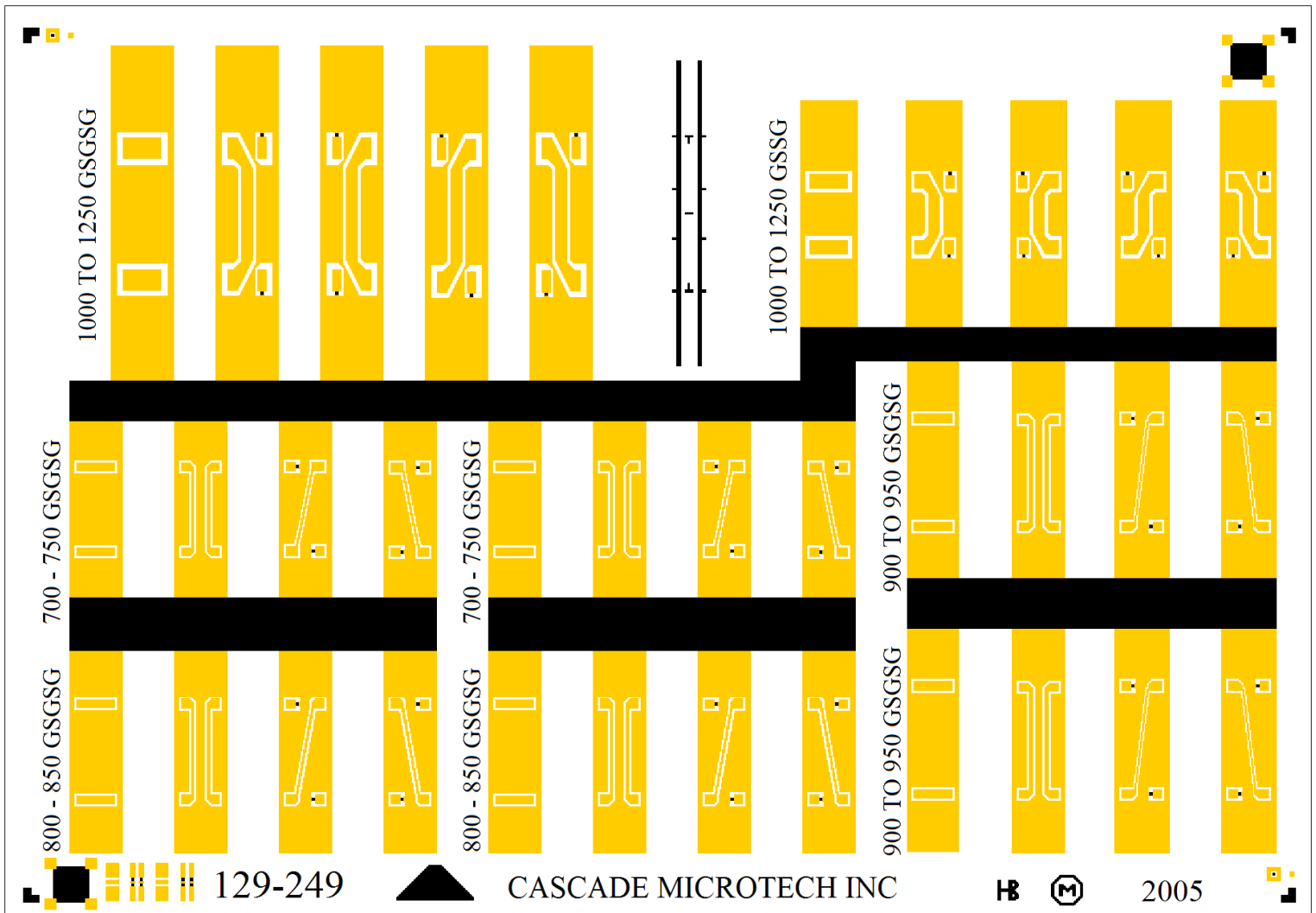


# Cascade Impedance Standard Substrate Map

## > P/N: 129-249

Pitch: 700  $\mu\text{m}$  - 1250  $\mu\text{m}$ , Configuration: **GSGSG, GSGS, SGSG, SGS**






Pitch: 1000  $\mu\text{m}$  - 1250  $\mu\text{m}$ , Configuration: **GSSG, GSS, SSG, SS**



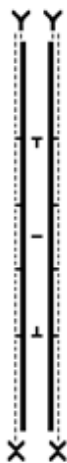
## > Key to Map

### Key to the 129-249 Map

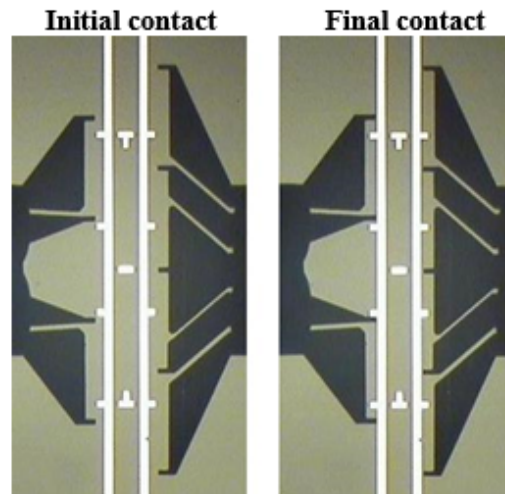
Substrate specifications: Material: Alumina; Thickness: 25 mils (635  $\mu\text{m}$ ); Dielectric constant: 9.9

			<table border="1"> <thead> <tr> <th rowspan="2">Thru set descriptions</th> <th colspan="3">Thru lengths (ps)</th> </tr> <tr> <th>Straight thru</th> <th>Cross thru</th> <th>Loop-back thru</th> </tr> </thead> <tbody> <tr> <td>700 to 750 GSGSG</td> <td>5.5</td> <td>14.1</td> <td>13.9</td> </tr> <tr> <td>800 to 850 GSGSG</td> <td>5.5</td> <td>15.7</td> <td>15.5</td> </tr> <tr> <td>900 to 950 GSGSG</td> <td>5.5</td> <td>17.2</td> <td>17.1</td> </tr> <tr> <td>1000 to 1250 GSGSG</td> <td>6.0</td> <td>21.2</td> <td>21.2</td> </tr> <tr> <td>1000 to 1250 GSSG</td> <td>5.2</td> <td>12.7</td> <td>12.7</td> </tr> </tbody> </table>	Thru set descriptions	Thru lengths (ps)			Straight thru	Cross thru	Loop-back thru	700 to 750 GSGSG	5.5	14.1	13.9	800 to 850 GSGSG	5.5	15.7	15.5	900 to 950 GSGSG	5.5	17.2	17.1	1000 to 1250 GSGSG	6.0	21.2	21.2	1000 to 1250 GSSG	5.2	12.7	12.7
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All of the above specifications are based on an overtravel (downward movement of probe after initial touchdown on the substrate) of 75-125  $\mu\text{m}$  for ACP style probes. This amount of overtravel can be set before calibration for both styles 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. 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. This can also be seen from the photographic images shown in Figure 2.



**Figure 1:** Alignment marks



**Figure 2:** Images showing correct alignment and placement of probe tips of both GSSG and GSGSG ACP style probes

This General Purpose Thru Impedance Standard Substrate should be used in conjunction with the short, open and load standards on the 106-682 (GSG configuration) or 106-683 (GS configuration) ISSs. The combinations allow two, three and four port calibrations of probing systems for GSGSG pitches of 700 to 1250  $\mu\text{m}$  and GSSG pitches from 1000 to 1250  $\mu\text{m}$ . Unused ports of the cross thrus are terminated in a 50 Ohm load (nominal).