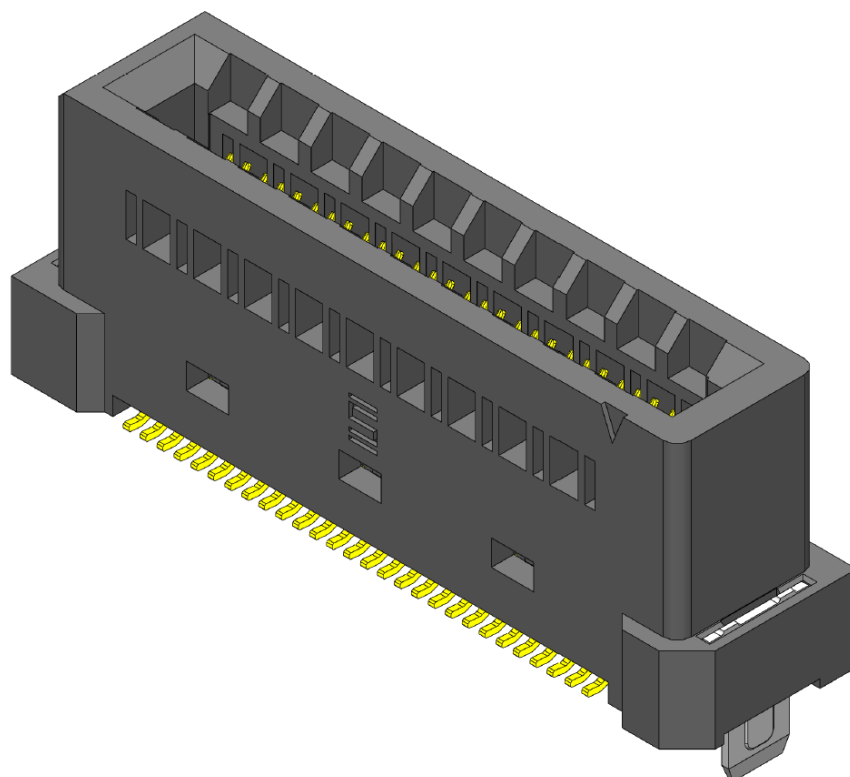


**Series:** HSEC6 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

**HSEC6-DV Series – 1.57mm (.062") Card Thickness**



**Other configurations available for:**

Weld Tab, Shield options, Right Angle

See [www.samtec.com](http://www.samtec.com) for more information.



**Series:** HSEC6 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

## 1.0 SCOPE

- 1.1** This specification covers performance, testing and quality requirements for Samtec's HSEC6 Series 0.60 mm (.0236") pitch Edge Rate® High-Speed Edge Card Connector in a Vertical orientation. All information contained in this specification is for a 1.57mm (.062") card thickness 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/hsec6-dv> & <https://www.samtec.com/products/hsec6-ra>

## 3.0 TESTING

- 3.1 Current Rating:** 1.9A (One position powered per row)  
**3.2 Voltage Rating:** 240 VAC  
**3.3 Operating Temperature Range:** -55 °C to 125 °C  
**3.4 Operating Humidity Range:** Up to 95%  
**3.5 Electrical:**

| ITEM                      | TEST CONDITION                                     | REQUIREMENT                                 | STATUS |
|---------------------------|----------------------------------------------------|---------------------------------------------|--------|
| Withstanding Voltage      | EIA-364-20 (No Flashover, Sparkover, or Breakdown) | 730 VAC                                     | PASS   |
| Insulation Resistance     | EIA-364-21 (5000 MΩ minimum)                       | >45,000 MΩ                                  | PASS   |
| Contact Resistance (LLCR) | EIA-364-23                                         | Δ 15 mΩ maximum (Samtec defined)/ No damage | PASS   |

### 3.6 Mechanical:

| ITEM             | TEST CONDITION                                                                                           | REQUIREMENT                                           | STATUS |
|------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------|
| Durability       | EIA-364-09C                                                                                              | 25 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   | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ maximum | PASS   |
| Mechanical Shock | EIA-364-27 100 G, 6 milliseconds, sawtooth wave, 12.3 ft/s, 3 shocks/direction, 3 axis (18 total shocks) | Visual Inspection: No Damage<br>LLCR: Δ 15 mΩ maximum | PASS   |
| Normal Force     | EIA-364-04                                                                                               | 30 grams minimum for gold interface                   | PASS   |

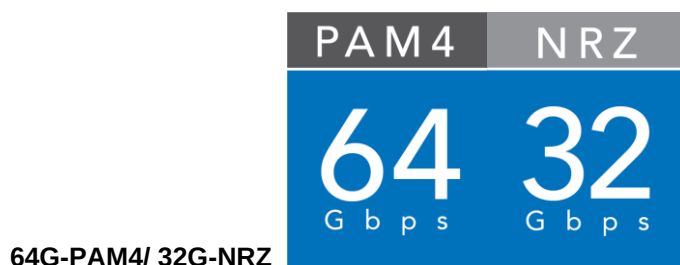
**Series:** HSEC6 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

### 3.7 Environmental:

| ITEM                      | TEST CONDITION                                                                                                                              | REQUIREMENT                                                                                            | 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: $\Delta$ 15 m $\Omega$<br>DWV: 730 VAC<br>IR: >45,000 M $\Omega$ | PASS   |
| Thermal Aging (Temp Life) | EIA-364-17<br>Test Condition 4 @ 105°C Condition B for 250 hours                                                                            | Visual Inspection: No Damage<br>LLCR: $\Delta$ 15 m $\Omega$<br>DWV: 730 VAC<br>IR: >45,000 M $\Omega$ | 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: $\Delta$ 15 m $\Omega$<br>DWV: 730 VAC<br>IR: >45,000 M $\Omega$ | 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: $\Delta$ 15 m $\Omega$                                                                           | PASS   |

## 4.0 HIGH SPEED PERFORMANCE

### 4.1 Channel Simulation - Channel Performance Metric (CPM)



**Note:** CPM is a channel simulation based approach to understanding connector performance. For further information on CPM, please visit [Introducing Channel Performance](#).

CPM is simulated using a Samtec specific channel. Connector performance may improve based on specific applications. Please email SIG Frontline [SIGFrontline@samtec.com](mailto:SIGFrontline@samtec.com) to determine performance in your system.

### 4.2 System Impedance: 85 Ohm for differential pair

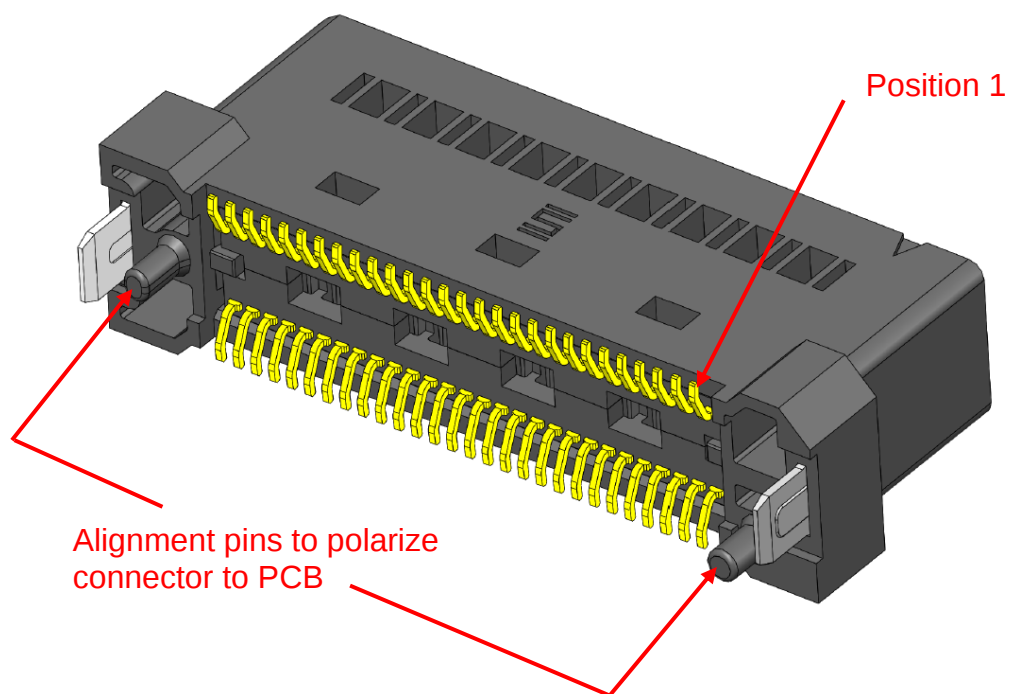
Series: **HSEC6** 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

## 5.0 MATED SYSTEM

Mated view information can be found at link below:

[Mated Document](#)

## 6.0 POLARIZING FEATURES

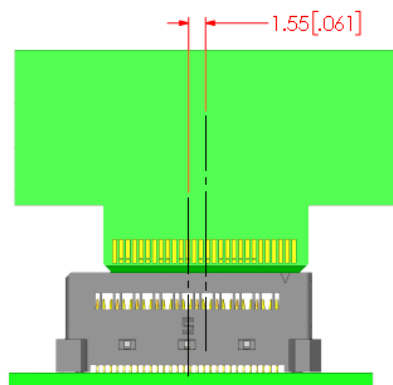


Series: **HSEC6** 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

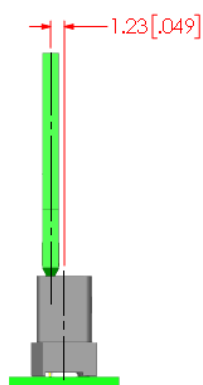
## 7.0 PROCESSING RECOMMENDATIONS

### 7.1 Mating Alignment Requirements:

**7.1.1** Allowable initial linear misalignment.



INITIAL X AXIS LINEAR MISALIGNMENT

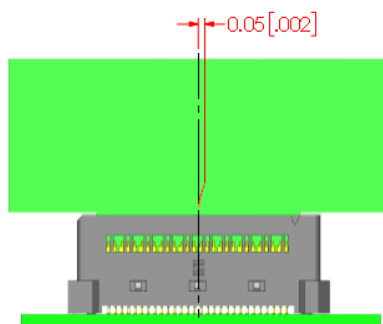


INITIAL Y AXIS LINEAR MISALIGNMENT

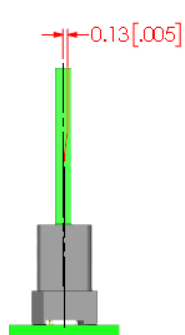
NON APPLICABLE

INITIAL Z AXIS LINEAR MISALIGNMENT

**7.1.2** Allowable final linear misalignment.



FINAL X AXIS LINEAR MISALIGNMENT



FINAL Y AXIS LINEAR MISALIGNMENT

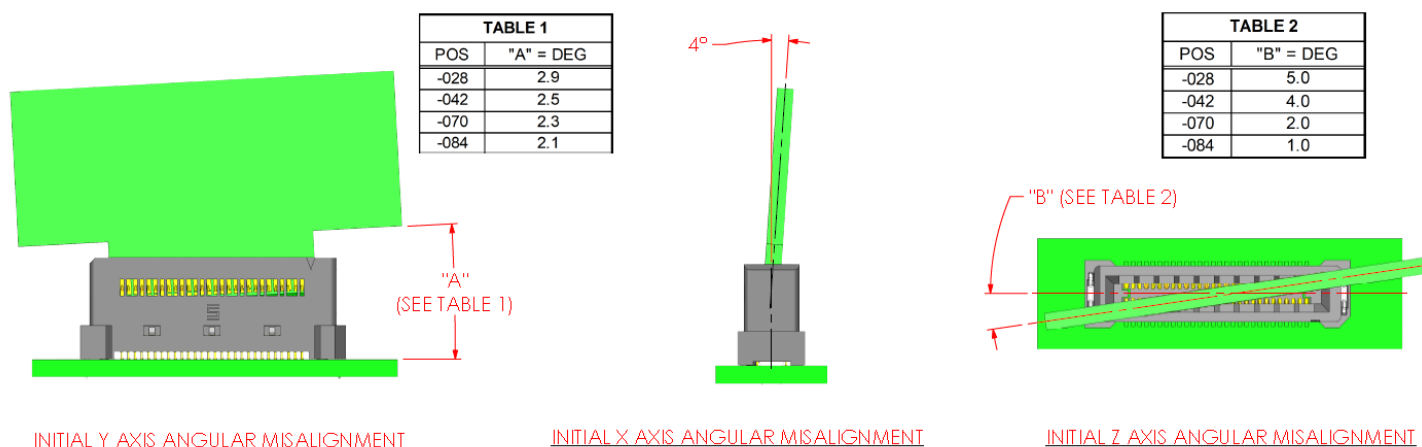
SEE MATED VIEWS

FINAL Z AXIS LINEAR MISALIGNMENT

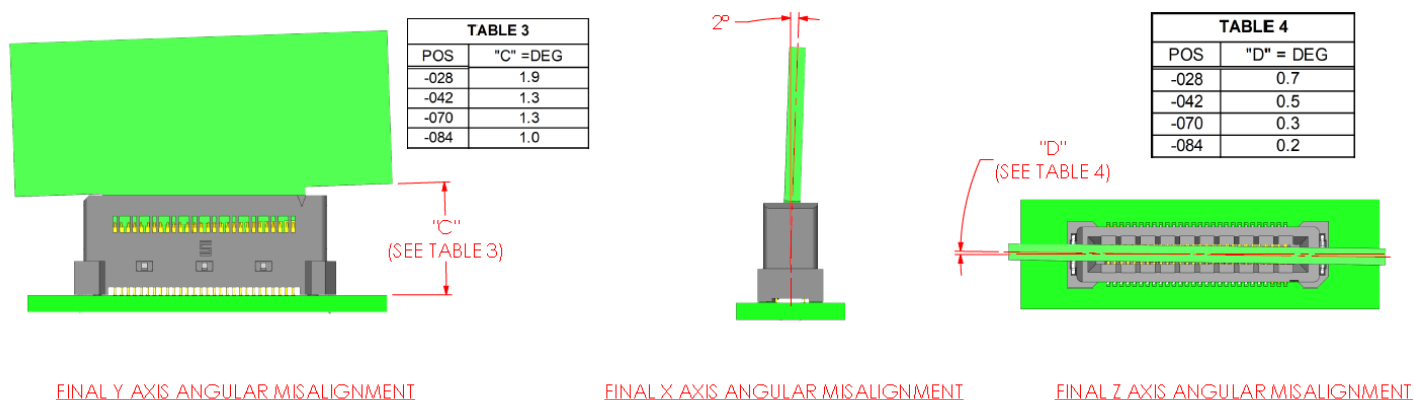
Series: **HSEC6** 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

## 7.2 Mating Angle Requirements

### 7.2.1 Allowable initial angular misalignment



### 7.2.2 Allowable final angular misalignment



Series: **HSEC6** 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

**7.3 Multiple Connector Applications:** Not recommended for applications in which multiple connectors are mated to a single daughtercard. For more information, please contact [IPG@Samtec.com](mailto:IPG@Samtec.com).

**7.4** 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.

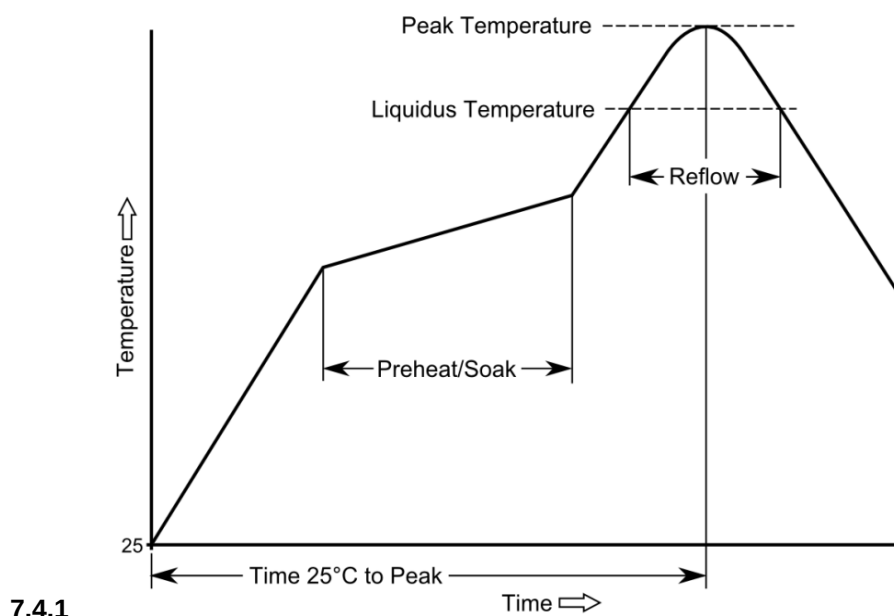
## Samtec Recommended Temperature Profile Ranges (SMT)

### 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.            |



These guidelines should not be considered design requirements for all applications.



**Series:** **HSEC6** 0.60 mm (.0236") Edge Rate® High-Speed Edge Card Connector, Vertical

Samtec recommends testing interconnects on your boards in your process to guarantee optimum results.

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

**7.6 Stencil Thickness:** The stencil thickness is .006" (0.15 mm).

**7.7 Placement:** Machine placement of the parts is strongly recommended.

**7.8 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.

**7.9 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.

## 8.0 ADDITIONAL RESOURCES

**8.1** For additional mechanical testing or product information, contact our Customer Engineering Support Group at [CES@samtec.com](mailto:CES@samtec.com)

**8.2** For additional information on high speed performance testing, contact our Signal Integrity Group at [SIG@samtec.com](mailto:SIG@samtec.com)

**8.3** For additional processing information, contact our Interconnect Processing Group at [IPG@samtec.com](mailto:IPG@samtec.com).

**8.4** For RoHS, REACH or other environmental compliance information, contact our Product Environmental Compliance Group at [PEC@samtec.com](mailto: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.**