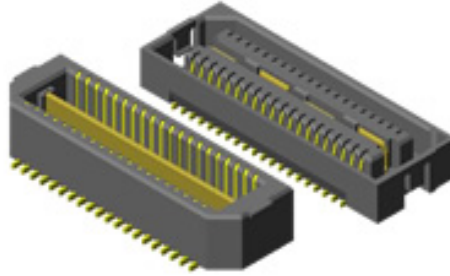


Series: **QSE/QTE** High Speed Socket/Terminal 0.8 mm pitch



1.0 SCOPE

- 1.1 This specification covers performance, tests and quality requirements for the Samtec QSE/QTE High Speed Socket/Terminal 0.8 mm pitch Series in a 5 mm height configuration (unless otherwise noted).

2.0 ELECTRICAL

- 2.1 Dielectric Withstanding Voltage, DWV, per EIA-364-20
 - 2.1.1 675 VAC mated with QTE
- 2.2 Insulation Resistance, IR, per EIA-364-21
 - 2.2.1 > 5,000 Meg Ohms --- PASS
- 2.3 Low Level Contact Resistance, LLCR, per EIA-364--23
 - 2.3.1 17.4 milli Ohms Average - Contact System
 - 2.3.2 2.4 milli Ohms Average - GND System
- 2.4 Current Carrying Capacity for a 30°C temp rise, CCC, per EIA-364-70
 - 2.4.1 2.0 A (6 Contacts in series)
 - 2.4.2 9.5 A - GND System

3.0 MATERIALS

- 3.1 Insulator Material
 - 3.1.1 LCP
- 3.2 Contact
 - 3.2.1 Copper Alloy with Gold over 50 microlInches Nickel

4.0 MECHANICAL

- 4.1 Operational Temperature
 - 4.1.1 -55 degrees C to 125 degrees C
- 4.2 Mating/Unmating forces, per EIA-364-13
 - 4.2.1 3.8/4.0 lbs respectively - One Bank
 - 4.2.2 10.2/10.6 lbs respectively - Three Banks
 - 4.2.3 18.0/18.9 lbs respectively - Five Banks
- 4.3 Durability after 800 cycles, per EIA-364-23
 - 4.3.1 LLCR change < 15.0 milli-Ohms (L- plating) --- PASS
- 4.4 Durability after 4800 cycles, per EIA-364-23
 - 4.4.1 LLCR change < 15.0 milli-Ohms (H- plating) --- PASS
- 4.5 Normal Force at 0.006 inches deflection, per EIA-364-04
 - 4.5.1 90 gr.

Series: **QSE/QTE** High Speed Socket/Terminal 0.8 mm pitch

5.0 ENVIRONMENTAL

5.1 Thermal Aging per EIA-364-17

- 5.1.1 No Evidence of Physical Damage seen --- PASS
- 5.1.2 Change in Contact LLCR not to exceed +15.0 milli-Ohms (L- plating) --- PASS
- 5.1.3 Change in Ground LLCR not to exceed +5.0 milli-Ohms (L- plating) --- PASS
- 5.1.4 Change in Contact LLCR After Thermal and Gas Tight not to exceed +15.0 milli-Ohms (L- plating) --- PASS
- 5.1.5 Change in Ground LLCR After Thermal and Gas Tight not to exceed +5.0 milli-Ohms (L- plating) --- PASS
- 5.1.6 Test Conditions
 - 5.1.6.1 105 degrees C
 - 5.1.6.2 300 hours

5.2 Cyclic Humidity per EIA-364-31

- 5.2.1 No Evidence of Physical Damage seen --- PASS
- 5.2.2 Insulation Resistance > 1000 Meg Ohms --- PASS
- 5.2.3 No evidence of Breakdown or Arcing when applying 675 VAC --- PASS
- 5.2.4 Samples pre-conditioned at 50 degrees C and change in Contact LLCR not to exceed +15.0 mOhm (L- plating) --- PASS
- 5.2.5 Test Conditions
 - 5.2.5.1 Cyclic 25 degrees C to 65 degrees C for 240 hours, at 90% to 95% RH
 - 5.2.5.2 Time Condition "B" (240 hours) for Method III, excluding sub-cycle 7A and 7B

5.3 Thermal Shock per EIA-364-32

- 5.3.1 No Evidence of Physical Damage seen --- PASS
- 5.3.2 Change in Signal LLCR not to exceed +15 mOhm --- PASS
- 5.3.3 Change in GND LLCR not to exceed +5 mOhm --- PASS
- 5.3.4 Test Conditions
 - 5.3.4.1 # Thermal Cycles: 5
 - 5.3.4.2 Hot Temperature: 105 degrees C +3 degrees C/-0 degrees C
 - 5.3.4.3 Cold Temperature: -55 degrees C +0 degrees C/-3 degrees C
 - 5.3.4.4 Dwell/Configuration: 30 Minutes, Mated and Mounted
 - 5.3.4.5 Hot/Cold Transition 2 to 3 minutes

5.4 Gas Tight per EIA-364-36

- 5.4.1 Signal Contact LLCR 17.1 milli Ohms - Contact System
- 5.4.2 Signal Contact Delta LLCR < 15.0 milli-Ohms (L- plating) --- PASS
- 5.4.3 Ground Contact LLCR, 2.5 milOhms
- 5.4.4 Ground Contact delta LLCR, < 5.0 milli-Ohms (L- plating) --- PASS

5.5 Mechanical Shock per EIA-364-27

- 5.5.1 No Evidence of Physical Damage seen --- PASS
- 5.5.2 No Contact Interruptions greater than 1.0 microSec --- PASS
- 5.5.3 Test Conditions
 - 5.5.3.1 Test Condition: Test Condition "A"
 - 5.5.3.2 Peak Value: 50 G
 - 5.5.3.3 Duration: 11.0 milliSec
 - 5.5.3.4 Waveform: Half Sine
 - 5.5.3.5 # Shocks/Direction 3 Shocks/3 Axes (18 total)

Series: [QSE/QTE](#) High Speed Socket/Terminal 0.8 mm pitch

5.6 Vibration per EIA-364-28

- 5.6.1 No Evidence of Physical Damage seen --- PASS
- 5.6.2 Change in Signal LLCR not to exceed +15 mOhm --- PASS
- 5.6.3 Change in GND LLCR not to exceed +5 mOhm --- PASS
- 5.6.4 No Contact Interruptions greater than 1.0 microSec --- PASS
- 5.6.5 Test Conditions
 - 5.6.5.1 Test Condition: Test condition V, Random
 - 5.6.5.2 Frequency: 50 to 2000 Hz
 - 5.6.5.3 PSD: 0.04
 - 5.6.5.4 Duration: 1 Hour/Axis, 3 Axes Total
 - 5.6.5.5 G's: 7.3 G rms

5.7 Solderability

- 5.7.1 Processing to printed circuit boards at 230, 260 and 280 degrees C produced no blistering, distortion or discoloration. --- PASS

5.8 Solvent Resistance, per EIA-364-11

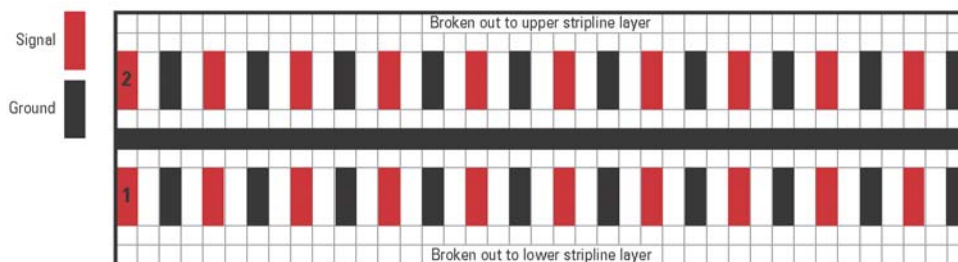
- 5.8.1 No Evidence of discoloration, degradation or physical damage to the plastic housing. --- PASS

6.0 HIGH FREQUENCY PERFORMANCE

6.1 Empirical Boundaries on Performance with Sinusoidal Signals

- 6.1.1 All configurations readings based on using -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](#)

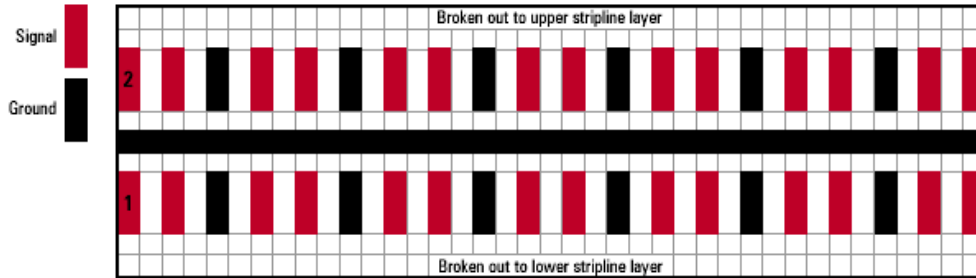
6.2 Standard configuration single-ended signaling, 1:1



Standard configuration, single-ended signaling					
Socket	Header	Mated height	Configuration	Signaling	Performance
QSE-XXX-01-X-D-A	QTE-XXX-01-D-A	5mm	Standard	Single-ended	9 GHz
QSE-XXX-01-X-D-A	QTE-XXX-03-D-A	11mm	Standard	Single-ended	6.5 GHz
QSE-XXX-01-X-D-A	QTE-XXX-04-D-A	16mm	Standard	Single-ended	5 GHz

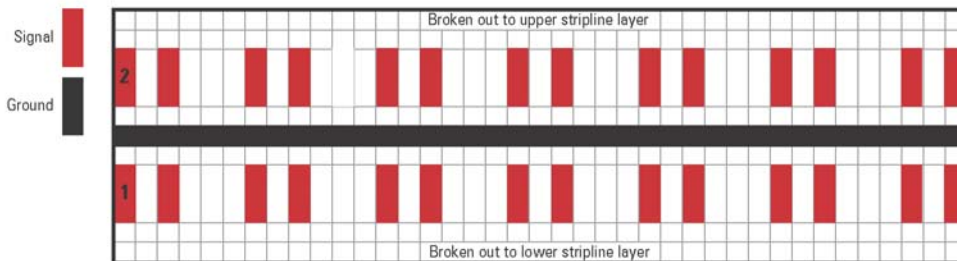
Series: **QSE/QTE** High Speed Socket/Terminal 0.8 mm pitch

6.3 Standard configuration, differential pair signaling



Standard configuration, differential signaling pair					
Socket	Header	Mated height	Configuration	Signaling	Performance
QSE-XXX-01-X-D-A	QTE-XXX-01-D-A	5mm	Standard	Differential	8 GHz
QSE-XXX-01-X-D-A	QTE-XXX-03-D-A	11mm	Standard	Differential	6.5 GHz
QSE-XXX-01-X-D-A	QTE-XXX-04-D-A	16mm	Standard	Differential	5 GHz

6.4 Differential Configuration, Differential Pair Signaling



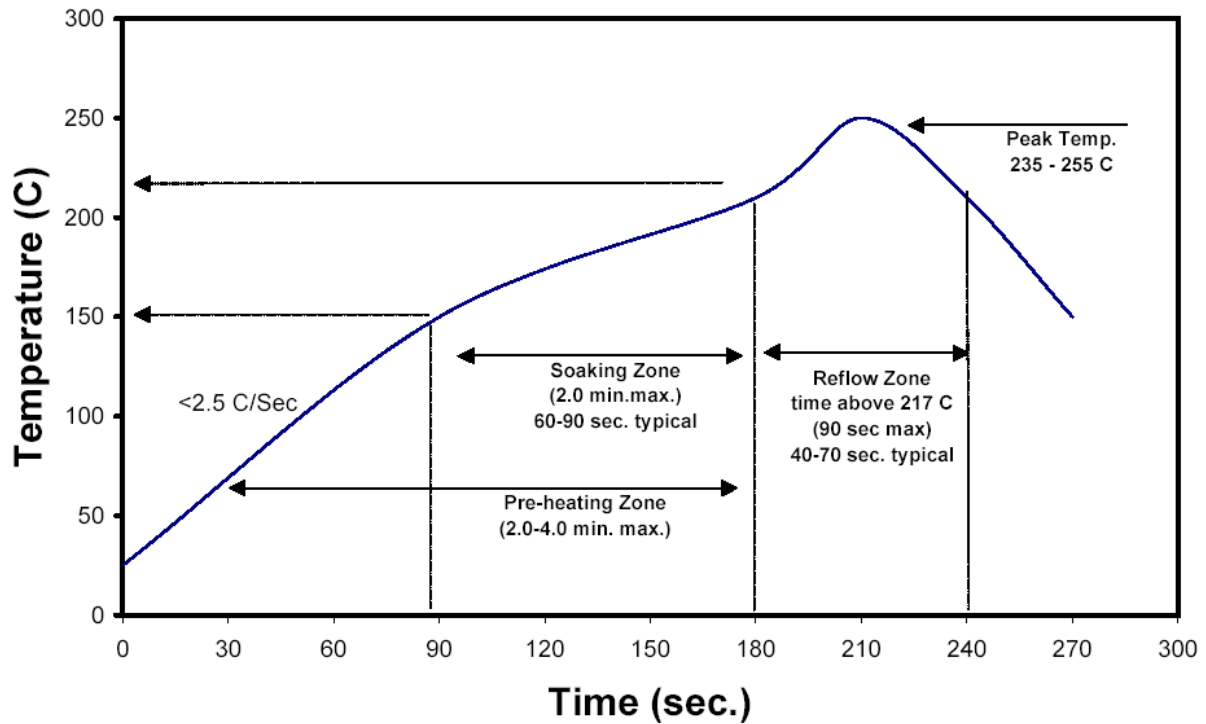
Differential configuration, differential signaling pair					
Socket	Header	Mated height	Configuration	Signaling	Performance
QSE-XXX-01-X-D-DP-A	QTE-XXX-01-X-D-DP-A	5mm	Differential	Differential	8.5 GHz
QSE-XXX-01-X-D-DP-A	QTE-XXX-03-X-D-DP-A	11mm	Differential	Differential	9.5 GHz
QSE-XXX-01-X-D-DP-A	QTE-XXX-04-X-D-DP-A	16mm	Differential	Differential	8 GHz

For additional information, contact Samtec Signal Integrity Group sig@samtec.com
or 1-(800)-726-8329.

Series: **QSE/QTE** High Speed Socket/Terminal 0.8 mm pitch

7.0 PROCESSING, LEAD-FREE

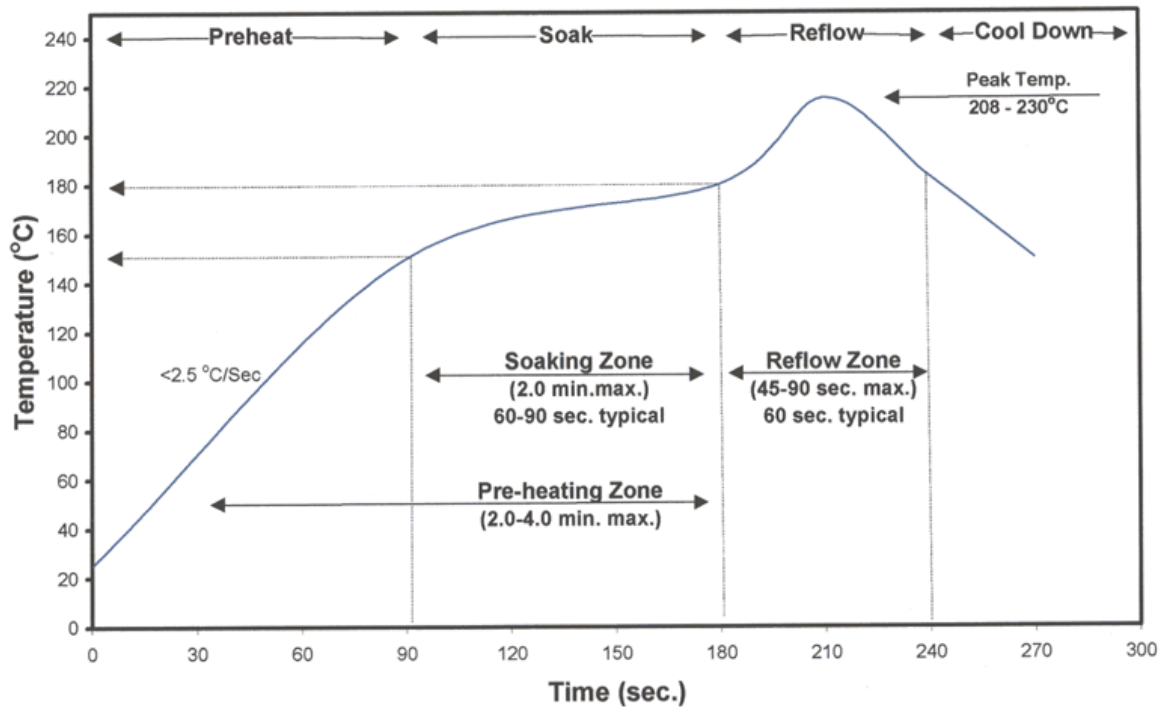
Kester Lead Free Reflow Profile Alloys: Sn96.5/Ag3.0/Cu0.5 and Sn96.5/Ag3.5



Series: [QSE/QTE](#) High Speed Socket/Terminal 0.8 mm pitch

8.0 PROCESSING, Sn63Pb37

**Standard Solder Paste Reflow Profile
for Kester Paste Containing
Alloys: Sn63Pb37 or Sn62Pb36Ag02**



9.0 Multi Connector Processing Placement Limitations – See Following Figures

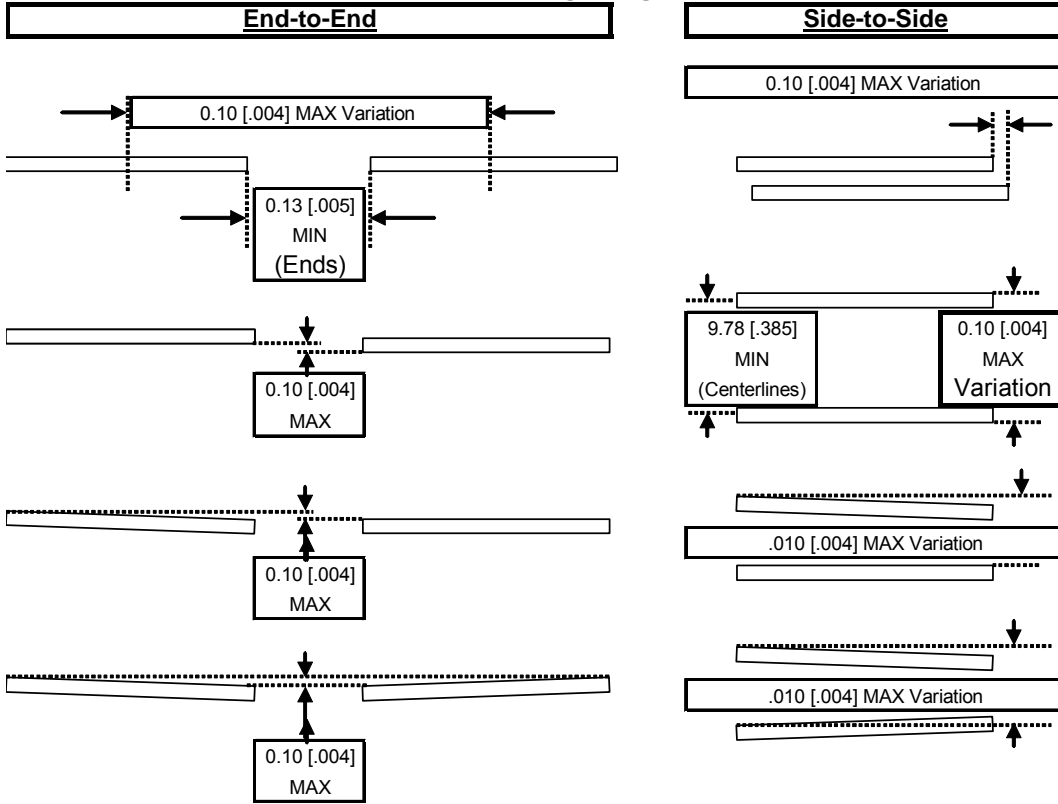
9.1 When using multiple connectors on a printed circuit board, care must be taken to ensure proper alignment and the following figures illustrate the placement limitations for these connectors, but do not take into account the spacing required for additional components, or automatic placement / rework equipment.

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

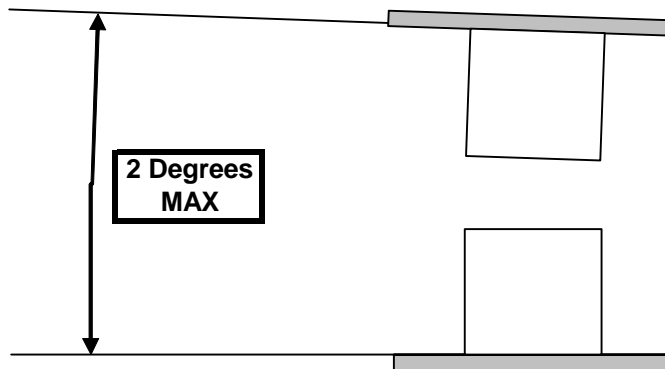
Series: QSE/QTE High Speed Socket/Terminal 0.8 mm pitch

9.3 Multi Connector processing – Constrained Board Alignment

Constrained Board Alignment-multi connectors processed to boards
 CTE differences between PCB / fixturing during re-flow
 must be considered regarding connector locations



Constrained Board Alignment-multi connectors processed to boards

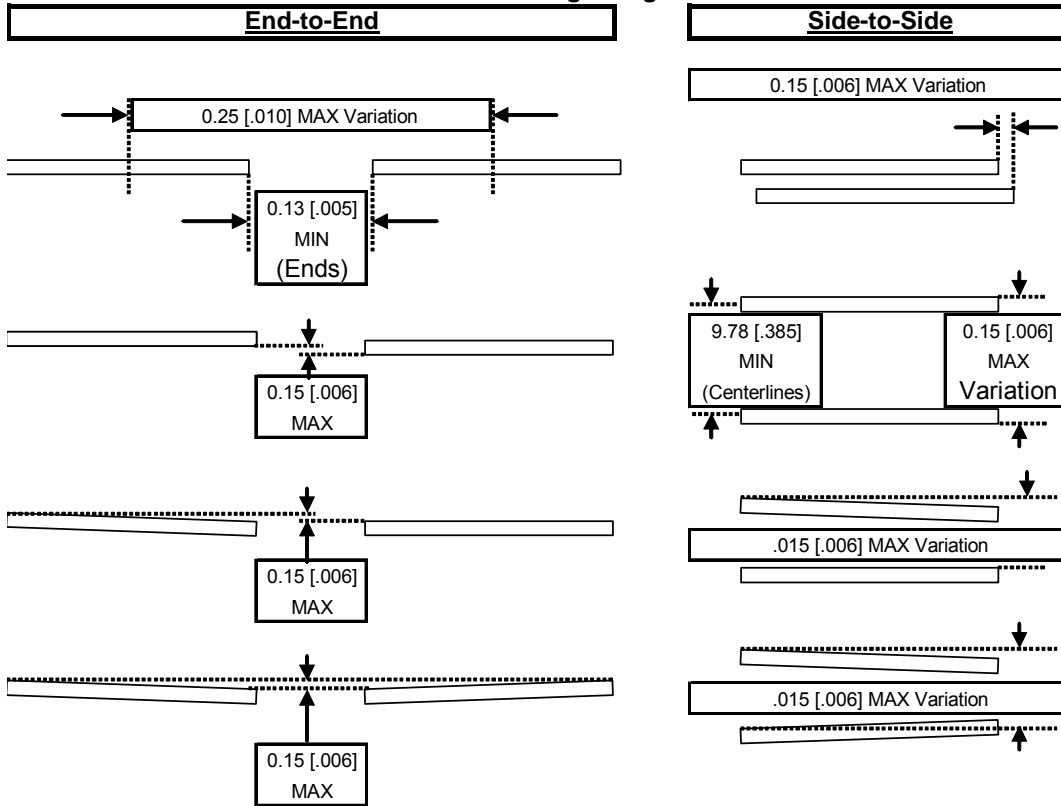


Series: QSE/QTE High Speed Socket/Terminal 0.8 mm pitch

9.4 Multi Connector Processing - Free Floating Alignment

Free Floating Board Alignment-multi connectors processed to boards

CTE differences between PCB / fixturing during re-flow
must be considered regarding connector locations



Free Floating Board Alignment-multi connectors processed to boards

