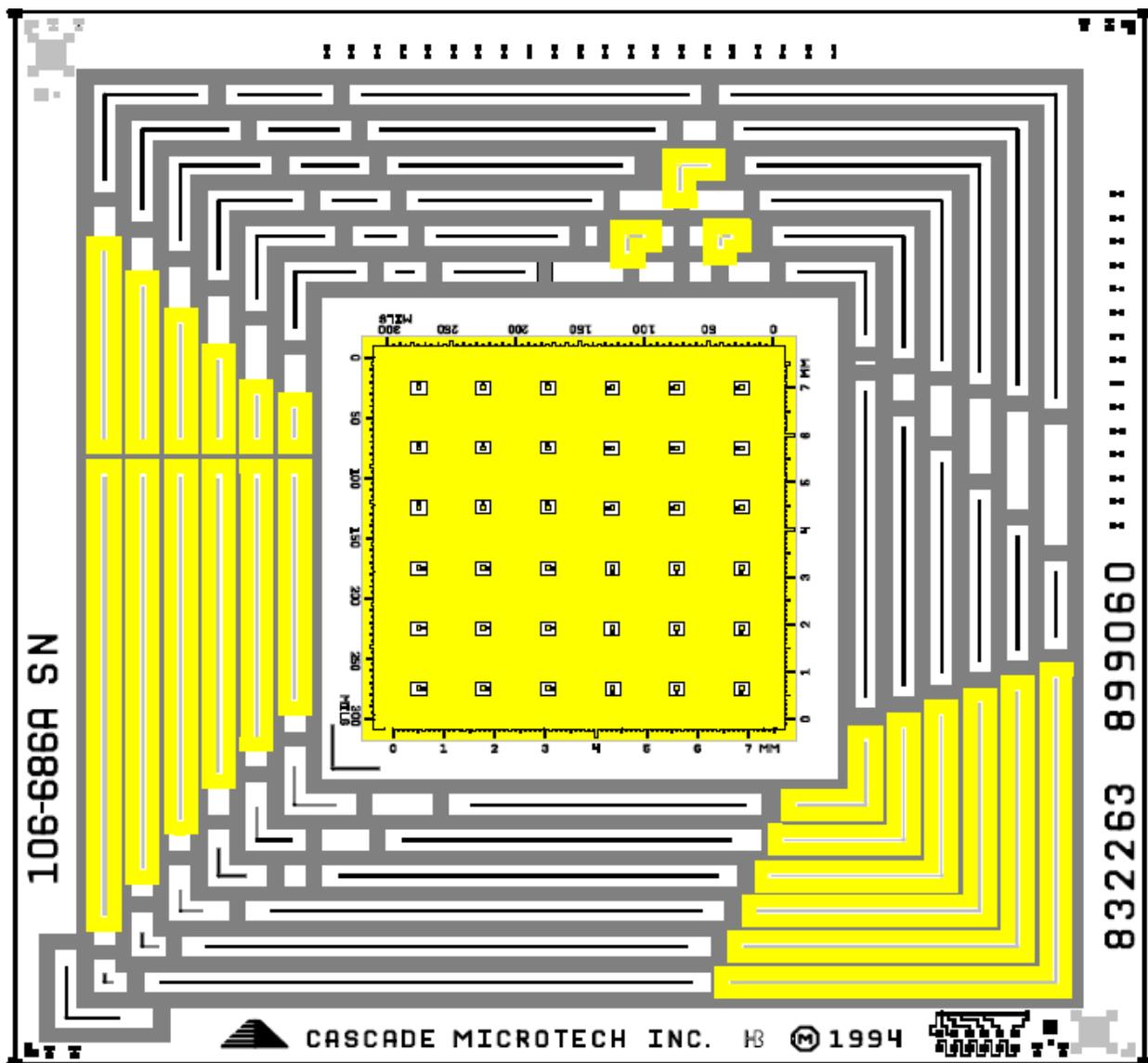
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➤ **P/N: 106-686**

Membrane General Purpose Impedance Standard Substrate

Pitch: 80 μm - 3000 μm

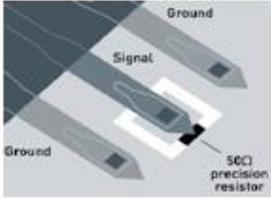
Configuration: Various Membrane Tip Configurations



> Key to Map

Key to the 106-686 Map

Substrate specifications: Material: Alumina; Thickness: 25 mils (635 um); Dielectric constant: 9.9

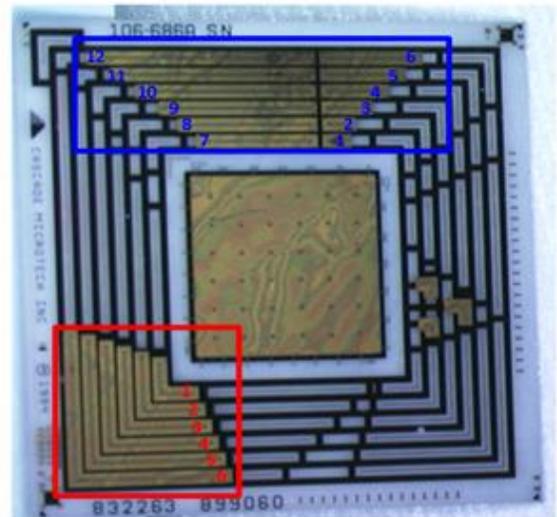
Open	Short	Load
<p>An Open is synthesized by raising the probes in air a minimum distance of 250 μm above the chuck surface.</p>	 <p>Position each probe over the conductive surface in the center of ISS</p>	 <p>Red-marked resistors are trimmed to $50\ \Omega \pm 1.0\%$.</p> <p>Be sure to find a resistor that is oriented away from the direction of the probe. An example is shown below.</p> 

ISS 106-686 is a general-purpose ISS which may be used to perform VNA calibration for many probe-tip configurations.

- It includes a large ground area, with 36 – 50 Ω loads peppered across the surface. This provides ability to touchdown on a short and a load, for most probe configurations.
- On the periphery of the ISS 106-686, there are several transmission lines in various configurations. The line delays are shown below.

LINE TYPE: RIGHT ANGLE	
Line #	Delay [ps]
1	19.0
2	34.5
3	49.8
4	65.1
5	80.4
6	95.5

LINE TYPE: STRAIGHT			
Line #	Delay [ps]	Line #	Delay [ps]
1	3.9	7	34.6
2	5.8	8	40.3
3	11.7	9	46.1
4	17.3	10	53.6
5	23.0	11	61.1
6	28.6	12	68.5



Calibration Coefficients are dependent on the probe tip configuration, placement on a standard, and the standard configurations. 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.

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