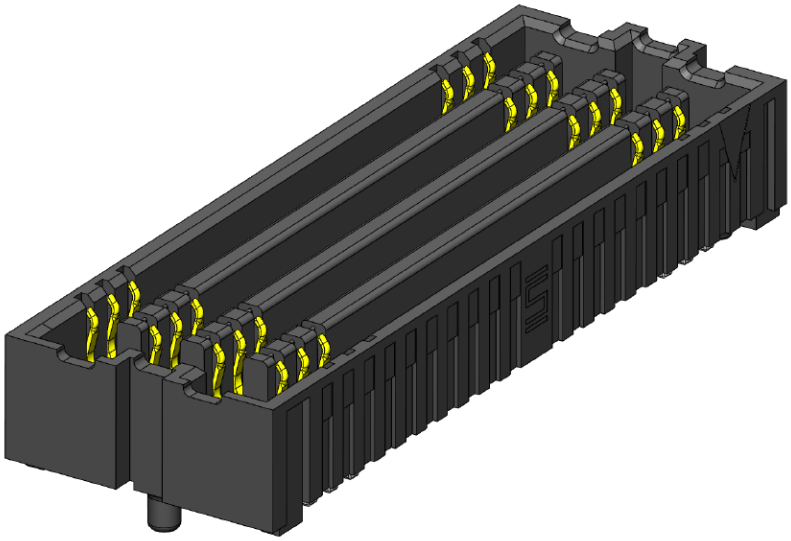
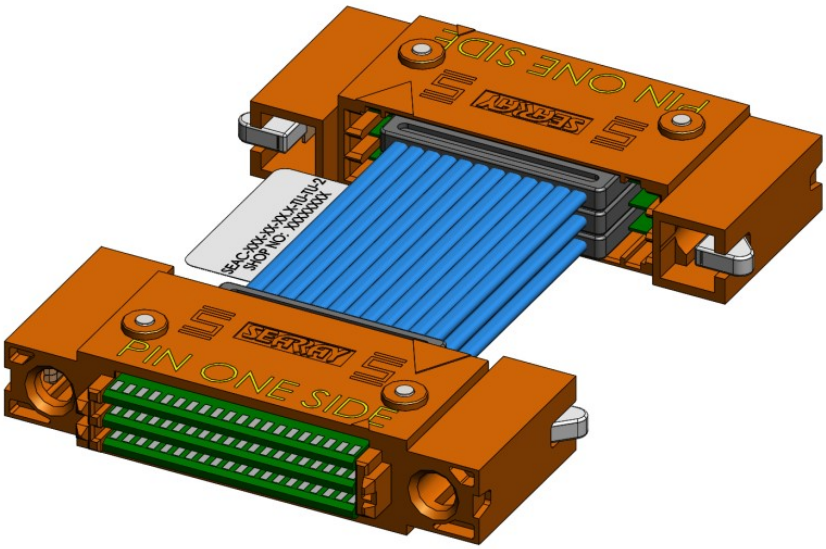
Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

SEAFC Series – Socket, Vertical Orientation



SEAC Series – SEAC Cable Assembly



Other configurations available for:

No latch applications

See www.samtec.com for more information.

Series: SEAFC / SEAC .050" (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

1.0 SCOPE

1.1 This specification covers performance, testing and quality requirements for Samtec's SEAFC/SEAC Series .050" SEARAY™ High Density, High Speed Array Socket/ Cable connectors. All information contained in this specification is for 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 https://www.samtec.com/products/seac and https://www.samtec.com/products/seafc.

3.0 TESTING

3.1 Current Rating: 0.4A Specified Cable Rating
3.2 Voltage Rating: 120 VAC
3.3 Operating Temperature Range: Coax Cable**:** -40°C to +125°C; Twinax Cable: -25°C to +105°C
3.4 Operating Humidity Range: up to 95% (Per EIA-364-31)
3.5 Electrical:

ITEM	TEST CONDITION	REQUIREMENT	STATUS
Withstanding Voltage	EIA-364-20 (No Flashover, Sparkover, or Breakdown)	360 VAC	Pass
Insulation Resistance	EIA-364-21	1,000 MΩ	Pass
Contact Resistance (LLCR)	EIA-364-23	Δ 15 mΩ (Samtec defined)/ No damage	Pass

3.6 Mechanical:

ITEM	TEST CONDITION	RESULT	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 Nanosecond Event Detection: EIA-364-87	Visual Inspection: No Damage LLCR: Δ 15 mΩ No Events	Pass
Mechanical Shock	EIA-364-27 100 G, 6 milliseconds, Half Sine wave, 12.3 fps, 3 shocks/direction, 3 axis (18 total shocks) Nanosecond Event Detection: EIA-364-87	Visual Inspection: No Damage LLCR: Δ 15 mΩ No Events	Pass
Normal Force	EIA-364-04	30 grams minimum for gold interface	Pass

3.7 Environmental:

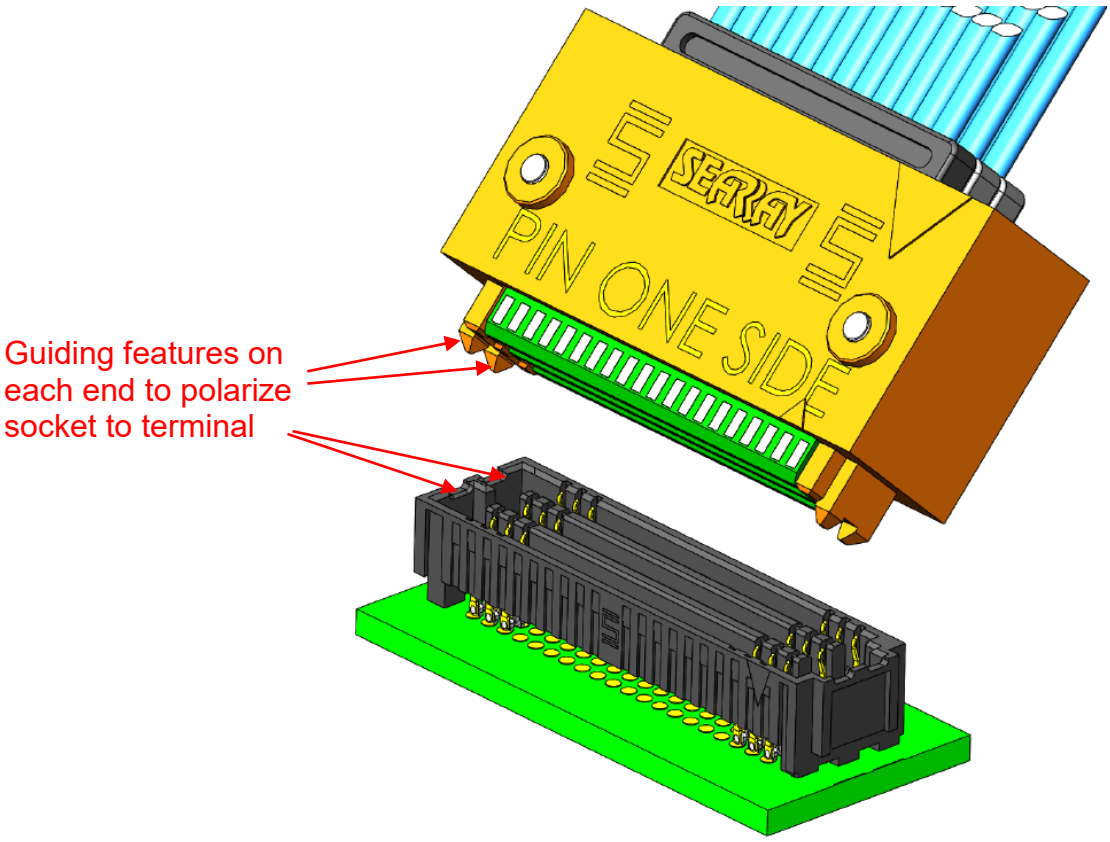
ITEM	TEST CONDITION	RESULT	STATUS
Thermal Shock	EIA-364-32 Thermal Cycles: 100 (30 minute dwell) Hot Temp: 85°C Cold Temp: -55°C Hot/Cold Transition: Immediate	Visual Inspection: No Damage LLCR: Δ 15 mΩ DWV: 360 VAC IR: 45,000 MΩ	Pass
Thermal Aging (Temp Life)	EIA-364-17 Test Condition 4 @ 105°C Condition B for 250 hours	Visual Inspection: No Damage LLCR: Δ 15 mΩ	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: 360 VAC IR: 45,000 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

4.0 MATED SYSTEM

Mated view information can be found at link below:
http://suddendocs.samtec.com/prints/seafc%20to%20seac%20mated%20document.pdf

Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

5.0 POLARIZING FEATURES



6.0 HIGH SPEED PERFORMANCE

6.1 Based on a 7 dB insertion loss

Assembly		-7 dB Frequency
SEAC-030-06-10.0-TU-TU	Inner Path	8.5 GHz
	Outer Path	4.5 GHz
SEAC-030-06-39.4-TU-TU	Inner Path	3.5 GHz
	Outer Path	3.0 GHz
SEAC-030-06-09.8-TU-TU-2	Inner Path	12.0 GHz
	Outer Path	10.0 GHz
SEAC-030-06-39.4-TU-TU-2	Inner Path	9.5 GHz
	Outer Path	8.5 GHz

(For other SI data, please see Samtec series webpage)

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

Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

7.0 PROCESSING RECOMMENDATIONS - For more information, please see below:

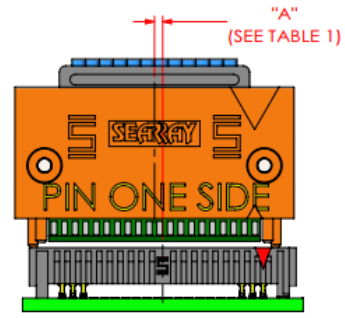
- SEAX-DV: Processing Recommendations Document

7.1 Mating Alignment Requirements:

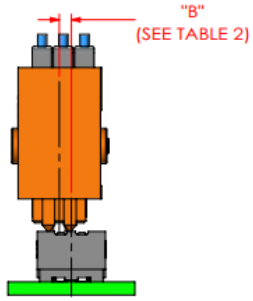
7.1.1 Allowable initial linear misalignment.

TABLE 1		
ROWS	"A"	
	W/O GP	W/T GP
-04	.042 [1.07]	.090 [2.29]
-06	.039 [0.99]	.090 [2.29]
-08	.039 [0.99]	.090 [2.29]
-10	.039 [0.99]	.090 [2.29]

TABLE 2		
ROWS	"B"	
	W/O GP	W/T GP
-04	.040 [1.00]	.090 [2.29]
-06	.057 [1.45]	.090 [2.29]
-08	.043 [1.09]	.090 [2.29]
-10	.043 [1.09]	.090 [2.29]



INITIAL X AXIS LINEAR MISALIGNMENT

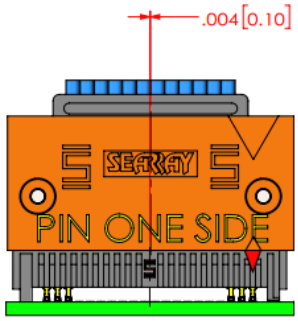


INITIAL Y AXIS LINEAR MISALIGNMENT

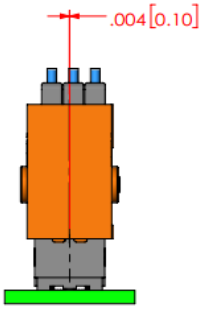
NON APPLICABLE

INITIAL Z AXIS LINEAR MISALIGNMENT

7.1.2 Allowable final linear misalignment.



FINAL X AXIS LINEAR MISALIGNMENT



FINAL Y AXIS LINEAR MISALIGNMENT

SEE 4.0 MATED VIEWS

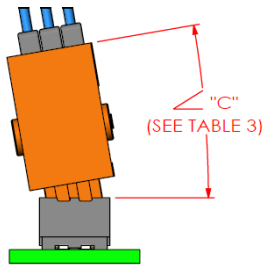
FINAL Z AXIS LINEAR MISALIGNMENT

Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

7.2 Mating Angle Requirements

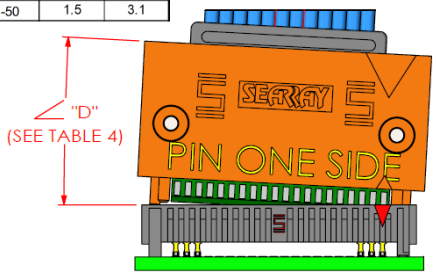
7.2.1 Allowable initial angular misalignment

TABLE 3	
OPTION	"C" = DEGREES
W/O GP	10.0
W/T GP	19.0



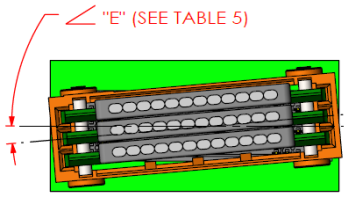
INITIAL X AXIS ANGULAR MISALIGNMENT

TABLE 4		
NO OF POS	"D" = DEGREES	
	W/T GP	W/O GP
-20	3.9	7.7
-30	2.5	5.1
-40	1.9	3.7
-50	1.5	3.1



INITIAL Y AXIS ANGULAR MISALIGNMENT

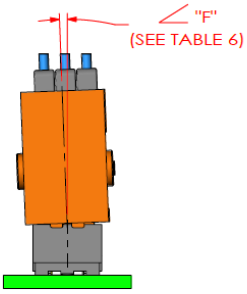
TABLE 5		
NO OF POS	"E" = DEGREES	
	W/T GP	W/O GP
-20	3.9	7.7
-30	2.5	5.1
-40	1.9	3.7
-50	1.5	3.1



INITIAL Z AXIS ANGULAR MISALIGNMENT

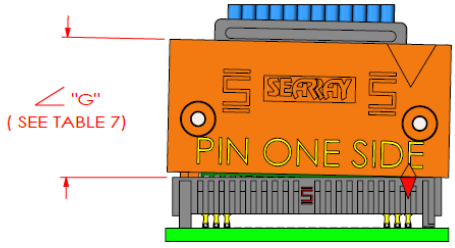
7.2.2 Allowable final angular misalignment

TABLE 6	
ROWS	"F" = DEGREES
-04	3.2
-06	2.1
-08	1.7
-10	1.4



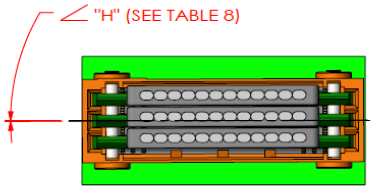
FINAL X AXIS ANGULAR MISALIGNMENT

TABLE 7		
NO OF POS	"G" = DEGREES	
	W/T GP	W/O GP
-20	1.20	0.60
-30	0.79	0.39
-40	0.58	0.29
-50	0.46	0.23



FINAL Y AXIS ANGULAR MISALIGNMENT

TABLE 8	
NO OF POS	"H" = DEGREES
-20	0.31
-30	0.20
-40	0.15
-50	0.12



FINAL Z AXIS ANGULAR MISALIGNMENT

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

7.4 Stencil Thickness: The stencil thickness is .006” (0,15 mm).

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

7.6 Solder Screen Printing Process:

7.6.1 Complete solder pad coverage is critical. The recommended aperture size of .035" (0,89mm) is intentionally larger than the pad to ensure that the solder charge comes into contact with the solder paste. If this does not occur, proper wetting will not be achieved (see Fig. 7.7.3). 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.

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

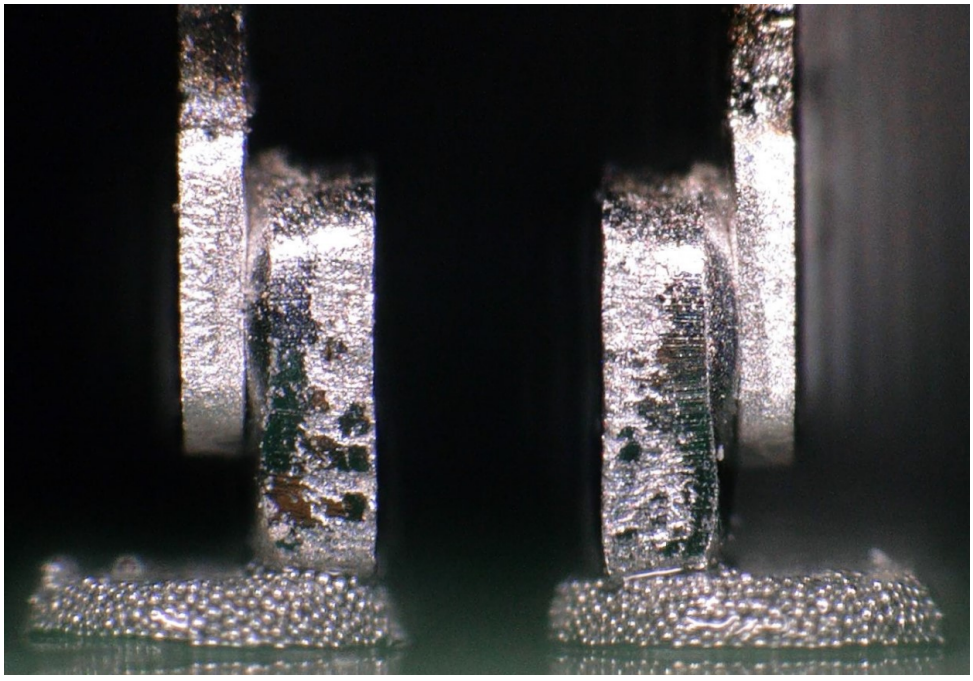


Fig. 7.7.3 - Solder charge location relative to solder print. Notice good contact between solder charges and solder paste.

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 Thermal Profile: 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.

Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

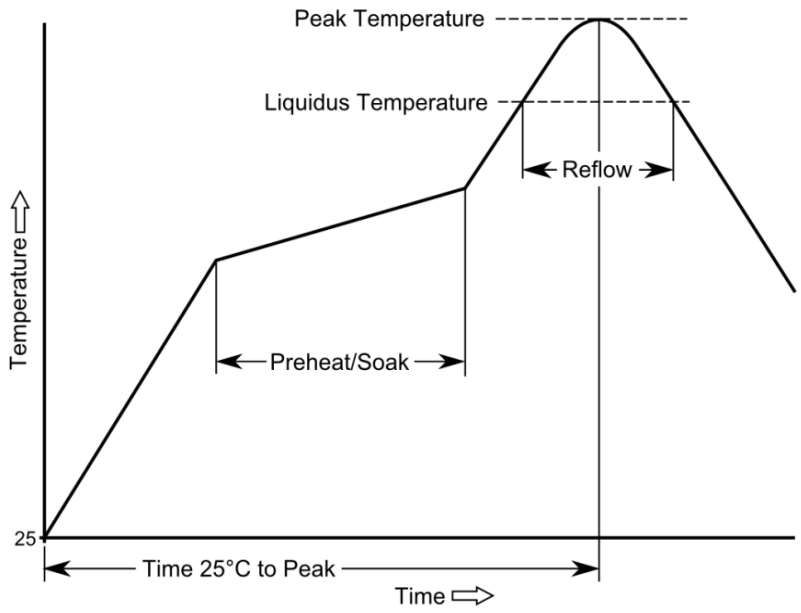
Samtec Recommended Temperature Profile Ranges (SMT)

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.



7.8.1

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.

7.9 Rework Guidelines: Samtec recommends following these rework guidelines as needed: Grid Array Rework Guidelines

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

7.10 Handling:

7.10.1 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.

7.10.2 Avoid resting the connector on the solder charges except during final placement onto the board.

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

7.10.4 Avoid touching the solder charges.

7.10.5 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.

7.11 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.

For more detailed processing information, please visit the Technical Library on the SEAF Series Technical Specification page: http://www.samtec.com/technical-specifications/Default.aspx?SeriesMaster=SEAF

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**

Series: SEAFC / SEAC .050” (1,27 mm) SEARAY™ High Density, High Speed Array Socket/Cable Assembly

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.**