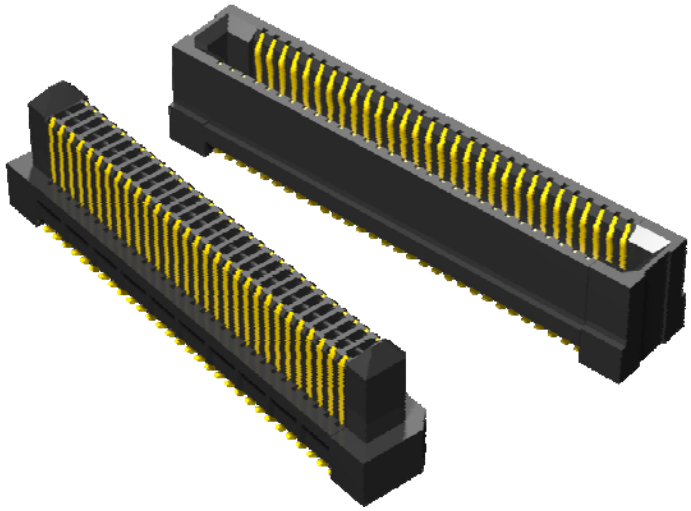
Series: ERM8/ERF8; EDGE RATE HEADER/SOCKET



1.0 SCOPE

1.1 This document is intended to provide electrical, mechanical, environmental and also process data to assist in the proper use and application of the ERM8 and ERF8 Series Edge Rate .8mm pitch connector set.

2.0 ELECTRICAL

2.1 Dielectric Withstanding Voltage, DWV, per EIA-364-20
2.1.1 800 VAC Maximum Breakdown; 200 VAC Working voltage

2.2 Insulation Resistance, IR, per EIA-364-21
2.2.1 > 50,000 MΩ

2.3 Low Level Contact Resistance, LLCR, per EIA-364--23
2.3.1 21.4 mΩ Max.

2.4 Current Carrying Capacity for a 30°C temp rise, CCC, per EIA-364-70
2.4.1 1.8A/contact with 6 adjacent contacts powered

3.0 MATERIALS

3.1 Insulator Material
3.1.1 Black Liquid Crystal Polymer

3.2 Contact
3.2.1 Beryllium Copper (ERF8) and Phosphor Bronze (ERM8)

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4.0 MECHANICAL

4.1 Operational Temperature
- 4.1.1 – 55°C to +125°C

4.2 Mating/Unmating forces, per EIA-364-13
- 4.2.1 SIZE: 7mm, 10 Position
  - 4.2.1.1 Maximum Mating Force: 2.9 Pounds
  - 4.2.1.2 Minimum Unmating Force: 0.5 Pounds
- 4.2.2 SIZE: 7mm, 30 Position
  - 4.2.2.1 Maximum Mating Force: 6.2 Pounds
  - 4.2.2.2 Minimum Unmating Force: 2.5 Pounds
- 4.2.3 SIZE: 7mm, 75 Position
  - 4.2.3.1 Maximum Mating Force: 16.2 Pounds
  - 4.2.3.2 Minimum Unmating Force: 6.5Pounds
- 4.2.4 SIZE:10mm, 10 Position
  - 4.2.4.1 Maximum Mating Force: 2.2 Pounds
  - 4.2.4.2 Minimum Unmating Force: 0.7 Pounds
- 4.2.5 SIZE:10mm, 30 Position
  - 4.2.5.1 Maximum Mating Force: 5.8 Pounds
  - 4.2.5.2 Minimum Unmating Force: 1.8 Pounds
- 4.2.6 SIZE:10mm, 75 Position
  - 4.2.6.1 Maximum Mating Force: 14.7 Pounds
  - 4.2.6.2 Minimum Unmating Force: 6.5 Pounds

4.3 Durability after 100 cycles per EIA-364-23
- 4.3.1 Δ LLCR: 1.5 mΩ Max.

4.4 Normal Force per EIA-364-04
- 4.4.1 59.5 grams minimum @ 0.009” deflection

5.0 ENVIRONMENTAL

5.1 Thermal Aging per EIA-364-17
- 5.1.1 Post Thermal Aging Inspection: No Damage
- 5.1.2 Post Thermal Δ Low Level Contact Resistance: 5.1 mΩ Max.
- 5.1.3 Post Thermal Dielectric Withstanding Voltage: 880 VAC Breakdown; 200 VAC Working Voltage
- 5.1.4 Post Thermal Insulation Resistance: 100,000 MΩ
- 5.1.5 Test Conditions
  - 5.1.5.1 Test condition 4 at 105°C
  - 5.1.5.2 Test time condition B for 250 hours.

5.2 Cyclic Humidity per EIA-364-31
- 5.2.1 Post Humidity Inspection: No Damage
- 5.2.2 Post Humidity Δ Low Level Contact Resistance: 8.3 mΩ Max., 3.2 mΩ Max
- 5.2.3 Post Humidity Dielectric Withstanding Voltage: 800 VAC Breakdown; 200 VAC Working Voltage
- 5.2.4 Post Humidity Insulation Resistance: >100,000 MΩ

5.2.5 Test Conditions
5.2.5.1 Test Temperature: +25°C to +65°C
5.2.5.2 Relative Humidity: 90 to 95%
5.2.5.3 Test Duration: 10 Days

5.3 Thermal Shock per EIA-364-32
5.3.1 Post Thermal Shock Inspection: No Damage
5.3.2 Post Thermal Shock Δ Low Level Contact Resistance: 1.7 mΩ Max.
5.3.3 Post Thermal Shock Dielectric Withstanding Voltage: 800 VAC Breakdown; 200 VAC Working Voltage
5.3.4 Post Thermal Shock Insulation Resistance: >25,000 MΩ
5.3.5 Test Conditions
5.3.5.1 # Thermal Cycles: 100
5.3.5.2 Hot Temperature: +85°C +3/-0°C
5.3.5.3 Cold Temperature: -55°C +0/-3°C
5.3.5.4 Dwell/Configuration: 30 Minutes/extreme
5.3.5.5 Hot/Cold Transition: Immediate

5.4 Gas Tight per EIA-364-36
5.4.1 Post Gas Tight Δ Low Level Contact Resistance: 15.1 mΩ Max.
5.4.2 Test Conditions
5.4.2.1 Gas Exposure: Nitric Acid Vapor
5.4.2.2 Exposure Duration: 60 Minutes +/- 5 Minutes
5.4.2.3 Drying Temperature: 50°C +/- 3°C
5.4.2.4 Measurements: Within one hour of exposure

5.5 Mechanical Shock per EIA-364-27
5.5.1 Post Mechanical Shock Inspection: No Damage
5.5.2 Post Mechanical Shock Δ Low Level Contact Resistance: 28.4 mΩ Max.
5.5.3 Post Mechanical Shock Dielectric Withstanding Voltage: 900 VAC
5.5.4 Post Mechanical Shock Insulation Resistance: >25,000 MΩ
5.5.5 Discontinuities/logic events > 50nS: Passed/none observed
5.5.6 Test Conditions
5.5.6.1 Peak Value: 100 G
5.5.6.2 Duration: 6 mSec.
5.5.6.3 Waveform: Half Sine
5.5.6.4 # Shocks/Direction: 3 Shocks/3 Axes (18 Total)

5.6 Random Vibration per EIA-364-28
5.6.1 Post Vibration Examination: No Damage
5.6.2 Post Vibration Δ Low Level Contact Resistance: 6.9 mΩ Max.
5.6.3 Post Vibration Dielectric Withstanding Voltage: 900 VAC
5.6.4 Post Vibration Insulation Resistance: >25,000 MΩ
5.6.5 Discontinuities/logic events > 50nS: Passed/none observed
5.6.6 Test Conditions
5.6.6.1 Test Condition: Test Condition V, Letter “B”
5.6.6.2 Frequency: 50 to 2000 Hz
5.6.6.3 Duration: 2 Hours/Axis, 3 Axes Total
5.6.6.4 g's: 7.56 g rms

NOTE: THE LLCR INDICATED ABOVE IS OUT OF SPEC FOR SAMTEC’S USUAL REQUIREMENT

Series: ERM8/ERF8; EDGE RATE HEADER/SOCKET

6.0 HIGH FREQUENCY PERFORMANCE

6.1 Empirical Boundaries on Performance with Sinusoidal Signals

6.1.1 DV configuration, readings based on -3db insertion loss point.

6.1.2 System Impedance: 50Ω and 100Ω for Single-Ended and Differential Pair respectively.

6.1.3 For complete test information, click HERE

6.2 Vertical Surface Mount - Single-ended

Standard configuration, single-ended signaling			
Stack Height	**Configuration**	**Signaling**	**Performance**
7mm	Standard	Single-Ended	10.5 GHz**
10mm	Standard	Single-Ended	8.0 GHz*
16mm	Standard	Single-Ended	5.5 GHz*

* Performance date includes effects of a non-optimized PCB.
**Test board losses de-embedded from performance data.

6.3 Vertical Surface Mount – Differential

Standard configuration, differential pair signaling			
Stack Height	**Configuration**	**Signaling**	**Performance**
7mm	Standard	Differential	11.0 GHz**
10mm	Standard	Differential	8.0 GHz*
16mm	Standard	Differential	5.0 GHz*

* Performance date includes effects of a non-optimized PCB.
**Test board losses de-embedded from performance data.

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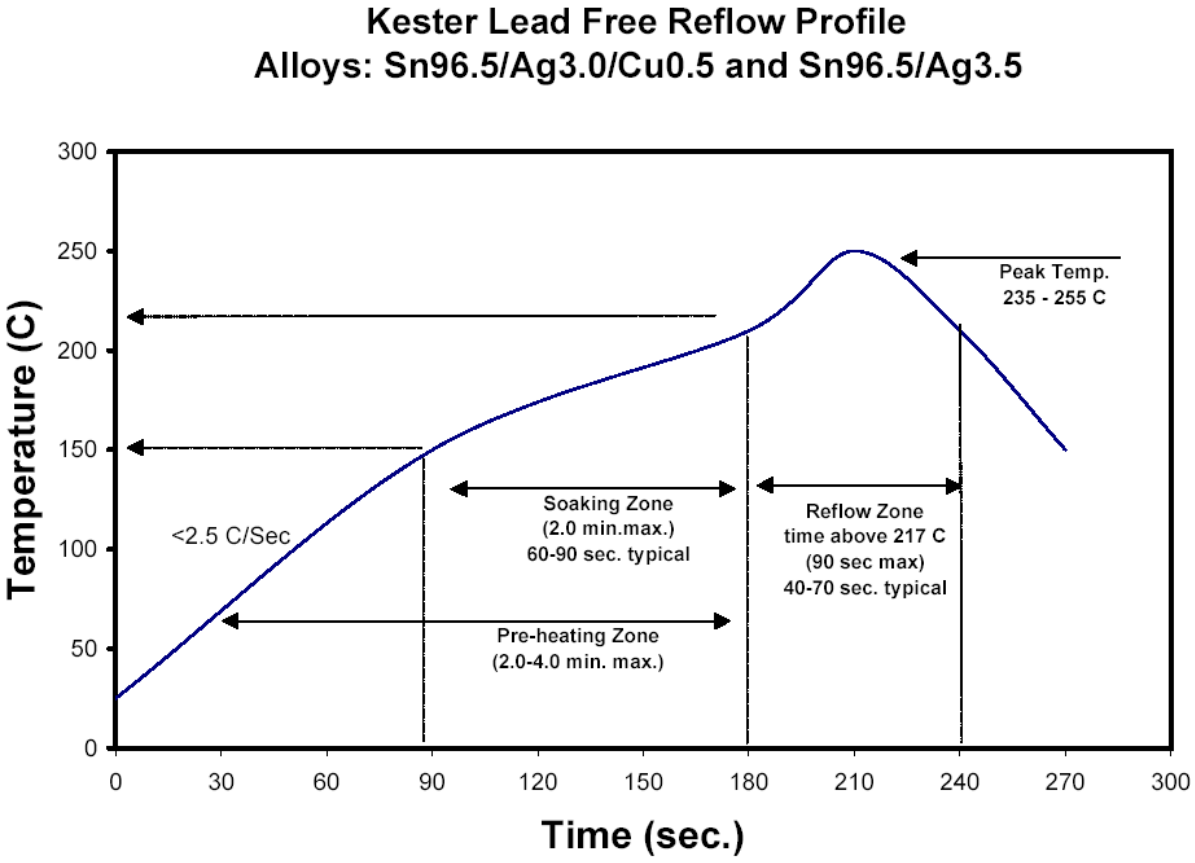
7.0 Handling

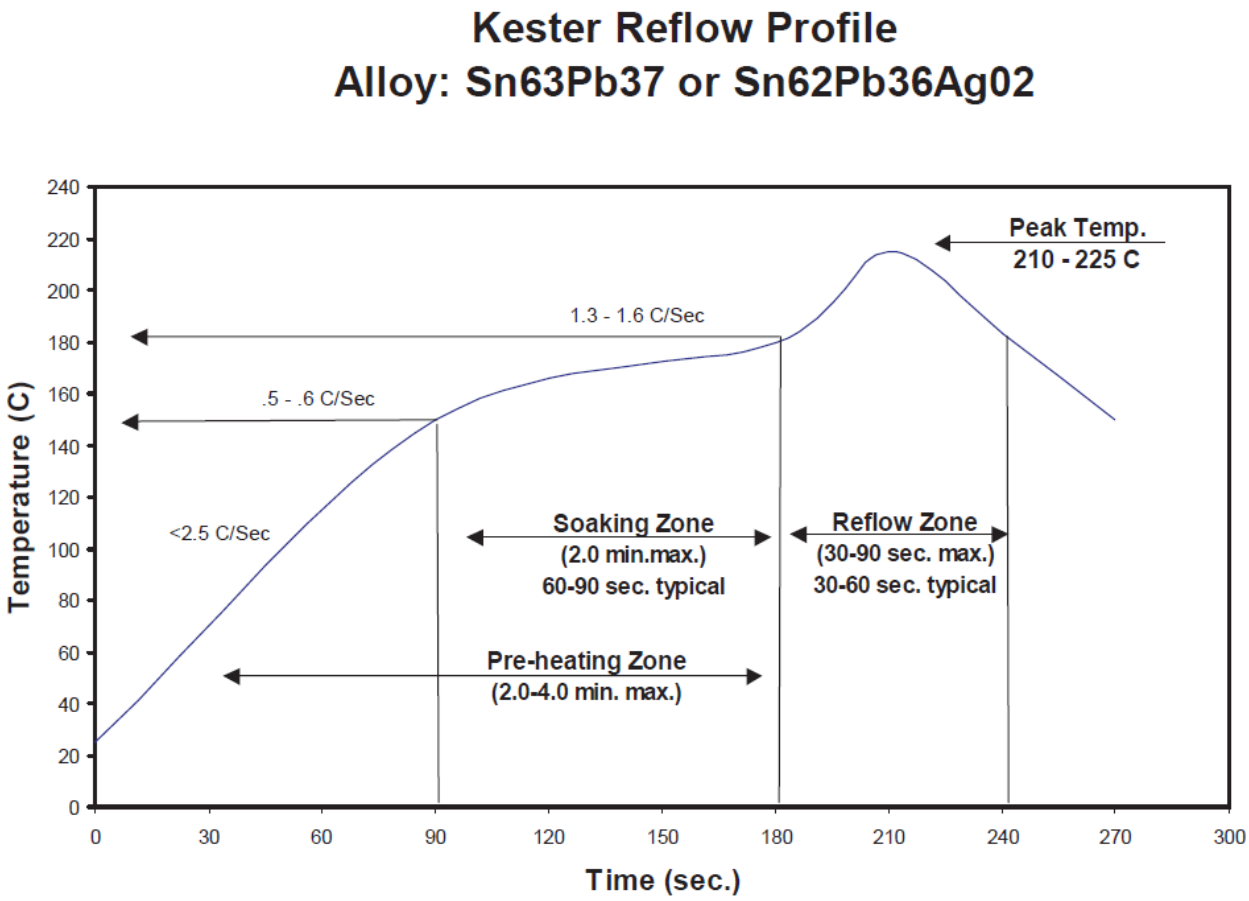
7.1 Care should be taken when handling with fibrous gloves or wipes. Since the tips of the terminals are slightly exposed, the material could snag as shown below:

8.0 PROCESSING, LEAD-FREE



Series: ERM8/ERF8; EDGE RATE HEADER/SOCKET

9.0 PROCESSING, Sn63/Pb37



10.0 Multi Connector Processing Placement Limitations

10.1 When using multiple connectors on a printed circuit board, care must be taken to ensure proper alignment. Mated pairs of ERM8 and ERF8 Series Edge Rate connectors can be misaligned by no more than .006" (0.15mm) in the length and width directions.

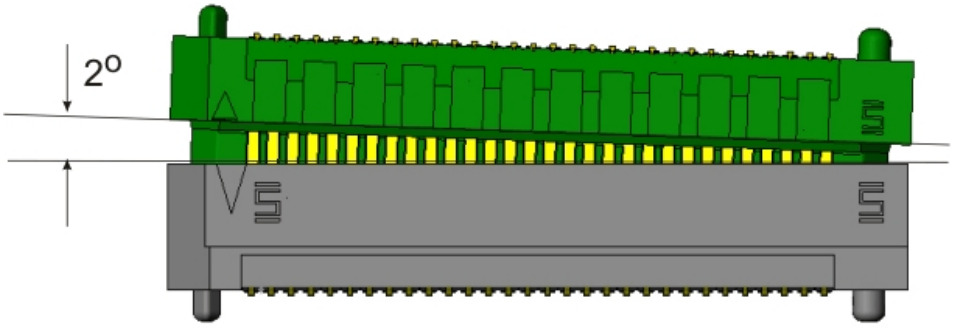
10.2 For applications requiring more than two connectors per board, please contact Samtec's Interconnect Processing group at ipg@samtec.com

10.3 Minimum spacing shall be dictated by circuit routing best practices and/or a .125" (3.17mm) wide rework keep out perimeter.

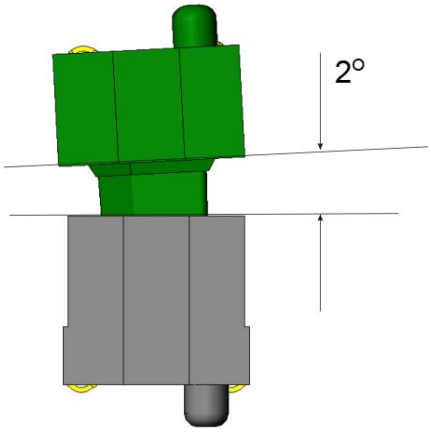
Series: ERM8/ERF8; EDGE RATE HEADER/SOCKET

11.0 Multi Connector processing

11.1 Constrained and Free Floating Board Alignment



Connector Side View



Connector End View