

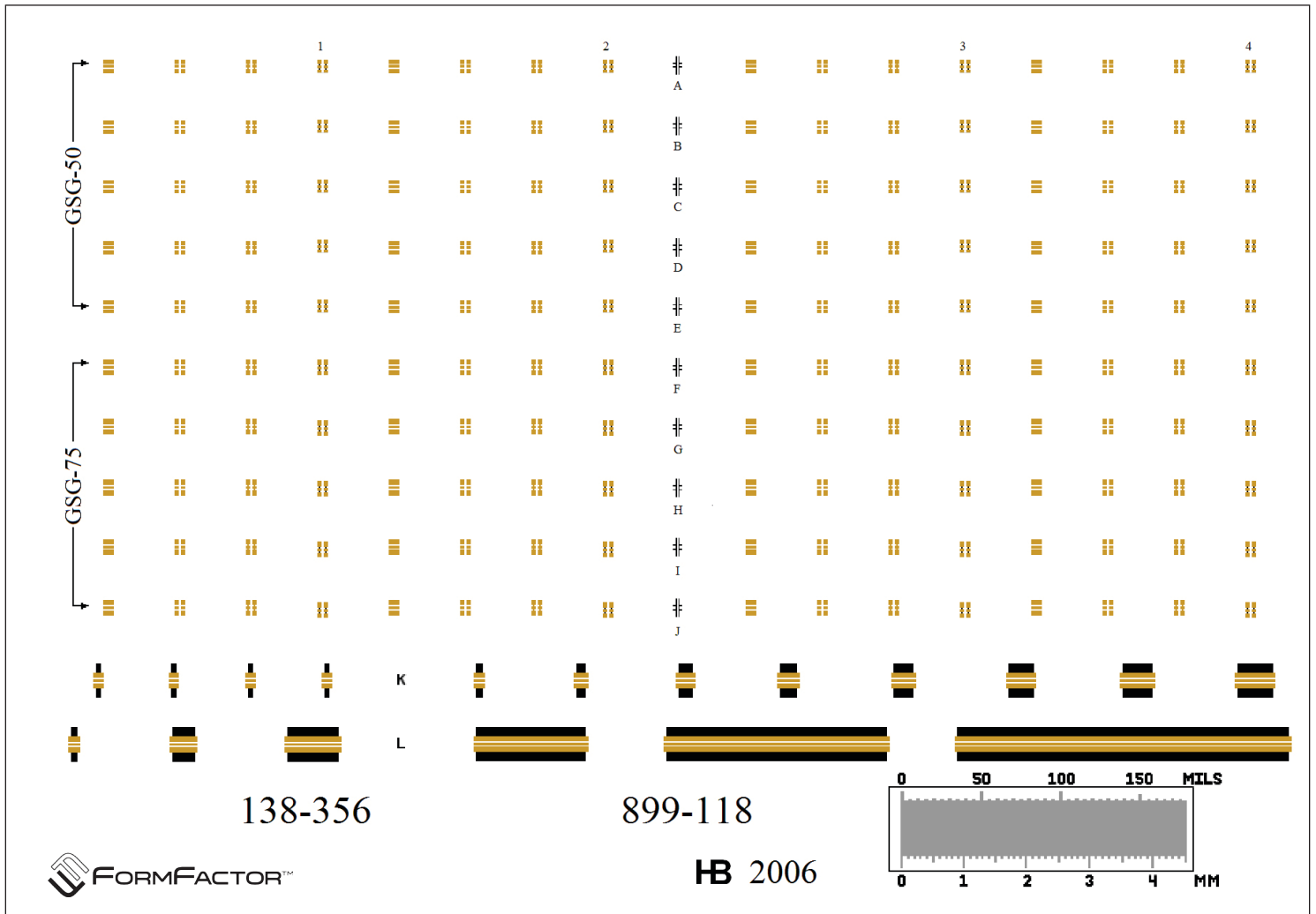
Cascade Impedance Standard Substrate Map

➤ Impedance Standard Substrate for 110 GHz and Above


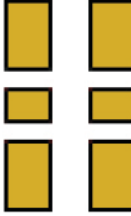
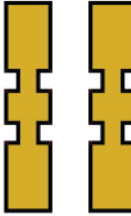
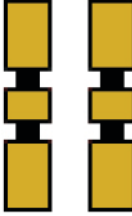
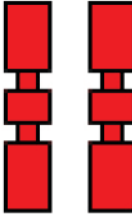

Pitch: 50 μm - 75 μm , **Configuration:** Ground-Signal-Ground

P/N: 138-356

S/N:



Substrate specifications: Alumina; Thickness: 10 mils (254 μm); Dielectric constant: 9.9

 <p>Thru</p> <p>Thru delay: 0.5ps</p> <p>Dimensions: Length: 350 μm</p> <p>Impedance: 50 Ω (Nominal)</p> <p>Note: Thru and Verification line lengths are signal conductor edge-to-edge dimensions.</p>	 <p>Open</p>  <p>Short</p>	 <p>Load</p>  <p>Precision 50 Ω Load</p>	<p>For optimum calibration accuracy only the Red-marked load standards should be used.</p> <p>DC accuracy: +/- 0.3 %</p> <p>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.</p>	<p>Verification Lines</p> <table border="1"> <thead> <tr> <th>ID</th> <th>ps</th> <th>μm</th> </tr> </thead> <tbody> <tr><td>K1</td><td>0.5</td><td>135</td></tr> <tr><td>K2</td><td>0.5</td><td>135</td></tr> <tr><td>K3</td><td>0.5</td><td>135</td></tr> <tr><td>K4</td><td>0.5</td><td>135</td></tr> <tr><td>K5</td><td>1.1</td><td>215</td></tr> <tr><td>K6</td><td>1.4</td><td>250</td></tr> <tr><td>K7</td><td>1.9</td><td>315</td></tr> <tr><td>K8</td><td>2.3</td><td>365</td></tr> <tr><td>K9</td><td>2.7</td><td>420</td></tr> <tr><td>K10</td><td>3.2</td><td>485</td></tr> <tr><td>K11</td><td>3.8</td><td>570</td></tr> <tr><td>K12</td><td>4.5</td><td>655</td></tr> </tbody> </table>			ID	ps	μm	K1	0.5	135	K2	0.5	135	K3	0.5	135	K4	0.5	135	K5	1.1	215	K6	1.4	250	K7	1.9	315	K8	2.3	365	K9	2.7	420	K10	3.2	485	K11	3.8	570	K12	4.5	655	 <p>65 μm Alignment Marks</p> <p>Note: ISS must be mounted on absorber material (such as ISS Holder PN 116-344) during calibration.</p>
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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 25- 50 μm for Infinity style probes. 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. 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.

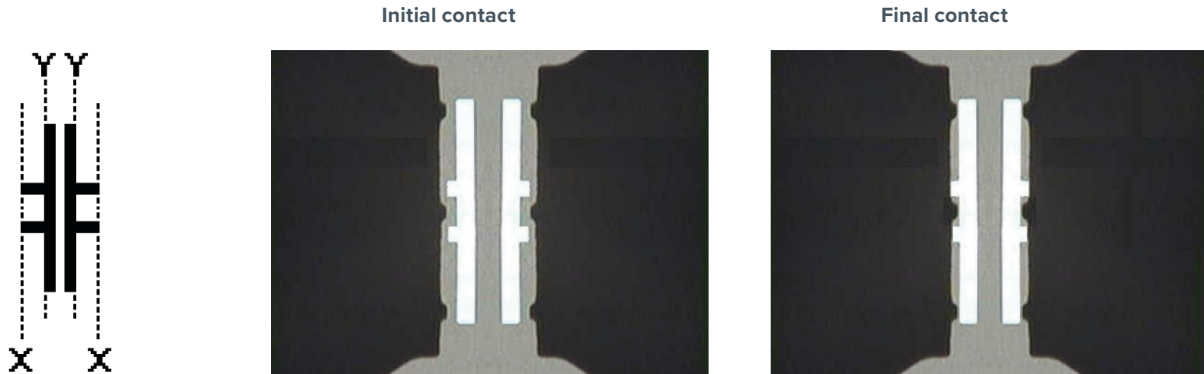


Figure 1: Alignment marks

Figure 2: Images showing correct alignment and placement of probe tips

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.

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