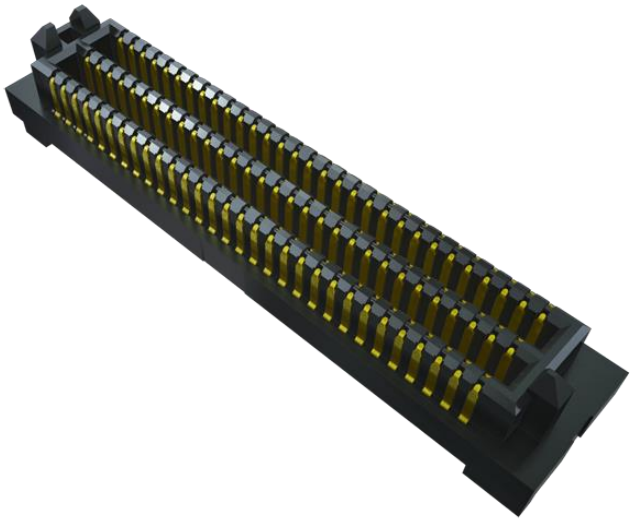
Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

SEAF8 Series – Socket, Vertical Orientation

SEAM8 Series – Terminal, Vertical Orientation



Other configurations available for:

Perpendicular board-to-board applications

See www.samtec.com for more information.

Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

1.0 SCOPE

1.1 This specification covers performance, testing and quality requirements for Samtec SEAM8/SEAF8 Series 0.80 mm SEARAY™ High Density, High Speed Open Pin Field Array connectors. All information contained in this specification is for a 10.00 mm mated 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?SEAM8 and ww.samtec.com?SEAF8.

3.0 TESTING

3.1 Current Rating: 0.9A (18 lines powered, 6x3 cluster)
3.2 Voltage Rating: 220 VAC
3.3 Operating Temperature Range: -55°C to +125°C
3.4 Electrical:

ITEM	TEST CONDITION	REQUIREMENT	STATUS
Withstanding Voltage	EIA-364-20 (No Flashover, Sparkover, or Breakdown)	660 VAC	Pass
Insulation Resistance	EIA-364-21 (5000 MΩ minimum)	15,000 MΩ	Pass
Contact Resistance (LLCR)	EIA-364-23	Δ 15 mΩ maximum (Samtec defined)/ No damage	Pass

3.5 Mechanical:

ITEM	TEST CONDITION	REQUIREMENT	STATUS
Durability	EIA-364-09C	1000 cycles (w/Env. stress)	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 > 1.0 microsecond	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 > 1.0 microsecond	Pass
Normal Force	EIA-364-04	30 grams minimum for gold interface	Pass

Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

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: 660 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: 825 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: 660 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

Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

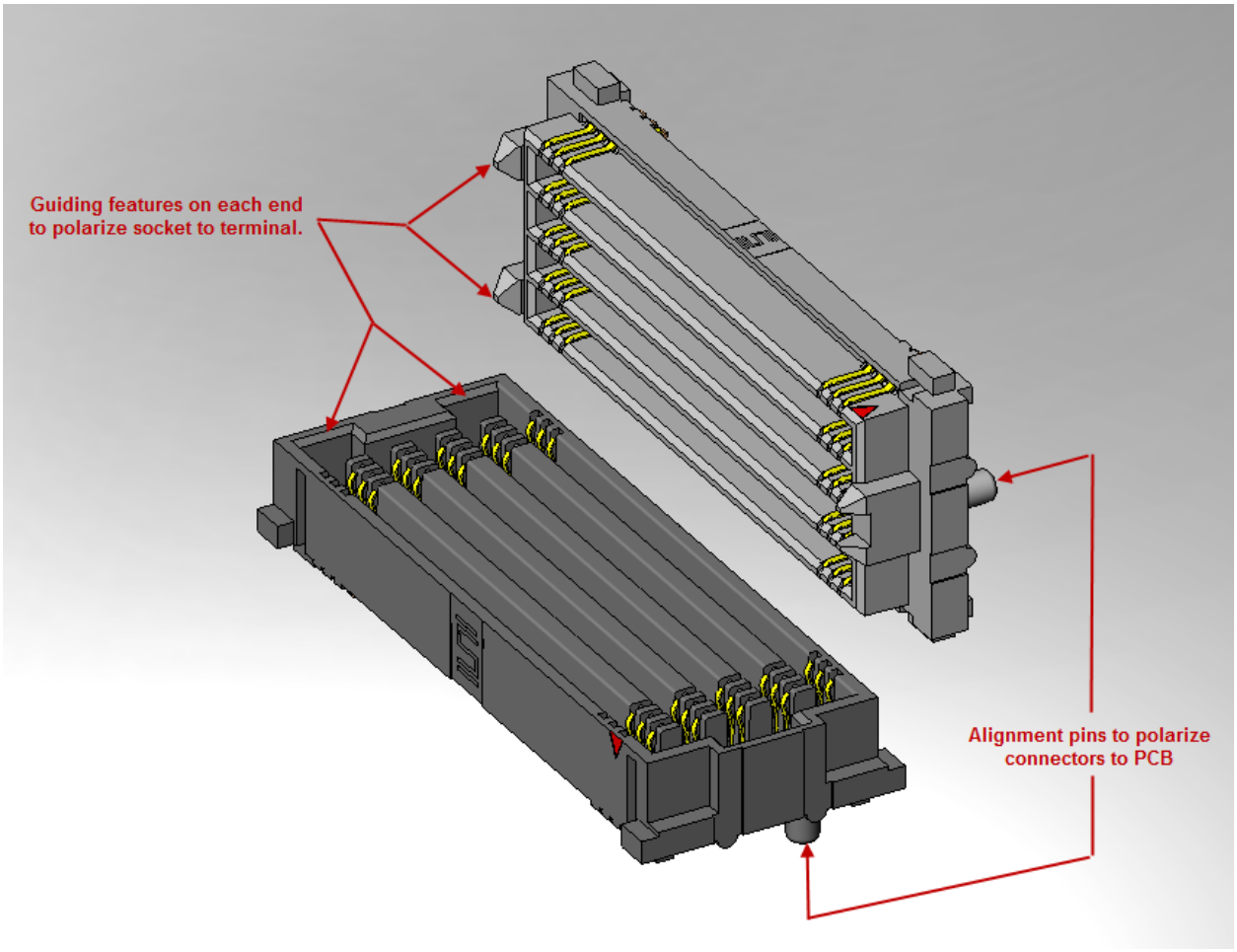
4.0 MATED SYSTEM

4.1 Mated views

Mated view information can be found at link below:

http://suddendocs.samtec.com/prints/seax8%20mated%20document-mkt.pdf

5.0 POLARIZING FEATURES



Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

6.0 HIGH SPEED PERFORMANCE

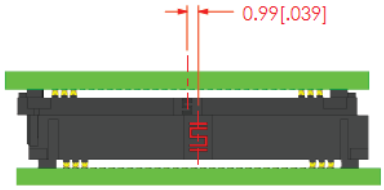
6.1 Based on a 3 dB insertion loss
6.2 System Impedance: 50 ohm for single-ended and 100 ohm for differential pair

Stack Height	Single-Ended Signaling	Differential Pair Signaling
7 mm	12.00 GHz	14.00 GHz

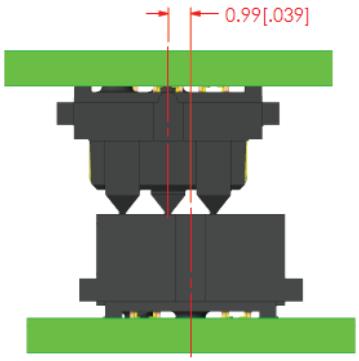
7.0 PROCESSING RECOMMENDATIONS - For more information, please see our Processing Recommendations Document

7.1 Mating Alignment Requirements:

7.1.1 Allowable initial linear misalignment.



INITIAL X AXIS LINEAR MISALIGNMENT

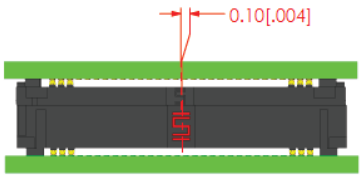


INITIAL Y AXIS LINEAR MISALIGNMENT

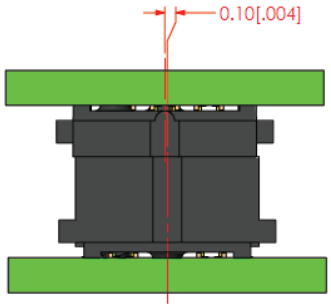
NON APPLICABLE

INITIAL Z AXIS LINEAR MISALIGNMENT

7.1.2 Allowable final linear misalignment.



FINAL X AXIS LINEAR MISALIGNMENT



FINAL Y AXIS LINEAR MISALIGNMENT

SEE 4.1 Mated views

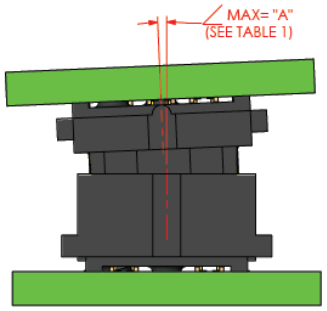
FINAL Z AXIS LINEAR MISALIGNMENT

Series: SEAM8 / SEAF8 0.80 mm (.0315") SEARAY™ High Density, High Speed Open Pin Field Array

7.2 Mating Angle Requirements:

7.2.1 Allowable initial angular misalignment.

TABLE 1	
ROWS	"A" = DEGREES
-04	2.4
-06	1.6
-08	1.2
-10	1.0

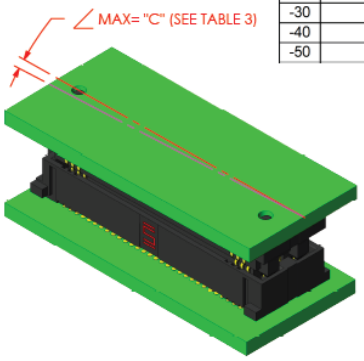


INITIAL X AXIS ANGULAR MISALIGNMENT

TABLE 2	
POS	"B" = DEGREES
-10	2.2
-20	1.4
-30	1.0
-40	0.8
-50	0.7

INITIAL Y AXIS ANGULAR MISALIGNMENT

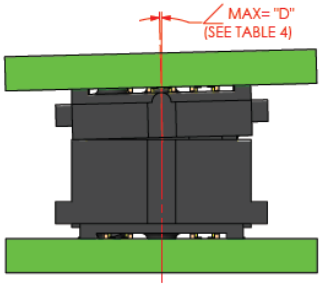
TABLE 3	
POS	"C" = DEGREES
-10	0.8
-20	0.5
-30	0.4
-40	0.3
-50	0.3



INITIAL Z AXIS ANGULAR MISALIGNMENT

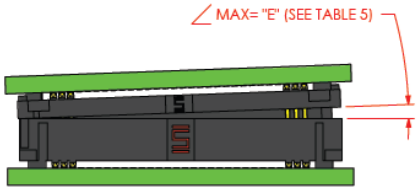
7.2.2 Allowable final angular misalignment.

TABLE 4	
ROWS	"D" = DEGREES
-04	1.4
-06	0.9
-08	0.7
-10	0.6



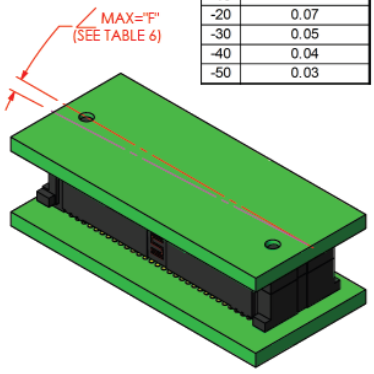
FINAL X AXIS ANGULAR MISALIGNMENT

TABLE 5	
POS	"E" = DEGREES
-10	2.2
-20	1.4
-30	1.0
-40	0.8
-50	0.7



FINAL Y AXIS ANGULAR MISALIGNMENT

TABLE 6	
POS	"F" = DEGREES
-10	0.11
-20	0.07
-30	0.05
-40	0.04
-50	0.03



FINAL Z AXIS ANGULAR MISALIGNMENT

7.3 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 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)

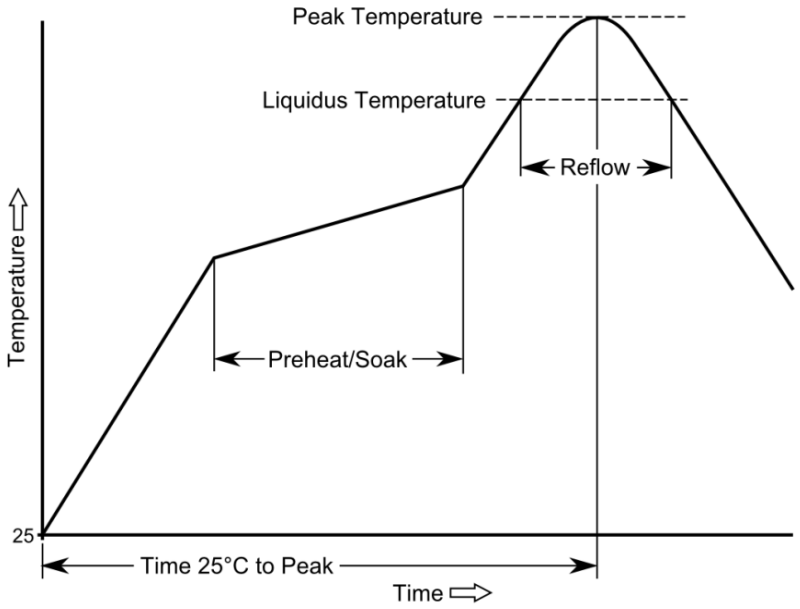
Sn-Pb Eutectic Assembly

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.

7.3.1



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.

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

7.5 Stencil Thickness: The stencil thickness is .005" (0,13 mm).

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

7.7 Reflow Environment: Samtec strongly recommends the use of a low level oxygen environment (typically achieved through Nitrogen gas infusion) in the reflow process to improve solderability. 8 and 10 rows are released for nitrogen environment processing only. 8 and 10 rows are not recommended for air only processing. SEAX8 testing has consistently shown a dramatic increase in solder yields in a low level oxygen environment as opposed to an air environment. Many variables affect the level of residual oxygen required to optimize a given reflow process, but generally the levels should be less than 1000 ppm.

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

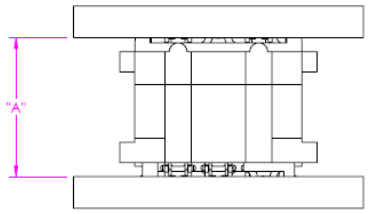
7.8.1 Samtec recommends a minimum spacing of .125" (3,18mm) between adjacent connectors to allow adequate room for hot-air rework equipment.

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

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

7.9.2 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

7.9.3 Recommended Standoff Part Numbers: A standoff size is recommended for the lead style combination of the mating SEAM8 and SEAF8 Parts based off the "A" dimension.



	SEAF8 LEAD STYLE		
	-05.0		
SEAM8 LEAD STYLE	Stack Height "A" (mm)	Standoff	Jack Screw Standoff
-02.0	7.00	SO-0700	JSO-0700
-05.0	10.00	SO-1000	JSO-1000

7.10 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**