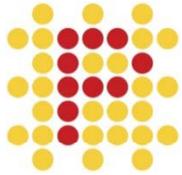


Drawings not to scale

| <b>Silmat® Contact Systems</b>  |                        | <b>C200</b>  | <b>C300</b>  | <b>C400</b>   | <b>G100</b>   |
|---|------------------------|--|--|---|---|
| High Performance Contacts for Hand Test & Automation (Patented Contact Structures)      |                        | 2 Piece System<br>Gold Contact Set & Silmat® with Core       | 2 Piece System<br>Gold Contact Set & Silmat® with Core | 1 Piece System<br>Silmat® with Core (No Contact Set)  | 1 Piece System<br>Gold Contact Set (No Silmat®)             |
| Packages (BGA, LGA, QFN, CSP)   |                        | All Package Types & Sizes, Full & Partial Array Capabilities |  |   | QFN/LGA Packages  |
| Pitches (Dedicated Contacts, Mixed OK)  |                        | Released to 0.5mm  | Released to 0.4mm                                      | Released to 0.3mm                                     | Released to 0.4mm   |
| Electrical Performance  | Contact Length         | 1.0mm  | 0.6mm  | 0.4mm   | 0.2mm   |
|   | Bandwidth (-1db Loss)  | 40 Ghz   | > 40 Ghz   | > 40 Ghz  | > 40 Ghz  |
|   | Inductance (Self/Mut)  | 0.33/0.15 nH   | < 0.15/0.05 nH   | 0.10/0.02 nH  | < 0.10/0.02 nH  |
|   | Capacitance (Self/Mut) | 0.20/0.05 pF   | < 0.15/0.02 pF   | 0.14/0.01 pF  | < 0.14/0.01 pF  |
|   | Contact Resistance     | < 25 mOhms   | < 25 mOhms   | < 25 mOhms  | < 25 mOhms  |
|   | Current Capacity       | 4A @ 14C Rise  | 4A @ 14C Rise  | 4A @ 14C Rise   | 4A @ 14C Rise   |
| Component Proximity   |                        | Within 0.5mm   | Within 0.5mm   | Within 0.5mm  | Within 0.5mm  |
| Compliance / Travel   |                        | Up to 0.40mm   | Up to 0.28mm   | Up to 0.23mm  | Up to 0.05mm  |
| Contact Force (Initial)   |                        | 25-45 g/Lead   | 25-45 g/Lead   | 20-40 g/Lead  | > 45 g/Lead   |
| Operating Temperature   |                        | -55C to +155C  | -55C to +155C  | -60C to +200C   | -55C to +155C   |
| Gold Contact Set Expected Life  |                        | > 2,000,000  | > 2,000,000  | n/a   | > 1,000-100,000   |
| Silmat® Interposer Expected Life  |                        | > 500,000  | > 500,000  | > 1,000-100,000                                       | n/a   |
| Value Summary: High Performance, Durable, Resilient & Compliant = Low Cost of Ownership |                        | Most Robust<br>Longest Life<br>ATE Optimized                 | Best Electrical Performance for RF<br>ATE Optimized    | Best Electricals<br>Lowest Cost<br>Hand Test/Eval/B2B | Ultra Low Inductance<br>Best RF Isolation<br>Hand Test/Eval |
| Target Applications   |                        | Logic/High Freq/Pwr<br>HT/SLT/ATE HVM                        | RF/Microwave<br>HT/SLT/ATE HVM                         | Low Cost HT/SLT<br>Rel/Burn-In, B2B                   | Diamond Particle Replacement                                |



# C200 Series – Silmat<sup>®</sup> Contact System

## 2 Piece System – Gold Contact Set & Silmat<sup>®</sup> Interposer with Core

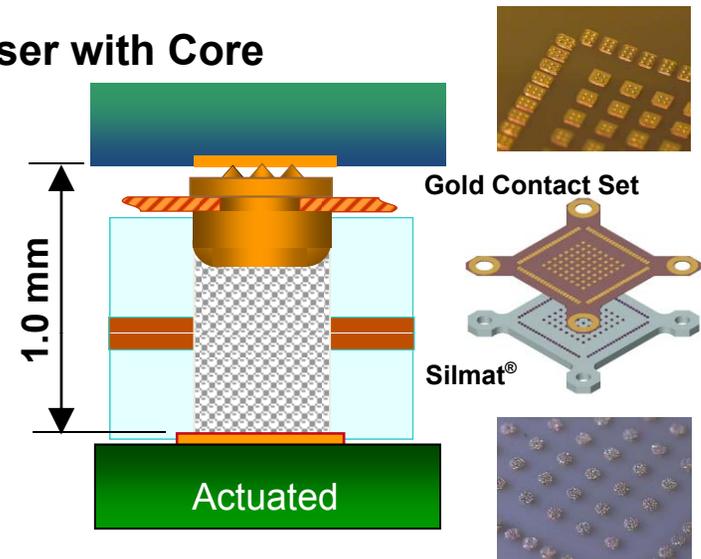
### Electrical (0.5mm pitch)

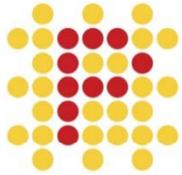
- Bandwidth (Frequency Response) -1db @ 40 GHz
- Self Inductance 0.33 nH
- Mutual Inductance 0.15 nH
- Capacitance to Ground 0.20 pF
- Mutual Capacitance 0.05 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

### 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<sup>®</sup> Interposer with Core (Patented)
- Gold Contact Set Materials Gold & Nickel Plating over Copper (no vias)
- Silmat<sup>®</sup> 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<sup>®</sup> > 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.





# C300 Series – Silmat<sup>®</sup> Contact System

## 2 Piece System – Gold Contact Set & Silmat<sup>®</sup> Interposer with Core

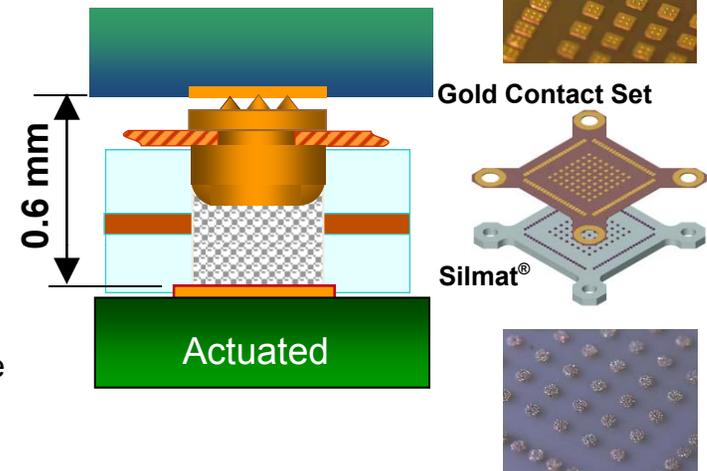
### Electrical (0.5mm pitch)

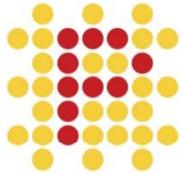
- Bandwidth (Frequency Response) -1db @ > 40 GHz
- Self Inductance < 0.15 nH
- Mutual Inductance < 0.05 nH
- Capacitance to Ground < 0.15 pF
- Mutual Capacitance < 0.02 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

### 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<sup>®</sup> Interposer with Core (Patented)
- Gold Contact Set Materials Gold & Nickel Plating over Copper (no vias)
- Silmat<sup>®</sup> 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<sup>®</sup> > 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.





# C400 Series – Silmat<sup>®</sup> Contact System

## 1 Piece System – Silmat<sup>®</sup> Interposer with Core

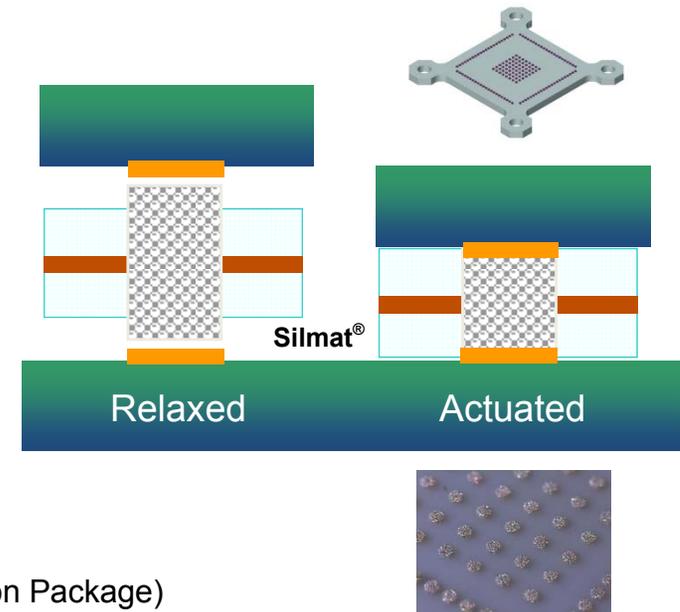
### Electrical (0.5mm pitch)

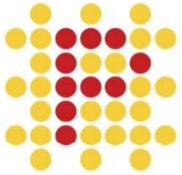
- Bandwidth (Frequency Response) -1db @ > 40 GHz
- Self Inductance 0.10 nH
- Mutual Inductance 0.02 nH
- Capacitance to Ground 0.14 pF
- Mutual Capacitance 0.01 pF
- Contact Resistance (Initial) < 25 mΩ
- Current Rating 4 amps @ 14C heat rise

### 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<sup>®</sup> Interposer with Core (Patented)
- Silmat<sup>®</sup> 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.





# G100 Series – Gold Contact Set Interposer

## 1 Piece System – Gold Contact Set Interposer

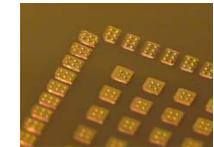
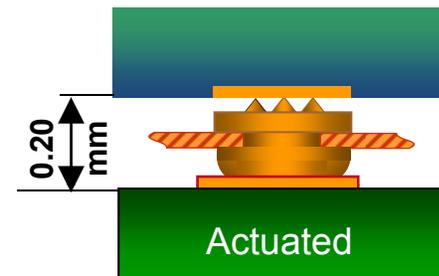
### Electrical (0.5mm pitch)

- |                                  |                          |
|----------------------------------|--------------------------|
| – 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.



Gold Contact Set

