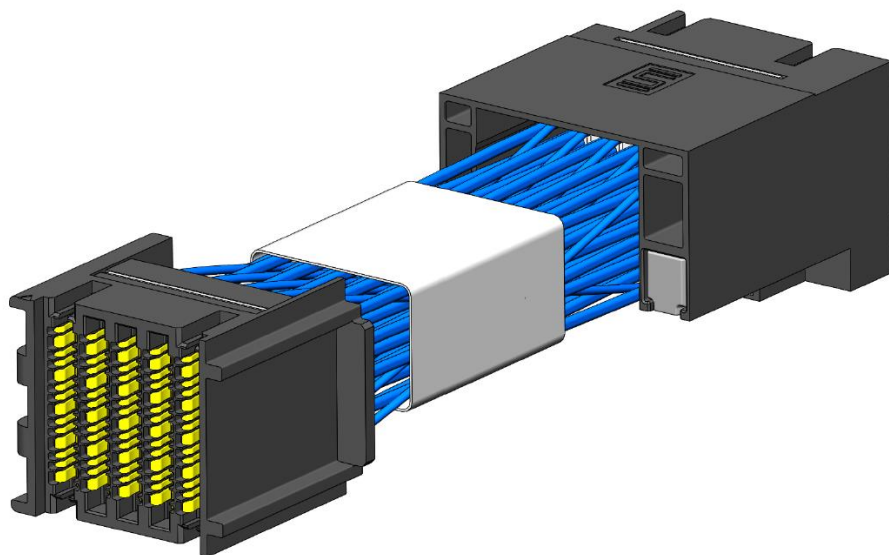
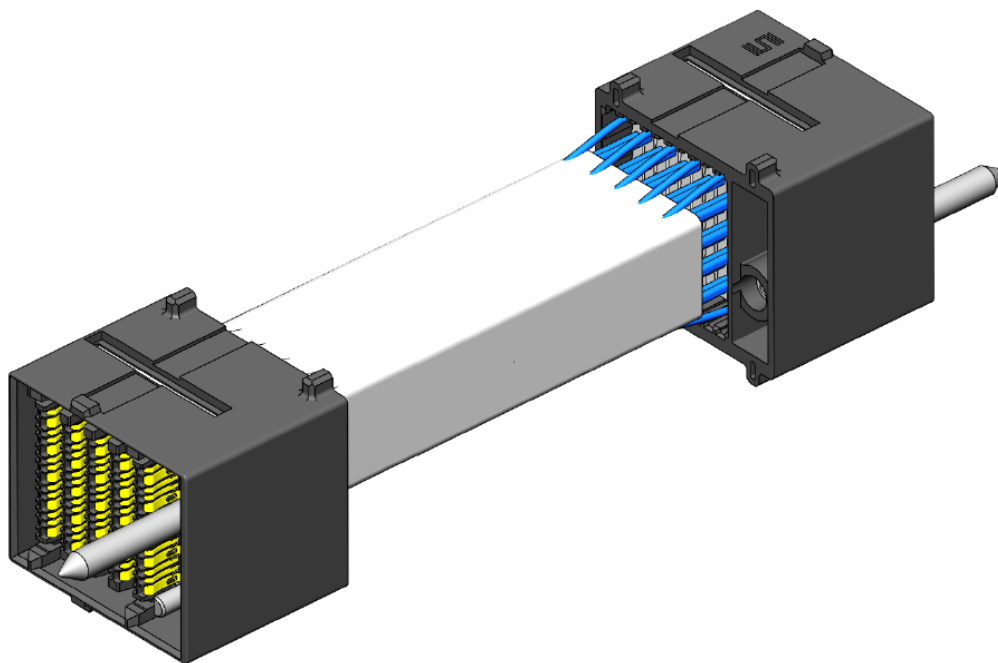


**Series:** EBCF / EBCM 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

**EBCF Series** – Socket, Vertical/Right-Angle Orientation



**EBCM Series** – Header, Vertical Orientation



**Other configurations available for:**

Cable-to-Board applications

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



**Series:** EBCF / EBCM 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

### 1.0 SCOPE

- 1.1** This specification covers performance, testing and quality requirements for Samtec EBCF/EBCM Series 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Right-Angle Socket & Vertical Header mated set. Testing and rating information in this specification is for an EBCM Series – 6 pairs per column mated to an EBTF Series – 6 pairs per column 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 EBCF: <https://www.samtec.com/products/ebcf>; EBTF: <https://www.samtec.com/products/ebtf-ra> EBCM: <https://www.samtec.com/products/ebcm>; EBTM: <https://www.samtec.com/products/ebtm> EBTM-RA: <https://www.samtec.com/products/ebtm-ra>
- 2.2** Industry or Trade Association standards  
Telcordia GR-1217-CORE (Separable Electrical Connectors Used in Telecommunications Hardware).

### 3.0 TESTING

- 3.1 Current Rating:** 2.6 A (1 Pin Powered per row)
- 3.2 Voltage Rating:** 125 VAC
- 3.3 Operating Temperature Range:** -40°C to +105°C
- 3.4 Operating Humidity Range:** up to 95% (Per EIA-364-31)
- 3.5 Electrical:**

| ITEM                      | TEST CONDITION                                     | REQUIREMENT                 |
|---------------------------|----------------------------------------------------|-----------------------------|
| Withstanding Voltage      | EIA-364-20 (No Flashover, Sparkover, or Breakdown) | 125 VAC                     |
| Insulation Resistance     | EIA-364-21                                         | 1,000 MΩ minimum            |
| Contact Resistance (LLCR) | EIA-364-23                                         | Δ 15 mΩ maximum / No damage |

**Series:** EBCF / EBCM 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

### 3.6 Mechanical:

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

### 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: -40°C<br>Hot/Cold Transition: Immediate                   | Visual Inspection: No Damage<br>LLCR: $\Delta$ 15 m $\Omega$<br>DWV: 125 VAC<br>IR: >1,000 M $\Omega$ | Pass   |
| Thermal Aging<br>(Temp Life) | EIA-364-17<br>Test Condition 4 @ 105°C<br>Condition B for 250 hours                                                                            | Visual Inspection: No Damage<br>LLCR: $\Delta$ 15 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: 125 VAC<br>IR: >1,000 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<br>Exposure | LLCR: $\Delta$ 15 m $\Omega$                                                                          | Pass   |

## Series: EBCF / EBCM 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

### 4.0 MATED SYSTEM

#### 4.1 Mated Views

Mated view information can be found at link below:

[Samtec-examax-application-specification.pdf](https://suddendocs.samtec.com/prints/ebcx%20to%20ebcf-ra%20mated%20document-mkt.pdf)

<https://suddendocs.samtec.com/prints/ebcx%20to%20ebcf-ra%20mated%20document-mkt.pdf>

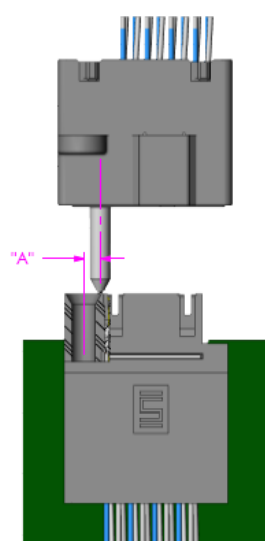
<https://suddendocs.samtec.com/prints/ebcx%20to%20ebtf-ra%20mated%20document-mkt.pdf>

## 5.0 PROCESSING RECOMMENDATIONS

### 5.1 Mating Alignment Requirements:

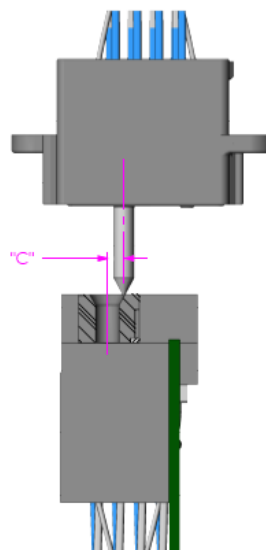
#### 5.1.1 Allowable initial linear misalignment (EBCM+EBCB to EBCF)

Maximum guidance/capture in applications where the EBCB is panel mounted and the EBCF is free to float. Measurements are from design-intent position with guide post centered in guide receiver and with EBCM centered in EBCB.



INITIAL X AXIS LINEAR MISALIGNMENT

| NO. OF PAIRS | NO. OF COLUMNS | "A"         |
|--------------|----------------|-------------|
| -4           | -04            | N/A         |
|              | -06            | 1.86 [.073] |
|              | -08            | 1.94 [.076] |
|              | -10            | 2.00 [.079] |
|              | -12            | N/A         |
| -6           | -04            | N/A         |
|              | -06            | 1.86 [.073] |
|              | -08            | 1.94 [.076] |
|              | -10            | 2.00 [.079] |
|              | -12            | 2.05 [.081] |

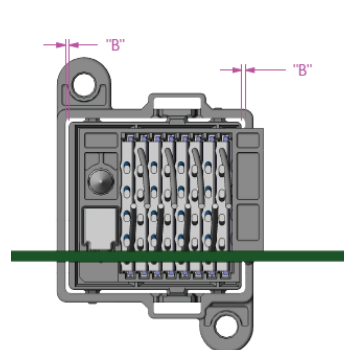


INITIAL Y AXIS LINEAR MISALIGNMENT

| NO. OF PAIRS | NO. OF COLUMNS | "C"         |
|--------------|----------------|-------------|
| -4           | -04            | N/A         |
|              | -06            | 1.93 [.076] |
|              | -08            | 1.93 [.076] |
|              | -10            | 1.93 [.076] |
|              | -12            | N/A         |
| -6           | -04            | N/A         |
|              | -06            | 2.22 [.087] |
|              | -08            | 2.22 [.087] |
|              | -10            | 2.22 [.087] |
|              | -12            | 2.22 [.087] |

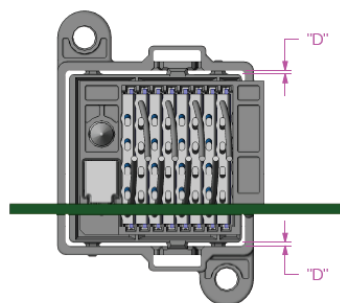
**Series:** EBCF / EBCM 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

- 5.1.2** Allowable final linear misalignment (EBCM+EBCB to EBCF)  
The EBCM is free floating within the EBCB and self-aligns after initial capture.



FINAL X AXIS LINEAR MISALIGNMENT

| TABLE 2      |                |             |
|--------------|----------------|-------------|
| NO. OF PAIRS | NO. OF COLUMNS | "B"         |
| -4           | -04            | N/A         |
|              | -06            | 0.50 [.020] |
|              | -08            | 0.50 [.020] |
|              | -10            | 0.50 [.020] |
|              | -12            | N/A         |
| -6           | -04            | N/A         |
|              | -06            | 0.50 [.020] |
|              | -08            | 0.50 [.020] |
|              | -10            | 0.50 [.020] |
|              | -12            | 0.50 [.020] |

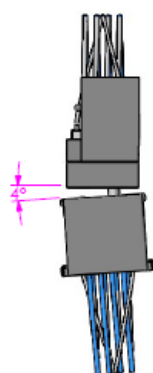


FINAL Y AXIS LINEAR MISALIGNMENT

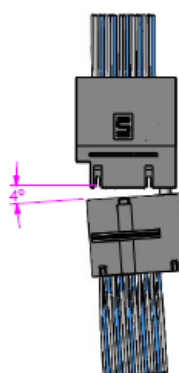
| TABLE 4      |                |             |
|--------------|----------------|-------------|
| NO. OF PAIRS | NO. OF COLUMNS | "D"         |
| -4           | -04            | N/A         |
|              | -06            | 0.50 [.020] |
|              | -08            | 0.50 [.020] |
|              | -10            | 0.50 [.020] |
|              | -12            | N/A         |
| -6           | -04            | N/A         |
|              | -06            | 0.50 [.020] |
|              | -08            | 0.50 [.020] |
|              | -10            | 0.50 [.020] |
|              | -12            | 0.50 [.020] |

## 5.2 Mating Angle Requirements:

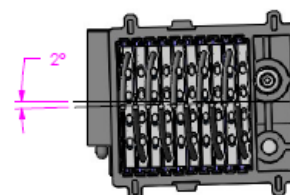
- 5.2.1** Allowable initial angular misalignment (EBCM to EBCF)



INITIAL X AXIS ANGULAR MISALIGNMENT



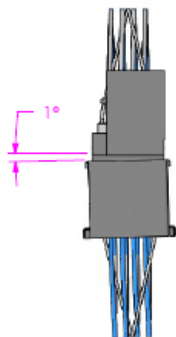
INITIAL Y AXIS ANGULAR MISALIGNMENT



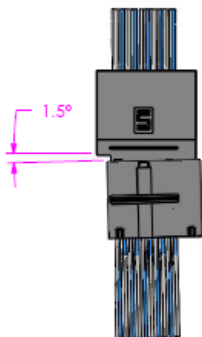
INITIAL Z AXIS ANGULAR MISALIGNMENT

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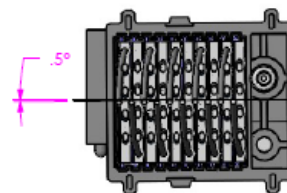
## 5.2.2 Allowable final angular misalignment (EBCM to EBCF)



FINAL X AXIS ANGULAR MISALIGNMENT



FINAL Y AXIS ANGULAR MISALIGNMENT



FINAL Z AXIS ANGULAR MISALIGNMENT

## 6.0 HIGH SPEED PERFORMANCE

### 6.1 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 the Samtec Signal Integrity Group [SIG@samtec.com](mailto:SIG@samtec.com) to determine performance in your system.

**6.2 System Impedance:** 100 Ohm for differential pair



Series: [EBCF / EBCM](#) 2.00 mm (.0787") ExaMAX® High-Speed Backplane Cable Socket & Header

## 7.0 ADDITIONAL RESOURCES

- 7.1 For additional mechanical testing or product information, contact our Customer Engineering Support Group at [CES@samtec.com](mailto:CES@samtec.com)
- 7.2 For additional information on high speed performance testing, contact our Signal Integrity Group at [SIG@samtec.com](mailto:SIG@samtec.com)
- 7.3 For additional processing information, contact our Interconnect Processing Group at [IPG@samtec.com](mailto:IPG@samtec.com).
- 7.4 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.**