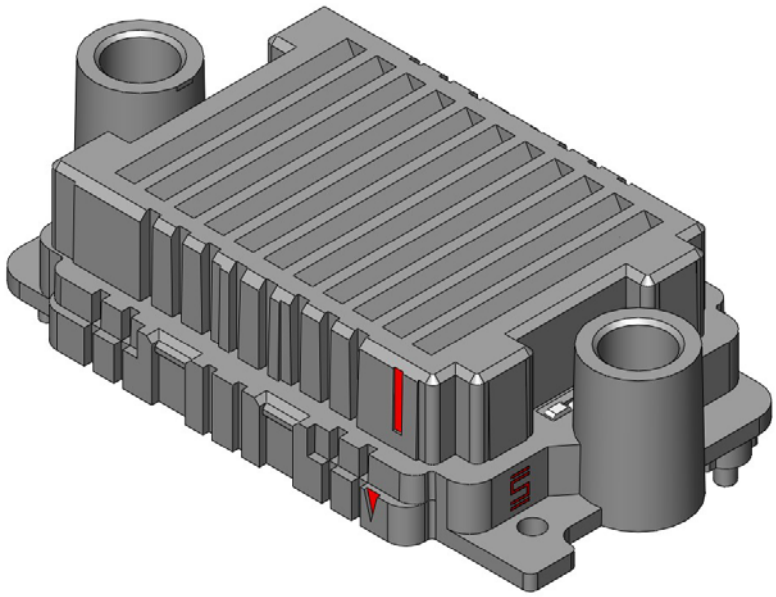
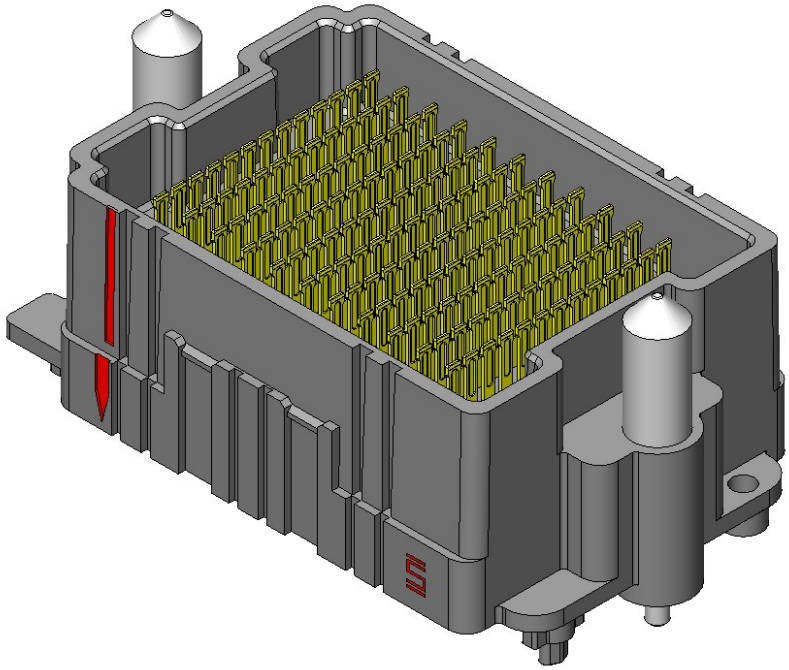
Series: HDAF / HDAM 2,00 mm (.0787") X 1,20 mm (.0472") HD Mezz™ Rugged, High Density Open Pin Field Array

HDAF Series – Socket, Vertical Orientation



HDAM Series – Terminal, Vertical Orientation



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1.0 SCOPE

1.1 This specification covers performance, testing and quality requirements for Samtec HDAF/HDAM Series 2,00 mm (.0787") X 1,20 mm (.0472") HD Mezz™ Rugged, High Density Open Pin Field Array connectors. All information contained in this specification is for a HDAF Series -08.0 lead style mated to a HDAM Series -12.0 lead style for a 20 mm (.787") stack height, vertical 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?HDAF and www.samtec.com?HDAM.

3.0 TESTING

3.1 Current Rating: 1.8A (6 Pins Powered)

3.2 Voltage Rating: 230 VAC

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

3.4 Electrical:

ITEM	TEST CONDITION	REQUIREMENT
Withstanding Voltage	EIA-364-20 (No Flashover, Sparkover, or Breakdown)	690 VAC
Insulation Resistance	EIA-364-21 (1000 MΩ minimum)	5,000 MΩ
Contact Resistance (LLCR)	EIA-364-23	Δ 15 mΩ maximum (Samtec defined)/ No damage

3.5 Mechanical:

ITEM	TEST CONDITION	REQUIREMENT	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	Visual Inspection: No Damage LLCR: Δ 15 mΩ maximum	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	Pass
Normal Force	EIA-364-04	30 grams minimum for gold interface	Pass

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3.6 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: 690 VAC IR: >15,000 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: 690 VAC IR: >15,000 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: 690 VAC IR: >15,000 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

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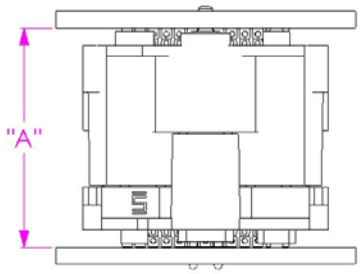
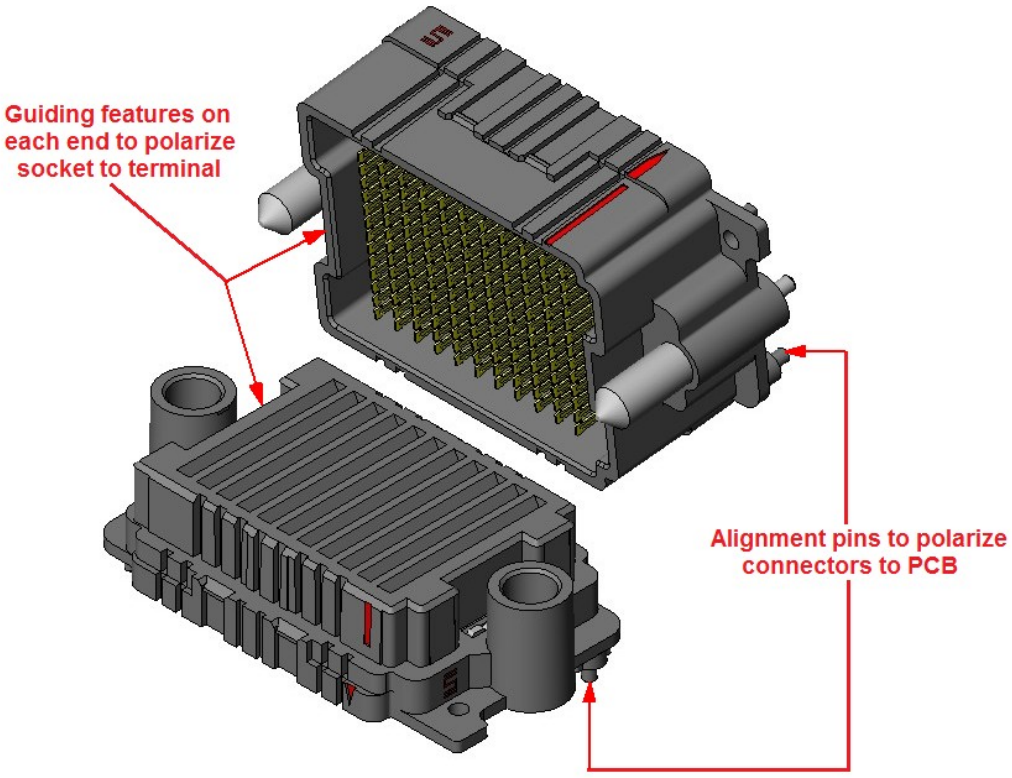
4.0 MATED SYSTEM

4.1 Stack Heights



STACK HEIGHT		
HDAF LEAD STYLE	HDAM LEAD STYLE	
	"A"	
	-12.0	-17.0
-08.0	20.0 MM	25.0 MM
-18.0	30.0 MM	35.0 MM

5.0 POLARIZING FEATURES



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6.0 HIGH SPEED PERFORMANCE

6.1 Based on a 3 dB insertion loss

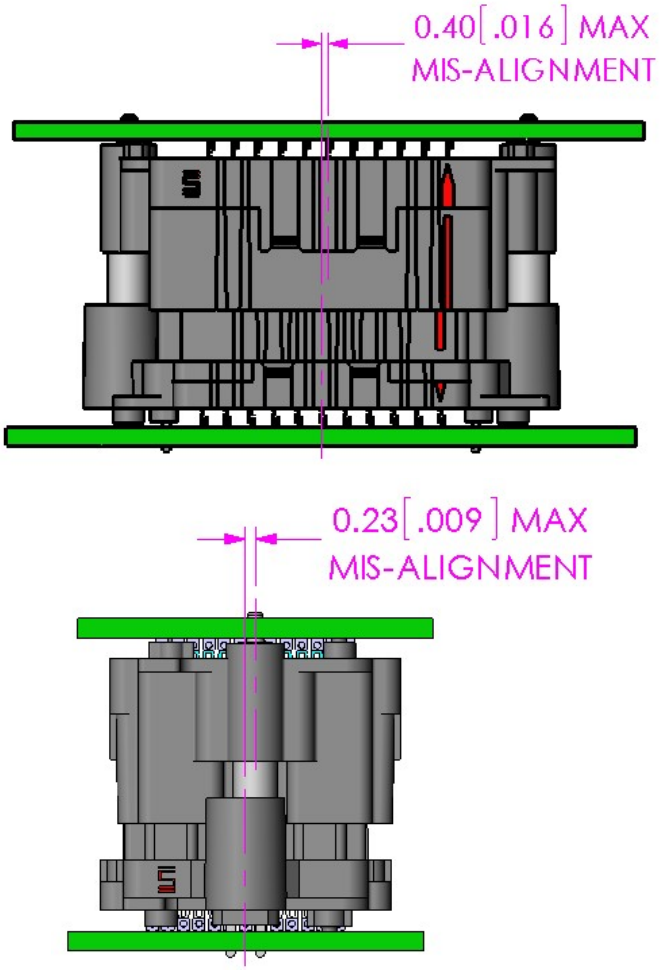
6.2 System Impedance: 50 ohm for single-ended and 100 ohm for differential pair

Stack Height	Single-Ended Signaling	Differential Pair Signaling
20 mm	9.5 GHz	9.0 GHz
25 mm	8.5 GHz	8.5 GHz
30 mm	10.0 GHz	7.5 GHz
35 mm	9.0 GHz	9.0 GHz

7.0 PROCESSING RECOMMENDATIONS

7.1 Mating Alignment Requirements:

7.1.1 Maximum guidance/capture in applications where at least one half of the interface is free to float.



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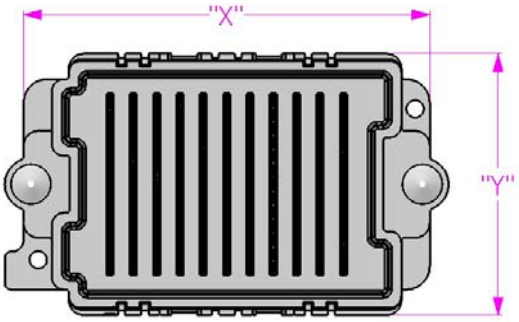
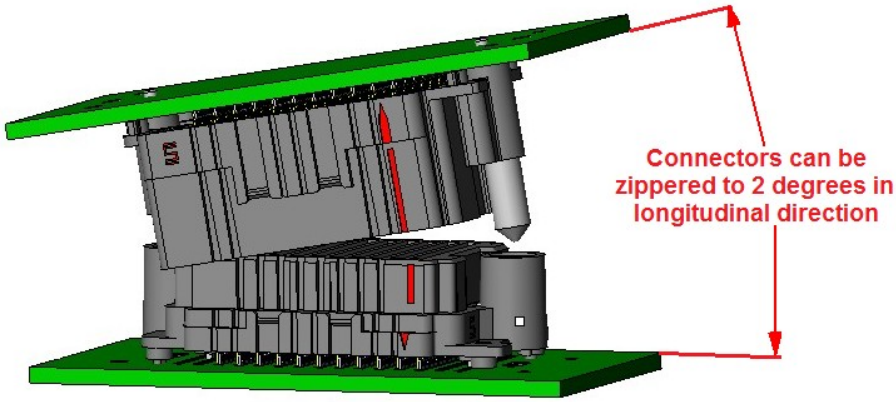
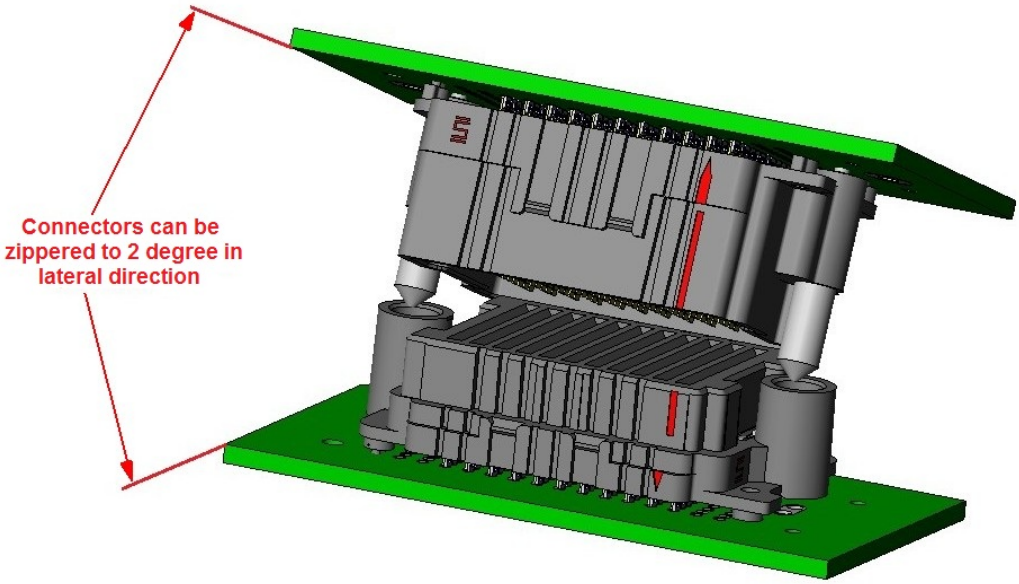
7.1.2 The parts can be rigidly misaligned by no more than .005" (0,13 mm) in the X- and .001" (0,03 mm) in the Y-direction to ensure a good mate.



7.2 Mating Angle Requirements: The connector can be zippered in the longitudinal direction.



7.2.1



7.2.2

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7.3 Multiple Connector System: A customer may elect to place two systems on the same board. Multiple connectors must have the longitudinal (pin to pin) direction of the connectors parallel (FIG 1 and FIG 3) and not perpendicular (FIG 2).

All the connectors on a board, in this application, must be the same gender, must come from a single supplier and process. Furthermore, they must come from either the same package or from successive packages with the same manufacturing date.

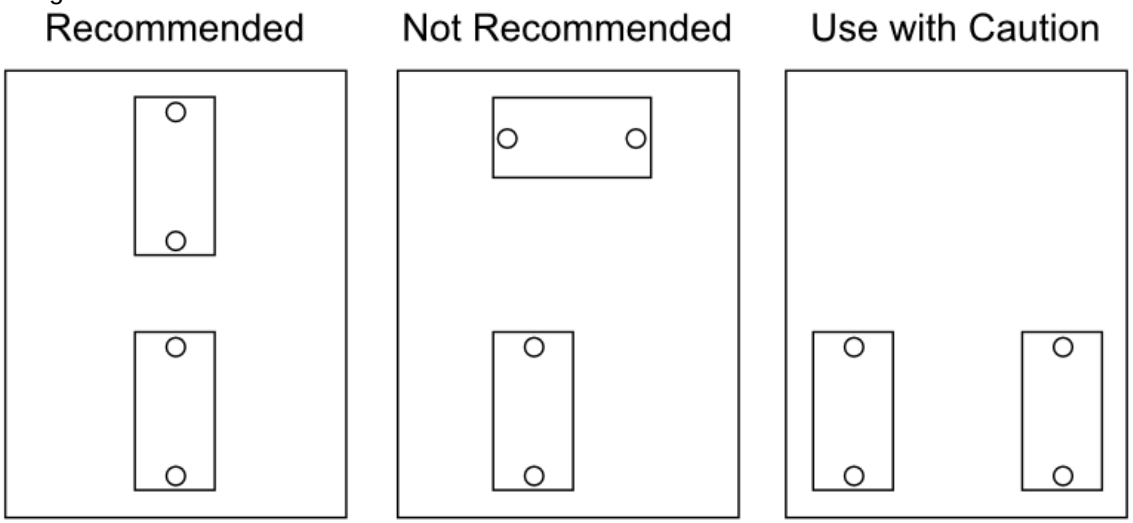

Figure 1 Figure 2 Figure 3

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

7.5 Stencil Thickness: The stencil thickness is .006" (0,15 mm).

7.6 Placement: Machine placement and complete seating of the parts in the Z-axis is strongly recommended.

7.7 Hardware: Board-to-board standoffs are recommended to provide a robust mechanical connection. Samtec's wide variety of standoff options can be found here: SO - Board Stacking Standoff

7.8 Thermal Profile: The importance of properly profiling the fully populated printed circuit assembly cannot be overstated. The reflow process that forms the solder joint is sometimes overshadowed by other processes, but is critical to ensuring the solder charge reaches proper reflow conditions. Certain components can be sensitive to time and temperature, so both variables must be controlled and a thermal profile must be performed prior to processing or production. Thermocouples should be placed as close to the solder charge as possible (underneath the part) in the center and on the outside edge of the connector. Due to the large number of processing variables (printed wiring board design, reflow oven type, component quantity, solder paste type, etc.), Samtec does not provide specific reflow profiles for any connector. We recommend that the solder paste manufacturer's guidelines be followed for optimum soldering results.

7.9 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.

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7.10 Rework Guidelines: Samtec recommends following these rework guidelines as needed: Reworking Grid Array Connectors

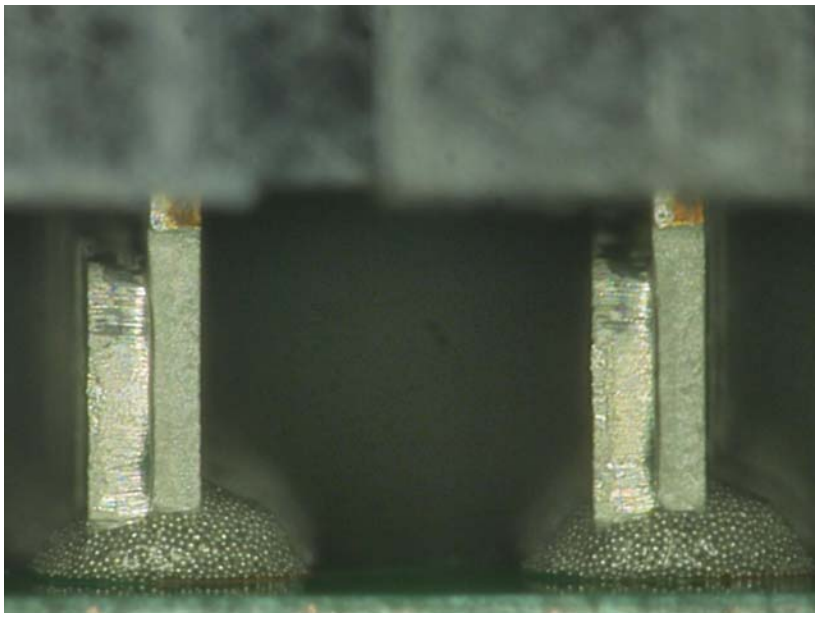
7.10.1 Samtec recommends a minimum spacing of .125" (3,18 mm) between adjacent connectors to allow adequate room for hot-air rework equipment

7.11 Solder Screen Printing Process:

7.11.1 Complete solder pad coverage is critical. Automated inspection of each print is recommended. If solder paste does not completely cover the solder pad, the assembly should be rejected, cleaned and re-printed.

7.11.2 Stencil cleaning may need to be monitored more frequently to ensure complete solder pad coverage is maintained.

7.11.3



Solder charge location relative to solder print. Notice good contact between solder charges and solder paste.

7.12 Handling:

7.12.1 These connectors are typically packaged in trays or tape-and-reel which protect the solder charges from damage. They should be handled like any other BGA or IC device.

7.12.2 Avoid resting the connector on the solder charge except during final placement onto the board.

7.12.3 When using tape-and-reel packaging, ensure the bottom of the pocket is protected as it travels through the feeder.

7.12.4 Avoid touching the solder charges.

7.12.5 When a partially used tray needs to be stored, use the flat cover from the original shipment or an empty tray to cover connectors. Band trays using flex wrap or rubber bands.

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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**

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