# Silmat® Contact Systems

<table>
<thead>
<tr>
<th>Packages (BGA, LGA, QFN, CSP)</th>
<th>All Package Types &amp; Sizes, Full &amp; Partial Array Capabilities</th>
<th>QFN/LGA Packages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitches (Dedicated Contacts, Mixed Ok)</td>
<td>Released to 0.5mm</td>
<td>Released to 0.4mm</td>
</tr>
<tr>
<td>Electrical Performance</td>
<td>Contact Length</td>
<td>1.0mm</td>
</tr>
<tr>
<td></td>
<td>Bandwidth (1-dB Loss)</td>
<td>40 GHz</td>
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<tr>
<td></td>
<td>Inductance (Self/Mut)</td>
<td>0.33/0.15 nH</td>
</tr>
<tr>
<td></td>
<td>Capacitance (Self/Mut)</td>
<td>0.20/0.05 pF</td>
</tr>
<tr>
<td></td>
<td>Contact Resistance</td>
<td>&lt; 25 mOhms</td>
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<tr>
<td></td>
<td>Current Capacity</td>
<td>4A @ 14C Rise Within 0.5mm</td>
</tr>
<tr>
<td>Compliance / Travel</td>
<td>Up to 0.40mm</td>
<td>Up to 0.28mm</td>
</tr>
<tr>
<td>Contact Force (Initial)</td>
<td>25-45 g/Lead</td>
<td>25-45 g/Lead</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55C to +155C</td>
<td>-55C to +155C</td>
</tr>
<tr>
<td>Gold Contact Set Expected Life</td>
<td>&gt; 2,000,000</td>
<td>&gt; 2,000,000</td>
</tr>
<tr>
<td>Silmat® Interposer Expected Life</td>
<td>&gt; 500,000</td>
<td>&gt; 500,000</td>
</tr>
<tr>
<td>Value Summary: High Performance, Durable, Resilient &amp; Compliant = Low Cost of Ownership</td>
<td>Most Robust Longest Life ATE Optimized</td>
<td>Best Electrical Performance for RF ATE Optimized</td>
</tr>
<tr>
<td>Target Applications</td>
<td>Logic/High Freq/Pwr HT/SLT/ATE HVM</td>
<td>RF/Microwave HT/SLT/ATE HVM</td>
</tr>
</tbody>
</table>

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Confidential Information
C200 Series – Silmat® Contact System

2 Piece System – Gold Contact Set & Silmat® Interposer with Core

**Electrical** (0.5mm pitch)
- Bandwidth (Frequency Response) -1db @ 40 GHz
- Self Inductance 0.33 nH
- Mutual Inductance 0.15 nH
- Capacitance to Ground 0.20 pF
- Mutual Capacitance 0.05 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

**Mechanical**
- Contact Length (Compressed) 1.0mm
- Pitch Released to 0.5mm – Mixed Pitch Available
- Packages BGA, LGA, QFN, DFN, CSP, POP – Full and Partial Arrays Available
- Structure Gold Contact Set & Silmat® Interposer with Core (Patented)
- Gold Contact Set Materials Gold & Nickel Plating over Copper (no vias)
- Silmat® Interposer Materials Silver Particles in Silicone Elastomer with Polyimide Core (Patented)
- Compliance Range/Travel Up to 0.40mm
- Contact Force/Lead (Initial) 25-45 grams/lead
- Operating Temperature -55°C to +155°C
- Expected Life* Gold Contact Set > 2,000,000 actuations, Silmat® > 500,000 actuations

* Contact life is influenced by introduction of bias to the IC and the plating of the IC leads which will have an impact in the degradation of the contact performance.

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# C300 Series – Silmat® Contact System

## 2 Piece System – Gold Contact Set & Silmat® Interposer with Core

### Electrical (0.5mm pitch)
- Bandwidth (Frequency Response) -1db @ > 40 GHz
- Self Inductance < 0.15 nH
- Mutual Inductance < 0.05 nH
- Capacitance to Ground < 0.15 pF
- Mutual Capacitance < 0.02 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

### Mechanical
- Contact Length (Compressed) 0.6mm
- Pitch Released to 0.4mm – Mixed Pitch Available
- Packages BGA, LGA, QFN, DFN, CSP, POP – Full and Partial Arrays Available
- Structure Gold Contact Set & Silmat® Interposer with Core (Patented)
- Gold Contact Set Materials Gold & Nickel Plating over Copper (no vias)
- Silmat® Interposer Materials Silver Particles in Silicone Elastomer with Polyimide Core (Patented)
- Compliance Range/Travel Up to 0.28mm
- Contact Force/Lead (Initial) 25-45 grams/lead
- Operating Temperature -55°C to +155°C
- Expected Life* Gold Contact Set > 2,000,000 actuations, Silmat® > 500,000 actuations

* Contact life is influenced by introduction of bias to the IC and the plating of the IC leads which will have an impact in the degradation of the contact performance.

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C400 Series – Silmat® Contact System

1 Piece System – Silmat® Interposer with Core

**Electrical (0.5mm pitch)**
- Bandwidth (Frequency Response) -1db @ > 40 GHz
- Self Inductance 0.10 nH
- Mutual Inductance 0.02 nH
- Capacitance to Ground 0.14 pF
- Mutual Capacitance 0.01 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

**Mechanical**
- Contact Length (Compressed) 0.4-0.6mm (Depending on Package)
- Pitch Released to 0.3mm – Mixed Pitch Available
- Packages BGA, LGA, QFN, DFN, CSP, POP – Full and Partial Arrays Available
- Structure Silmat® Interposer with Core (Patented)
- Silmat® Interposer Materials Silver Particles in Silicone Elastomer with Polyimide Core (Patented)
- Compliance Range/Travel Up to 0.23mm
- Contact Force/Lead (Initial) 20-40 grams/lead
- Operating Temperature -60°C to +200°C
- Expected Life* > 10,000 actuations

* Contact life is influenced by introduction of bias to the IC and the plating of the IC leads which will have an impact in the degradation of the contact performance.

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1 Piece System – Gold Contact Set Interposer

**Electrical** (0.5mm pitch)
- Bandwidth (Frequency Response) -1db @ > 40 GHz
- Self Inductance < 0.10 nH
- Mutual Inductance < 0.02 nH
- Capacitance to Ground < 0.14 pF
- Mutual Capacitance < 0.01 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating > 4 amps @ 14C heat rise

**Mechanical**
- Contact Length (Compressed) 0.2mm
- Pitch Released to 0.4mm – Mixed Pitch Available
- Packages LGA, QFN, DFN – Full and Partial Arrays Available
- Structure Gold Contact Set Interposer (Patented)
- Gold Contact Set Materials Gold & Nickel Plating over Copper (no vias)
- Compliance Range/Travel Up to 0.05mm with rigid contact tips
- Contact Force/Lead (Initial) > 45 grams/lead
- Operating Temperature -55°C to +155°C
- Expected Life* > 100,000 actuations

* Contact life is influenced by introduction of bias to the IC and the plating of the IC leads which will have an impact in the degradation of the contact performance.