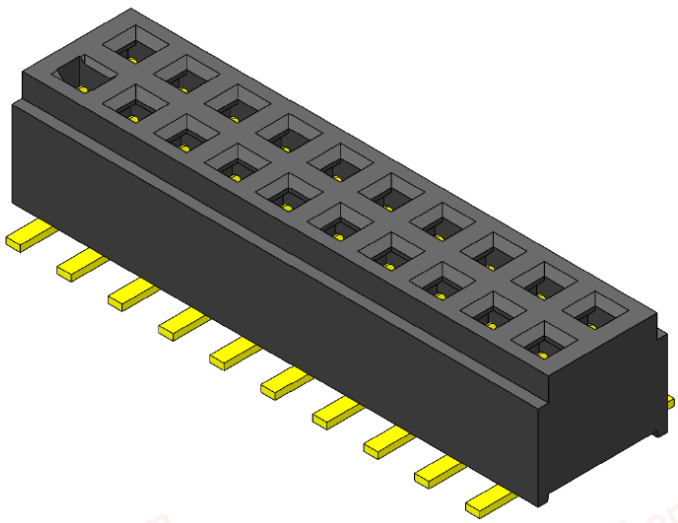
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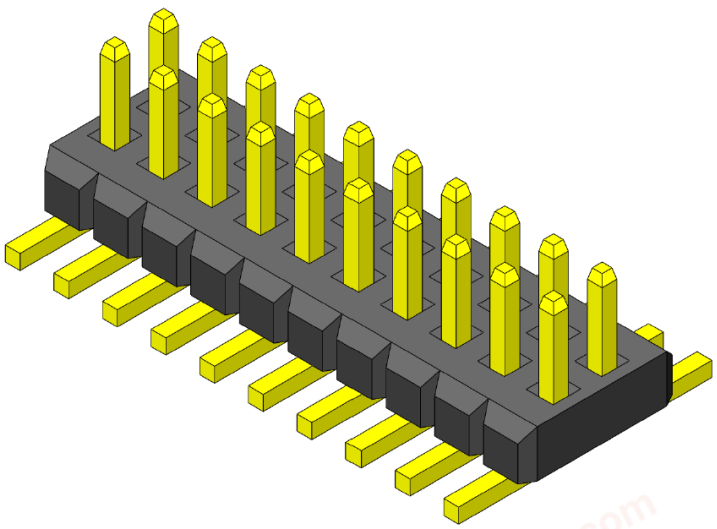
**Product Specification**

**Series:** CLM/FTM 1.00 mm (.039”) Low Profile Dual-Wipe Socket & Terminal Strip

**CLM Series** – Socket, Vertical Surface Mount Orientation



**FTM Series** – Terminal, Vertical Surface Mount Orientation



**Other configurations available for:**

Alignment Pin, Bottom Entry applications

See www.samtec.com for more information.


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**Series:** CLM/FTM 1.00 mm (.039") Low Profile Dual-Wipe Socket & Terminal Strip

## 1.0 SCOPE

**1.1** This specification covers performance, testing and quality requirements for Samtec's CLM/FTM Series 1.00mm (.039") square post socket and terminal strip. All information contained in this specification is for a surface mount socket / surface mount terminal mated configuration unless otherwise noted.

## 2.0 DETAILED INFORMATION

**2.1** Product prints, footprints, catalog pages, test reports and other specific, detailed information can be found at https://www.samtec.com/products/clm and https://www.samtec.com/products/ftm

## 3.0 TESTING

**3.1 Current Rating:** 3.1 A (One pin powered per row)

**3.2 Voltage Rating:** 270 VAC

**3.3 Operating Temperature Range:** -55°C to +125°C

**3.4 Operating Humidity Range:** up to 95% (Per EIA-364-31)

**3.5 Electrical:**

| ITEM | TEST CONDITION | REQUIREMENT | STATUS |
|---|---|---|---|
| Withstanding Voltage | EIA-364-20 (No Flashover, Sparkover, or Breakdown) | 820 VAC | Pass |
| Insulation Resistance | EIA-364-21 (5000 MΩ minimum) | 5,000 MΩ | Pass |
| Contact Resistance (LLCR) | EIA-364-23 | Δ 15 mΩ (Samtec defined)/ No damage | Pass |

**3.6 Mechanical:**

| ITEM | TEST CONDITION | RESULT | STATUS |
|---|---|---|---|
| Durability | EIA-364-09C | 100 cycles | Pass |
| Random Vibration | EIA-364-28 Condition V, Letter B 7.56 G 'RMS', 50 to 2000 Hz, 2 hours per axis, 3 axis total , PSD 0.04 Nanosecond Event Detection: EIA-364-87 | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ<br>No Events | Pass |
| Mechanical Shock | EIA-364-27 100 G, 6 milliseconds, Half Sine wave, 12.3 fps, 3 shocks/direction, 3 axis (18 total shocks) Nanosecond Event Detection: EIA-364-87 | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ<br>No Events | Pass |
| Normal Force | EIA-364-04 | 30 grams minimum for Gold interface | Pass |


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**Series:** CLM/FTM 1.00 mm (.039”) Low Profile Dual-Wipe Socket & Terminal Strip

### 3.7 Environmental:

| ITEM | TEST CONDITION | RESULT | STATUS |
|---|---|---|---|
| Thermal Shock | EIA-364-32<br>Thermal Cycles: 100 (30 minute dwell)<br>Hot Temp: +85°C<br>Cold Temp: -55°C<br>Hot/Cold Transition: Immediate | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ<br>DWV: 820 VAC<br>IR: >45,000 MΩ | Pass |
| Thermal Aging (Temp Life) | EIA-364-17<br>Test Condition 4 @ 105°C<br>Condition B for 250 hours | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ | Pass |
| Cyclic Humidity | EIA-364-31<br>Test Temp: +25°C to +65°C<br>Relative Humidity: 90 to 95%<br>Test Duration: 240 hours | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ<br>DWV: 820 VAC<br>IR: >45,000 MΩ | Pass |
| Gas Tight | EIA-364-36<br>Gas Exposure: Nitric Acid Vapor<br>Duration: 60 min.<br>Drying Temp.: 50°C +/- 3°C<br>Measurements: Within 1 hour of Exposure | LLCR: Δ 15 mΩ | Pass |


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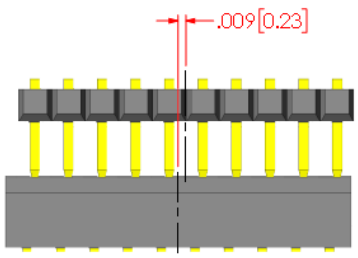


**Series:** CLM/FTM 1.00 mm (.039”) Low Profile Dual-Wipe Socket & Terminal Strip

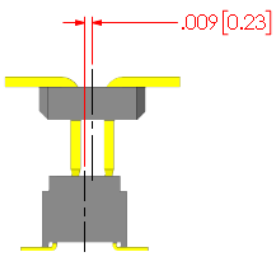
## 4.0 PROCESSING RECOMMENDATIONS:

### 4.1 Mating Alignment Requirements:

#### 4.1.1 Allowable initial linear misalignment




INITIAL X AXIS LINEAR MISALIGNMENT

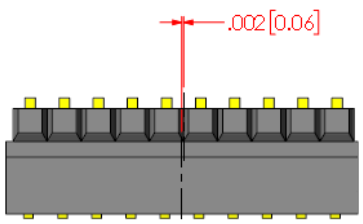



INITIAL Y AXIS LINEAR MISALIGNMENT

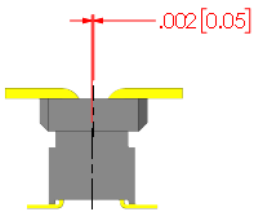
NOT APPLICABLE

INITIAL Z AXIS LINEAR MISALIGNMENT

#### 4.1.2 Allowable final linear misalignment




FINAL X AXIS LINEAR MISALIGNMENT




FINAL Y AXIS LINEAR MISALIGNMENT

NOT APPLICABLE

FINAL Z AXIS LINEAR MISALIGNMENT


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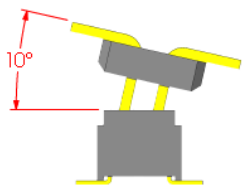
**Series:** CLM/FTM 1.00 mm (.039”) Low Profile Dual-Wipe Socket & Terminal Strip

### 4.2 Mating Angle Requirements:

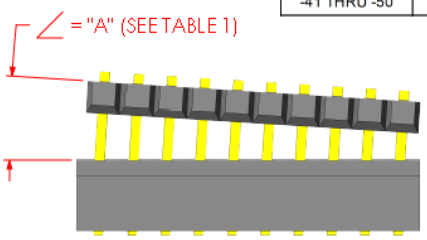
#### 4.2.1 Allowable initial angular misalignment

| TABLE 1 | |
|---|---|
| No OF POSITIONS | "A" = DEG |
| -02 THRU -10 | 6.3 |
| -11 THRU -20 | 3.0 |
| -21 THRU -30 | 2.0 |
| -31 THRU -40 | 1.5 |
| -41 THRU -50 | 1.1 |

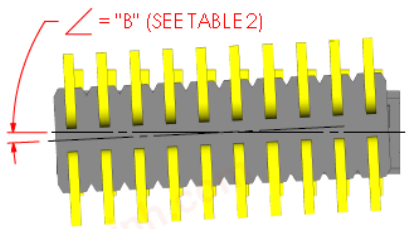
| TABLE 2 | |
|---|---|
| No OF POSITIONS | "B"= DEG |
| -02 THRU -10 | 2.3 |
| -11 THRU -20 | 1.1 |
| -21 THRU -30 | 0.8 |
| -31 THRU -40 | 0.6 |
| -41 THRU -50 | 0.4 |




INITIAL X AXIS ANGULAR MISALIGNMENT




INITIAL Y AXIS ANGULAR MISALIGNMENT

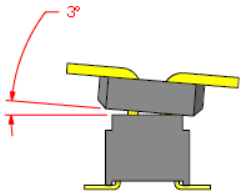



INITIAL Z AXIS ANGULAR MISALIGNMENT

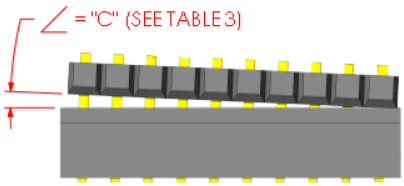
#### 4.2.2 Allowable final angular misalignment

| TABLE 3 | |
|---|---|
| No OF POSITIONS | "C" = DEG |
| -02 THRU -10 | 4.0 |
| -11 THRU -20 | 2.5 |
| -21 THRU -30 | 1.5 |
| -31 THRU -40 | 1.1 |
| -41 THRU -50 | 0.5 |

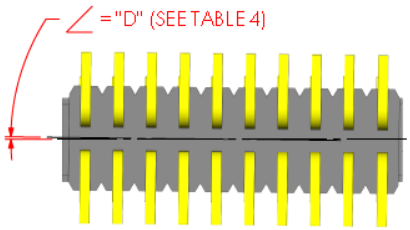
| TABLE 4 | |
|---|---|
| No OF POSITIONS | "D" = DEG |
| -02 THRU -10 | 0.5 |
| -11 THRU -20 | 0.3 |
| -21 THRU -30 | 0.2 |
| -31 THRU -40 | 0.1 |
| -41 THRU -50 | 0.1 |




FINAL X AXIS ANGULAR MISALIGNMENT




FINAL Y AXIS ANGULAR MISALIGNMENT




FINAL Z AXIS ANGULAR MISALIGNMENT


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**4.3** Due to variances in equipment, solder pastes and applications (board design, component density, etc.), Samtec does not specify a recommended reflow profile for our connectors. The processing parameters provided by the solder paste manufacturer should be employed and can usually be found on their website.

All of Samtec’s surface mount components are lead free reflow compatible and compliant with the profile parameters detailed in IPC/JEDEC J-STD-020 which requires that components be capable of withstanding a peak temperature of 260°C as well as 30 seconds above 255°C.

**Samtec Recommended Temperature Profile Ranges (SMT)**

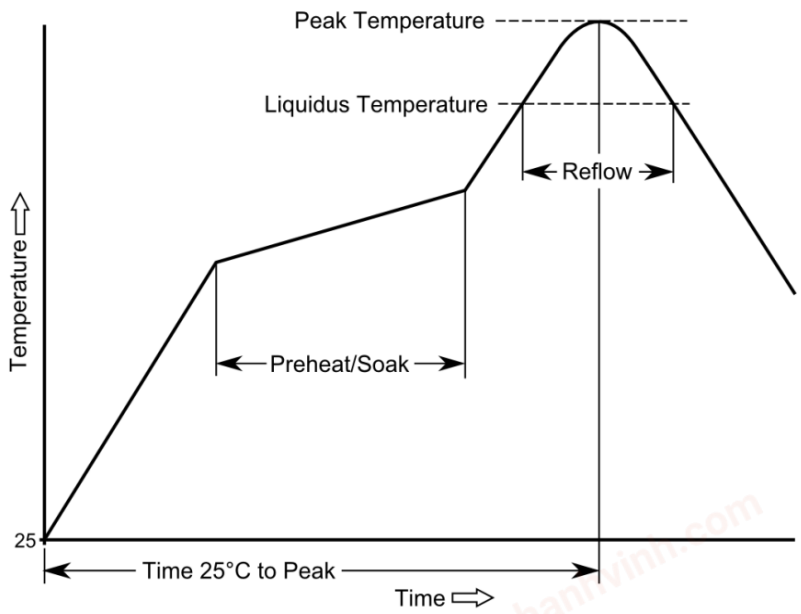
**Sn-Pb Eutectic Assembly**

| Preheat/Soak (100°C-150°C) | Max Ramp Up Rate | Reflow Time (above 183°C) | Peak Temp | Time within 5°C of 235°C | Max Ramp Down Rate | Time 25°C to Peak Temp |
|---|---|---|---|---|---|---|
| 60-120 sec. | 3°C/s max. | 40-150 sec. | 235°C | 20 sec. max. | 6°C/s max. | 6 min. max. |

**Pb-Free Assembly**

| Preheat/Soak (150°C-200°C) | Max Ramp Up Rate | Reflow Time (above 217°C) | Peak Temp | Time within 5°C of 260°C | Max Ramp Down Rate | Time 25°C to Peak Temp |
|---|---|---|---|---|---|---|
| 60-120 sec. | 3°C/s max. | 40-150 sec. | 260°C | 30 sec. max. | 6°C/s max. | 8 min. max. |

**4.3.1**




These guidelines should not be considered design requirements for all applications.
Samtec recommends testing interconnects on your boards in your process to guarantee optimum results.


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**4.4 Maximum Reflow Passes:** The parts can withstand three reflow passes at a maximum component temperature of 260°C.

**4.5 Stencil Thickness:** The stencil thickness is 0.15mm [.006"].

**4.6 Placement:** Machine placement of the parts in the Z-axis is strongly recommended.

**4.7 Reflow Environment:** Samtec recommends the use of a low level oxygen environment (typically achieved through Nitrogen gas infusion) in the reflow process to improve solderability.

**4.8 Hardware:** Board-to-board standoffs are recommended to provide a robust mechanical connection. Samtec offers two different types:

**4.8.1 Traditional Standoffs (SO)** – Rigid design to statically support board-to-board applications. See options here: SO - Board Stacking Standoff

**4.8.2 Jack Screw Standoffs (JSO)** – Serve same function as traditional standoffs but unique, nested construction facilitates the mating and unmating process. This is especially helpful for multiple connector applications where the mating and unmating forces increase with the number of connectors used. See options here: JSO - Jack Screw Standoffs

**4.9 Cleaning:** Samtec, Inc. has verified that our connectors may be cleaned in accordance with the solvents and conditions designated in the EIA-364-11 standard.

## 5.0 ADDITIONAL RESOURCES

**5.1** For additional mechanical testing or product information, contact our Customer Engineering Support Group at **CES@samtec.com**

**5.2** For additional information on high speed performance testing, contact our Signal Integrity Group at **SIG@samtec.com**

**5.3** For additional processing information, contact our Interconnect Processing Group at **IPG@samtec.com.**

**5.4** For RoHS, REACH or other environmental compliance information, contact our Product Environmental Compliance Group at **PEC@samtec.com**

## USE OF PRODUCT SPECIFICATION SHEET

This Product Specification Sheet ("PSS") is a brief summary of information related to the Product identified. As a summary, it should only be used for the limited purpose of considering the purchase/use of Product. For specific, detailed information, including but not limited to testing and Product footprint, refer to Section 2.0 of this document and the links there provided to test reports and prints. This PSS is the property of Samtec, Inc. ("Samtec") and contains proprietary information of Samtec, our various licensors, or both. Samtec does not grant express or implied rights or license under any patent, copyright, trademark or other proprietary rights and the use of the PSS for building, reverse engineering or replication is strictly prohibited. By using the PSS, the user agrees to not infringe, directly or indirectly, upon any intellectual property rights of Samtec and acknowledges that Samtec, our various licensors, or both own all intellectual property therein. The PSS is presented "AS IS". While Samtec makes every effort to present excellent information, the PSS is only provided as a guideline and does not, therefore, warrant it is without error or defect or that the PSS contains all necessary and/or relevant information about the Product. The user agrees that all access and use of the PSS is at its own risk. **NO WARRANTIES EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY KIND WHATSOEVER ARE PROVIDED.**


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