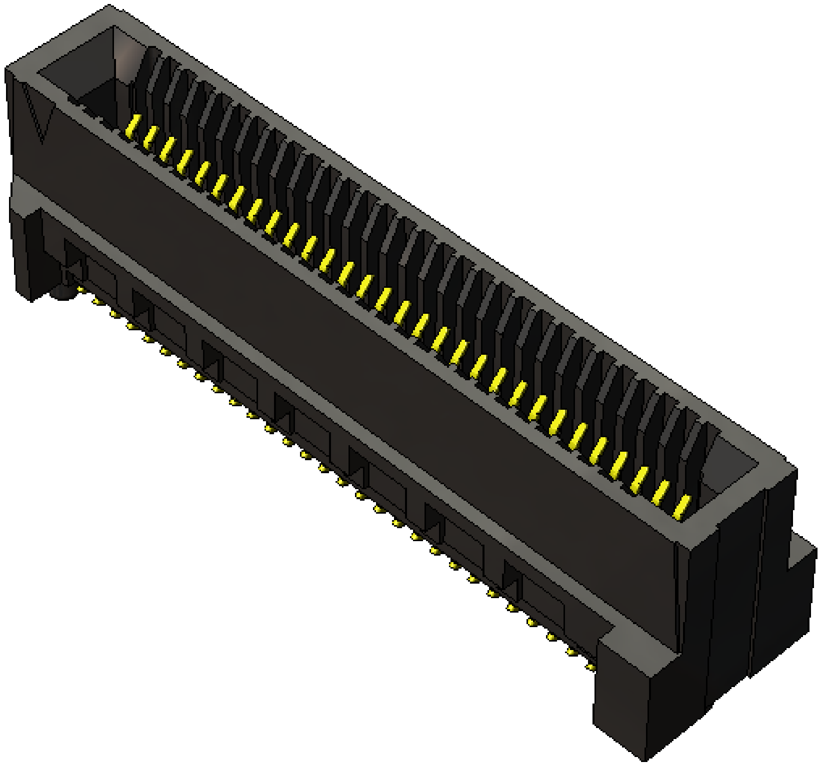
Series: HSEC8 0,80 mm (.0315”) Edge Rate™ High Speed Edge Card Connector, Vertical

HSEC8-DV Series – .062” (1,57 mm) Card Thickness



Other configurations available for:

Power Vertical, Edge Mount, Right Angle, Pass-Through, Board Lock, Guide Rails, Weld Tab, Latching, Pick & Place Pad, and ECDP Latching options, Packaging options

See www.samtec.com for more information.

Series: HSEC8 0,80 mm (.0315”) Edge Rate™ High Speed Edge Card Connector, Vertical

1.0 SCOPE

1.1 This specification covers performance, testing and quality requirements for Samtec’s HSEC8 Series 0,80 mm (.0315”) pitch Edge Rate™ High Speed Edge Card Connector in a Vertical orientation. All information contained in this specification is for a .062” (1,57 mm) 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 www.samtec.com?HSEC8-DV.

3.0 TESTING

3.1 Current Rating: 2.8A (One contact per row)
3.2 Voltage Rating: 240 VAC
3.3 Operating Temperature Range: -55°C to +125°C
3.4 Operating Humidity Range: 90% to 95% (Per EIA-364-31)
3.5 Electrical:

ITEM	TEST CONDITION	REQUIREMENT	STATUS
Withstanding Voltage	EIA-364-20 (No Flashover, Sparkover, or Breakdown)	720 VAC	Pass
Insulation Resistance	EIA-364-21 (1000 MΩ minimum)	1,000 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	1000 cycles (30µ Au)	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 LLCR: Δ 15 mΩ maximum Event Detection: No interruption > 50 nanoseconds	Pass
Mechanical Shock	EIA-364-27 100 G, 6 milliseconds, sawtooth wave, 11.3 fps, 3 shocks/direction, 3 axis (18 total shocks)	Visual Inspection: No Damage LLCR: Δ 15 mΩ maximum Event Detection: No interruption > 50 nanoseconds	Pass
Normal Force	EIA-364-04	30 grams minimum for gold interface	Pass

3.7 Environmental:

ITEM	TEST CONDITION	REQUIREMENT	STATUS
Thermal Shock	EIA-364-32 Thermal Cycles: 100 (30 minute dwell) Hot Temp: 85°C Cold Temp: -55°C Hot/Cold Transition: Immediate	Visual Inspection: No Damage LLCR: Δ 15 mΩ DWV: 720 VAC IR: >10,000 MΩ	Pass
Thermal Aging (Temp Life)	EIA-364-17 Test Condition 4 @ 105°C Condition B for 250 hours	Visual Inspection: No Damage LLCR: Δ 15 mΩ DWV: 720 VAC IR: >10,000 MΩ	Pass
Cyclic Humidity	EIA-364-31 Test Temp: 25°C to 65°C Relative Humidity: 90 to 95% Test Duration: 240 hours	Visual Inspection: No Damage LLCR: Δ 15 mΩ DWV: 720 VAC IR: >10,000 MΩ	Pass
Gas Tight	EIA-364-36 Gas Exposure: Nitric Acid Vapor Duration: 60 min. Drying Temp.: 50°C +/- 3°C Measurements: Within 1 hour of Exposure	LLCR: Δ 15 mΩ	Pass

3.8 CREEPAGE AND CLEARANCE DISTANCES

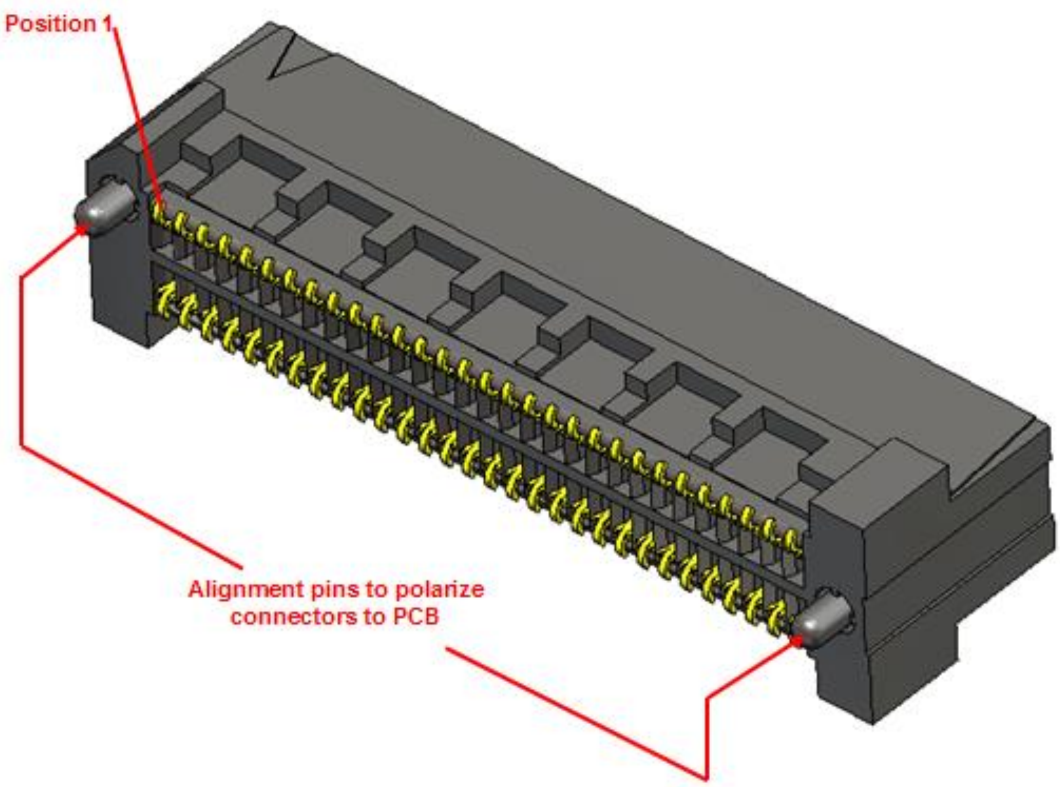
Series	Clearance (pin to pin)	Creepage (pin to pin)	Clearance (row to row)	Creepage (row to row)
HSEC8-DV	0.22 mm (.009”)	0.32 mm (.013’’)	0.56 mm (.022’’)	2.44 mm (.096”)

Note: Creepage value is the physical distance available for “tracking” along the insulator. The end users operating environment will determine the actual creepage value.

4.0 MATED SYSTEM

Mated view information can be found at link below:
http://www.samtec.com/documents/webfiles/cpdf/HSEC8%20Mated%20Document-MKT.pdf

5.0 POLARIZING FEATURES



6.0 HIGH SPEED PERFORMANCE

6.1 Based on a 3 dB insertion loss

Single-Ended Signaling	Differential Pair Signaling
17.00 GHz / 34 Gbps	15.50 GHz / 31 Gbps

6.2 **System Impedance:** 50 ohm for single-ended and 100 ohm for differential pair

Series: HSEC8 0,80 mm (.0315”) Edge Rate™ High Speed Edge Card Connector, Vertical

7.0 PROCESSING RECOMMENDATIONS

7.1 Mating Alignment Requirements:

7.1.1 Allowable initial linear misalignment.

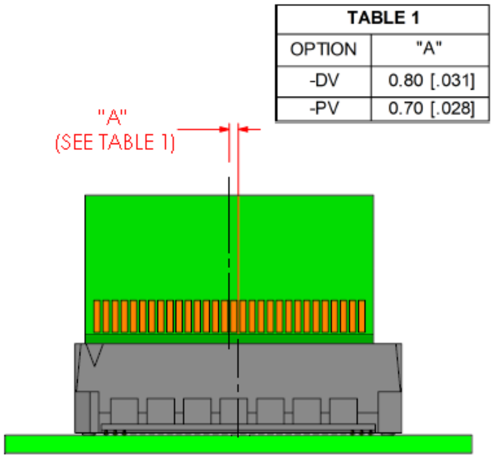


TABLE 1	
OPTION	"A"
-DV	0.80 [.031]
-PV	0.70 [.028]

INITIAL X AXIS LINEAR MISALIGNMENT

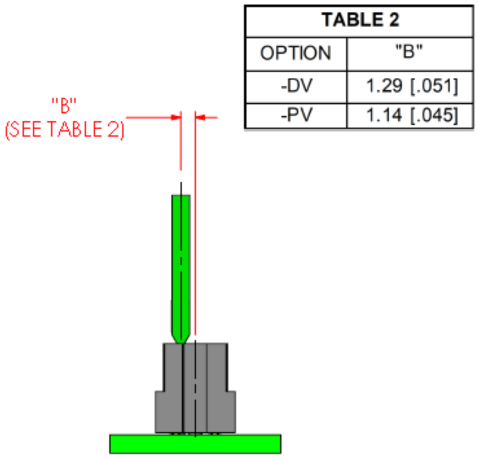


TABLE 2	
OPTION	"B"
-DV	1.29 [.051]
-PV	1.14 [.045]

INITIAL Y AXIS LINEAR MISALIGNMENT

NON APPLICABLE

INITIAL Z AXIS LINEAR MISALIGNMENT

7.1.2 Allowable final linear misalignment.

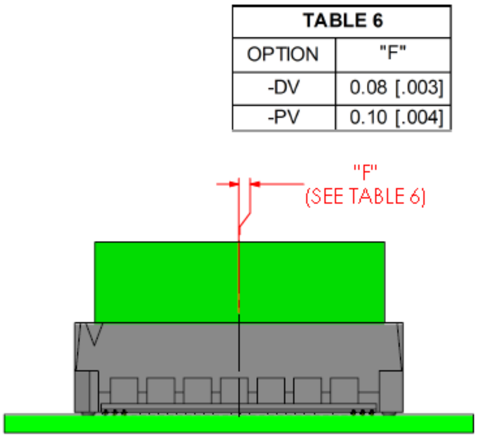


TABLE 6	
OPTION	"F"
-DV	0.08 [.003]
-PV	0.10 [.004]

FINAL X AXIS LINEAR MISALIGNMENT

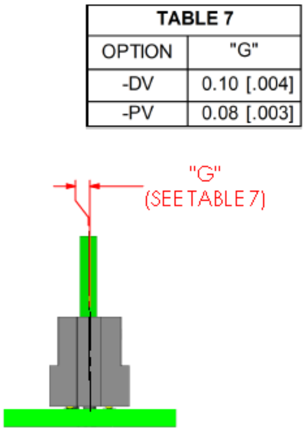


TABLE 7	
OPTION	"G"
-DV	0.10 [.004]
-PV	0.08 [.003]

FINAL Y AXIS LINEAR MISALIGNMENT

SEE MATED VIEW

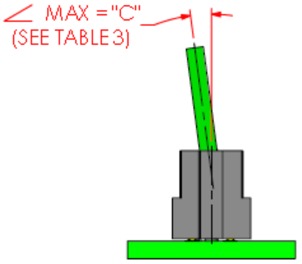
FINAL Z AXIS LINEAR MISALIGNMENT

7.2 Mating Angle Requirements

7.2.1 Allowable initial angular misalignment

TABLE 3

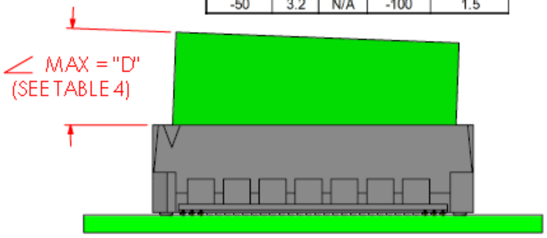
OPTION	"C"=DEG
-DV	9.0
-PV	2.5



INITIAL X AXIS ANGULAR MISALIGNMENT

TABLE 4

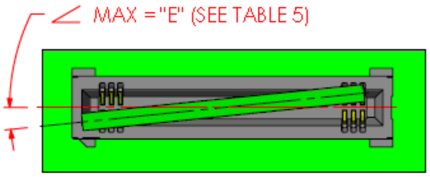
NO OF POS	"D" = DEG -DV	"D" = DEG -PV	NO OF POS	"D" = DEG -DV
-09, -13	10	N/A	-60	2.8
-20, -25	6.3	3.0	-70	2.4
-30, -37	4.5	2.5	-80	2.1
-40, -49	3.5	2.0	-90	1.9
-50	3.2	N/A	-100	1.5



INITIAL Y AXIS ANGULAR MISALIGNMENT

TABLE 5

NO OF POS	"E" = DEG -DV	"E" = DEG -PV	NO OF POS	"E" = DEG -DV
-09, -13	10	N/A	-60	2.8
-20, -25	6.3	3.0	-70	2.4
-30, -37	4.5	2.0	-80	2.1
-40, -49	3.5	1.6	-90	1.9
-50	3.2	N/A	-100	1.5

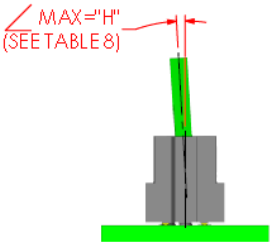


INITIAL Z AXIS ANGULAR MISALIGNMENT

7.2.2 Allowable final angular misalignment

TABLE 8

OPTION	"H"=DEG
-DV	2.0
-PV	1.0



FINAL X AXIS ANGULAR MISALIGNMENT

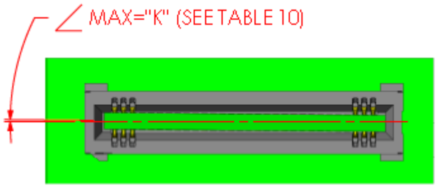
TABLE 9

NO OF POS	"J" = DEG -DV	"J" = DEG -PV	NO OF POS	"J" = DEG -DV
-09, -13	2.0	N/A	-60	1.7
-20, -25	2.0	2.0	-70	1.4
-30, -37	2.0	1.5	-80	1.2
-40, -49	2.0	1.0	-90	1.1
-50	2.0	N/A	-100	1.0

FINAL Y AXIS ANGULAR MISALIGNMENT

TABLE 10

NO OF POS	"K" = DEG -DV	"K" = DEG -PV	NO OF POS	"K" = DEG -DV
-09, -13	1.0	N/A	-60	0.25
-20, -25	0.6	0.2	-70	0.23
-30, -37	0.4	0.2	-80	0.20
-40, -49	0.3	0.1	-90	0.18
-50	0.3	N/A	-100	0.16



FINAL Z AXIS ANGULAR MISALIGNMENT

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**.

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.

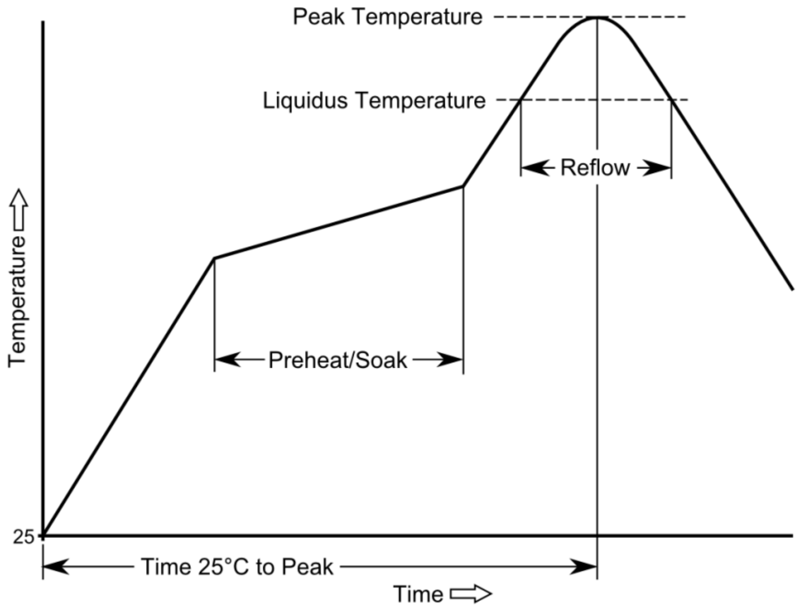
Samtec Recommended Temperature Profile Ranges (SMT)

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.



7.4.1

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.

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**

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

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

8.4 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.**