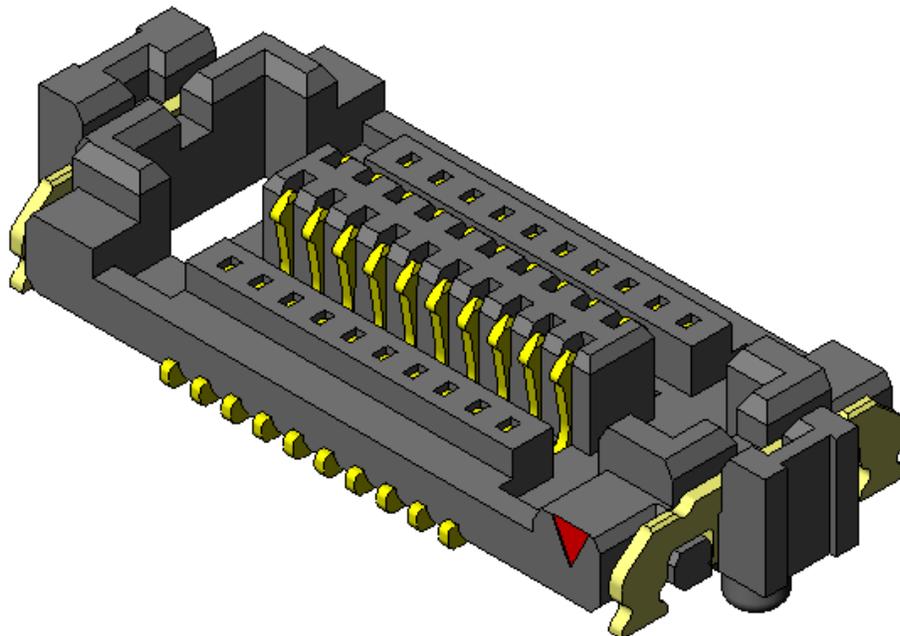
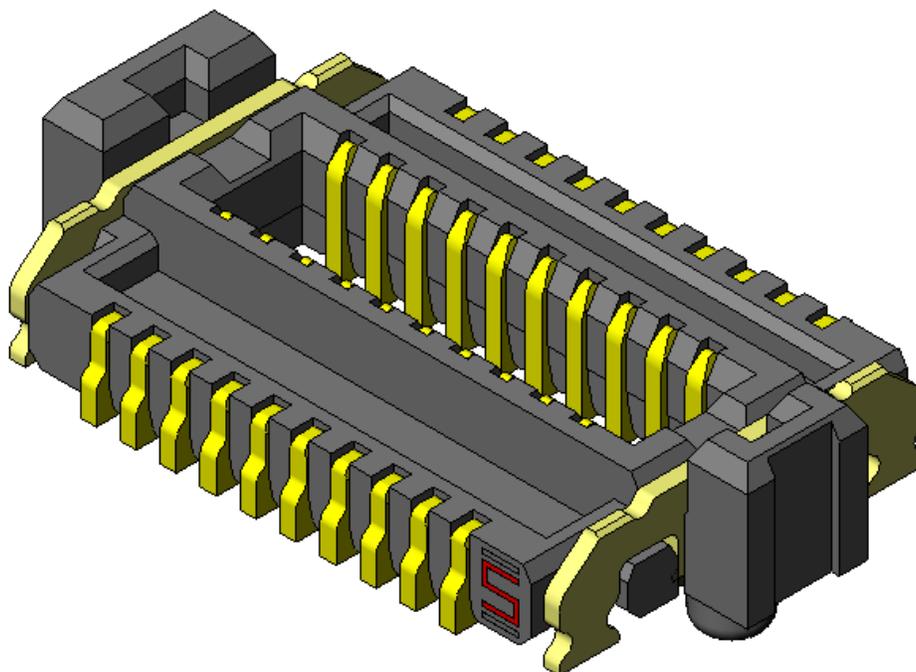


Series: SSH / STH 0,50 mm (.0197") Razor Beam™ LP Ultra Low Profile Socket / Header

SSH Series – Socket, Vertical Orientation



STH Series – Terminal, Vertical Orientation



See www.samtec.com for more information.

Series: SSH / STH 0,50 mm (.0197") Razor Beam™ LP Ultra Low Profile Socket / Header

1.0 SCOPE

1.1 This specification covers performance, testing and quality requirements for Samtec SSH/STH Series 0,50 mm (.0197") pitch Razor Beam™ LP Ultra Low Profile Socket / Header system. All information contained in this specification is for a 2 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?SSH and www.samtec.com?STH.

3.0 TESTING

3.1 **Current Rating:** 1.1A (Gold plating, 6 adjacent contacts)

3.2 **Voltage Rating:** 185 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)	555 VAC	Pass
Insulation Resistance	EIA-364-21 (5000 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	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 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

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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 m Ω DWV: 555 VAC IR: >100,000 M Ω	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 m Ω DWV: 555 VAC IR: >100,000 M Ω	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 m Ω DWV: 900 VAC IR: >100,000 M Ω	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 m Ω	Pass

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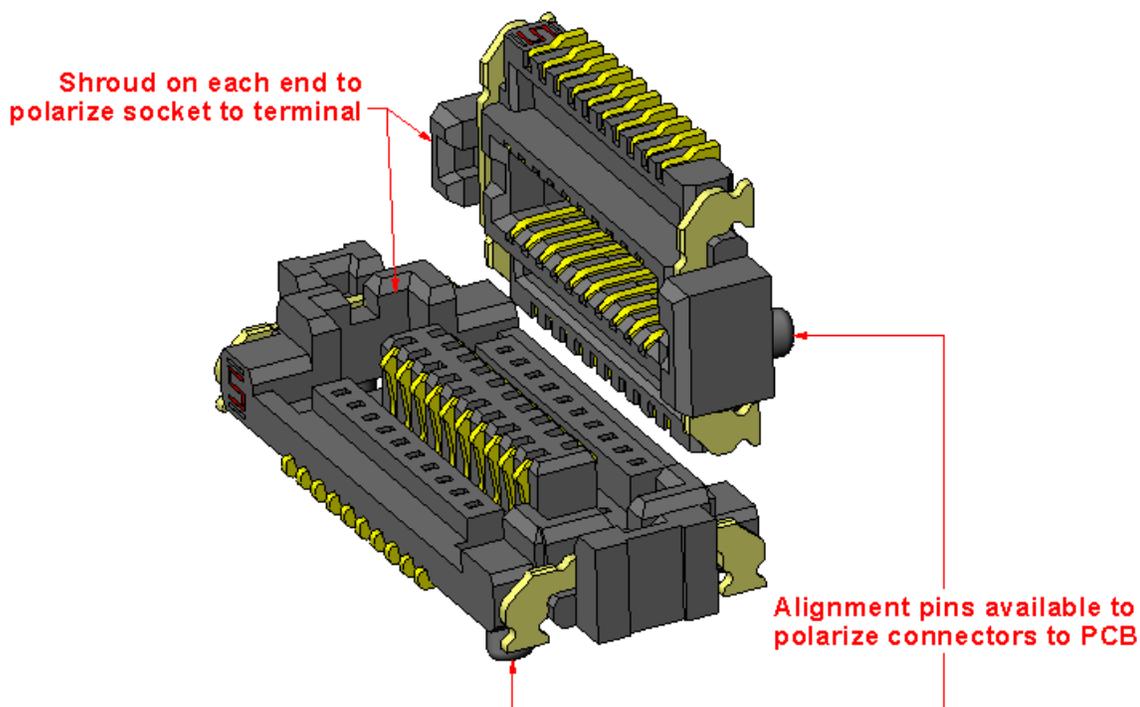
4.0 MATED SYSTEM

4.1 Stack Heights

STACK HEIGHT*		
SSH LEAD STYLE	STH LEAD STYLE	
	-0.50	-1.00
-1.50	2.00mm [.079]	2.50mm [.098]
-2.00	2.50mm [.098]	3.00mm [.118]

*Processing conditions will affect mated height.

5.0 POLARIZING FEATURES



6.0 HIGH SPEED PERFORMANCE

6.1 Based on a 3 dB insertion loss

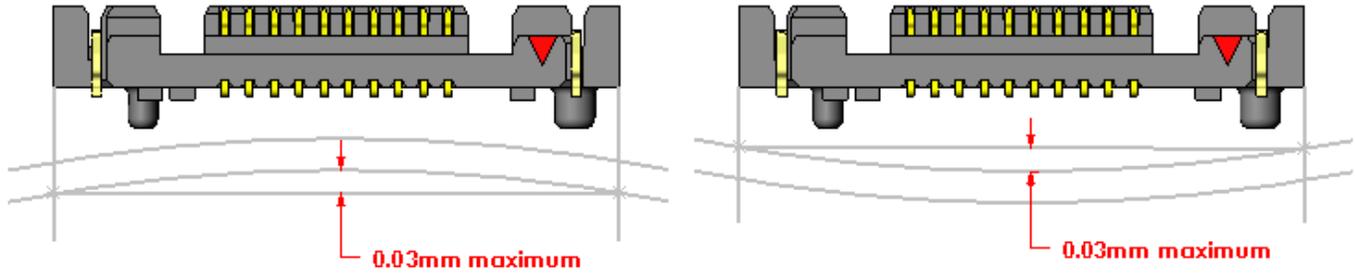
Stack Height	Single-Ended Signaling	Differential Pair Signaling
2 mm	19GHz/ 38Gbps	16.5GHz/ 33Gbps

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

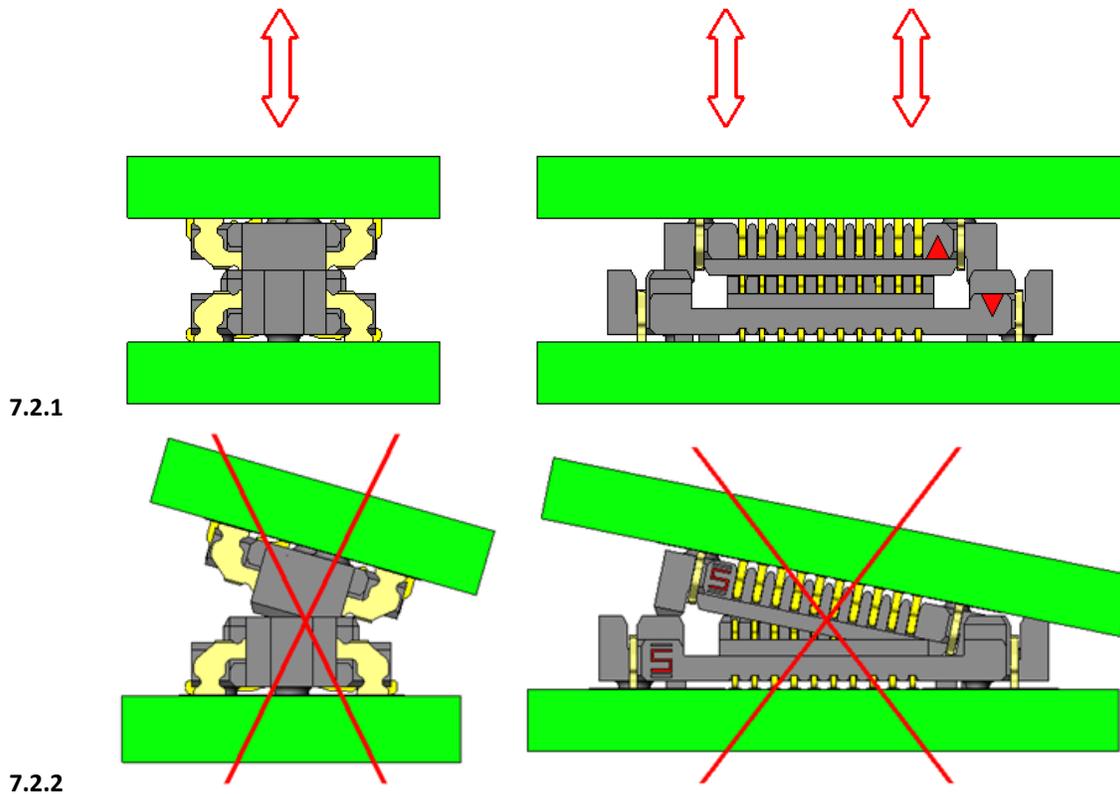
Series: SSH / STH 0,50 mm (.0197") Razor Beam™ LP Ultra Low Profile Socket / Header

7.0 PROCESSING RECOMMENDATIONS

7.1 PCB Warp Requirements: Maximum of 0.03mm over the connector's length.



7.2 Mating Angle Requirements: Connectors to be mated and unmated axially only. Zippering angles may damage connector and/or solder joints.



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7.3 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-020D which requires that components be capable of withstanding a peak temperature of 260°C as well as 30 seconds above 255°C.

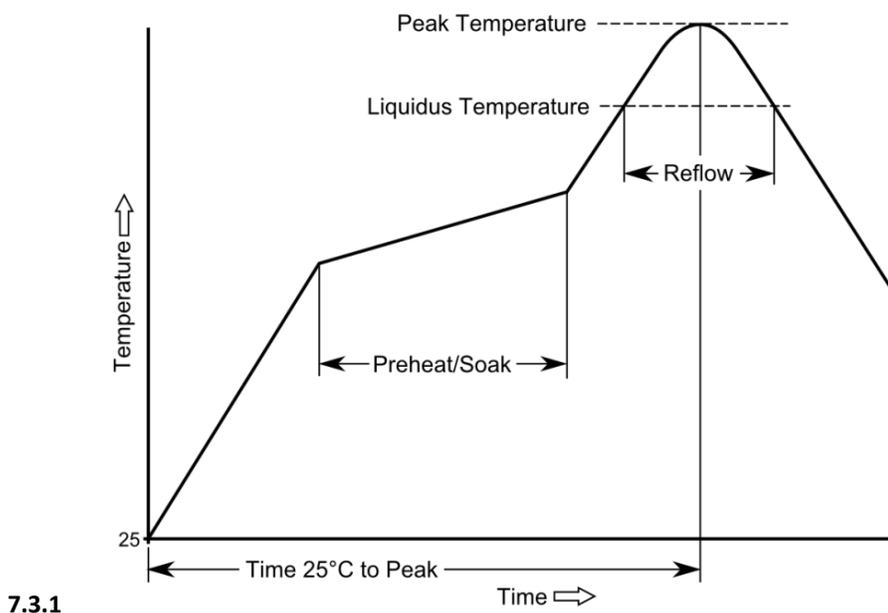
Samtec Recommended Temperature Profile Ranges (SMT)

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

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7.4 Maximum Reflow Passes: Parts can withstand three reflow passes at a peak component temperature of 260°C.

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

7.6 Placement: Machine placement of the parts is recommended.

7.7 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.

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

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

7.8.2 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](#)

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