No. FQI 05-0245 A

PLX TECHNOLOGY INC

RELIABILITY REPORT

DEVICE PART NUMBER: PCI9056-BA66BI G (Pb-Free)

PACKAGE TYPE: 256 PBGA

06/June/2005

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1.0 PURPOSE

To perform pre-conditioning MSL-3 (30°C/60%),CR@260°CX3
New FAI for SMI-ED Substrate (Part# :Q40AT5012460) .To evaluate the PBGA 31x 31 365L package for PLX TECH customer.

2.0 OBSERVATIONS

2.1 EXTERNAL VISUAL MECHANICAL INSPECTION

2.1.1 No abnormalities noted at external package at x40 magnification for all of the units i.e mold compound surface at initial and after pre-conditioning MSL-3 @CR 260°C .

2.2 ACOUSTIC TOPOGRAPHIC ANALYSIS FOR DELAMINATION/VOIDS

2.2.1 No delamination noted at Die and Substrate initial 0/45 units.

2.2.2 After the post pre-conditioning test MSL- 3,CR @ 260°C no delamination noted at DIE and substrate for all the units. (0/45 units)

2.3 ELECTRICAL TEST

Electrical testing is not required .

3.0 CONCLUSION

The evaluation on PBGA 31x31 365L package for PLX TECH customer using new FAI SMI-ED Substrate (Part # :Q40AT5012460.) passed to meet the preconditioning MSL- 3,CR@ 260°C as per Jedec standard J-STD-020D.

4.0 PRODUCT SUMMARY

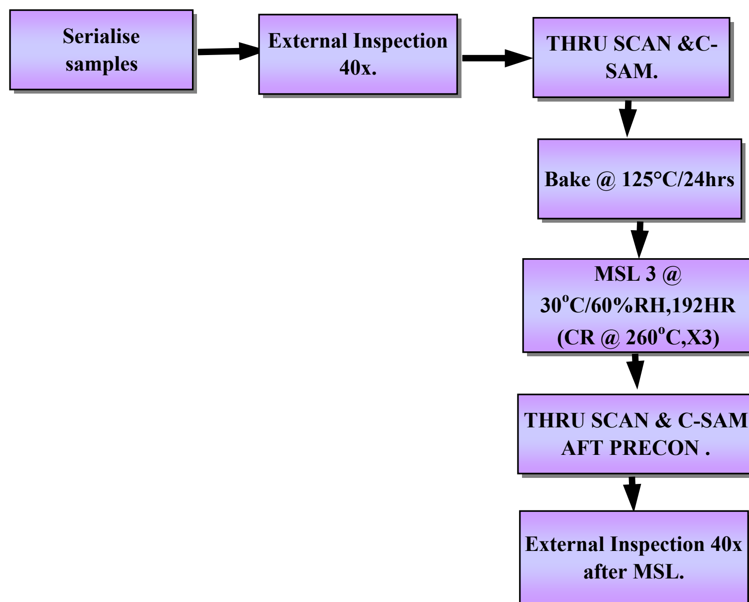
4.1 SUPPLIER INFORMATIONS

SUB-CON D

4.2 BILL OF MATERIALS

PT Number	N-101
Package Type	PBGA 31X31
Device Type	PCI6254 G, 9056-BA66BI G
Lead Count	365L
Wafer Lot	N/A
Pad Size	N/A
Die Size	6.858 x 6.883 MM
Epoxy	ABLEBOND 2000B
Wire Type	1.0 TANAKA AU
Lead Frame Type	SMI-ED : Part #- Q40AT5012460
Mold compound Type	KYOCERA KE-G1250

5.0 RELIABILITY TEST FLOW



6.0 RELIABILITY TEST RESULTS

6.1 TEST RESULTS

TESTS	CONDITION	RESULTS			REMARKS
		VI@ X40 MAG	C-SAM/ S.SIZE	ELEC TEST	
MSL-3	(30°C/60%RH ,192HRS) CR @260°C X3	0/45	0/45	N/A	No delamination noted initial and after Post preconditioning.

VI Criteria : External visual on package at x40

C-SAM Criteria : a) No delamination on the active side of the die.

b) No delamination change >10% on any wirebonding surface of the laminate.

c) No delamination change >10% along the polymer potting or molding compound/ laminate interface for cavity and over-molded packages.

d) No delamination change >10% along the soldermask/ laminate resin interface.

e) No delamination change >10% within the laminate.

f) No delamination/ cracking change >10% through the die attach region.

g) No delamination/ cracking between underfill resin and chip or underfill resin and substrate/ soldermask.

h) No surface-breaking feature delaminated over its entire length. A surface-breaking feature includes leadfingers, laminate, laminate metallization, PTH, eatslugs, etc.

7.0 C-SAM ANALYSIS

TOP SCAN

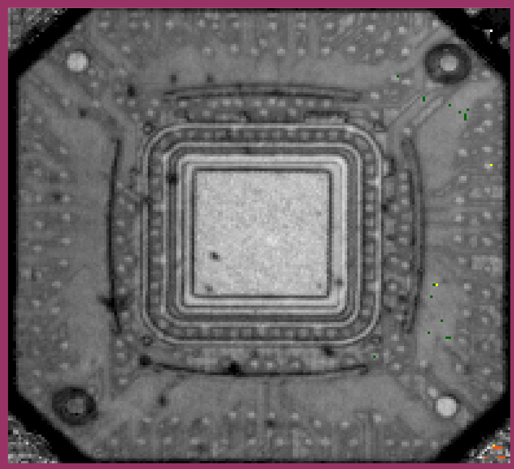


FIGURE 1a: TOP SCAN IMAGE SHOWS NO DELAMINATION AT INITIAL STAGE

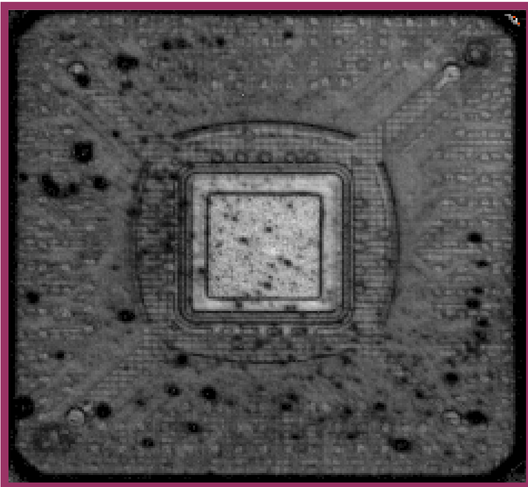


FIGURE 1b: NO DELAMINATION NOTED ON TOP SCAN AFTER MSL 3 CR@260°Cx3 (0/45 UNITS)

THRU SCAN

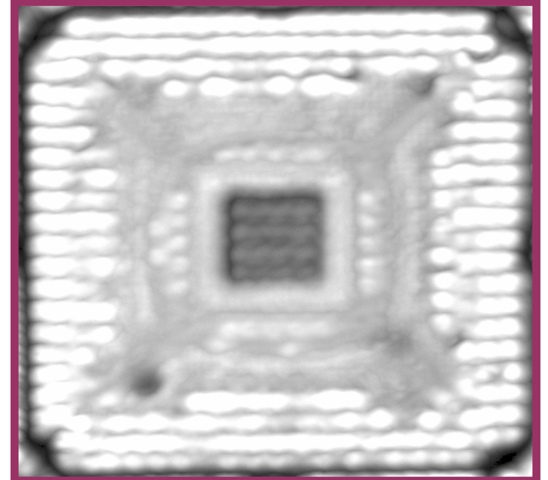


FIGURE 1a: THRU SCAN IMAGE SHOWS NO DELAMINATION AT INITIAL STAGE

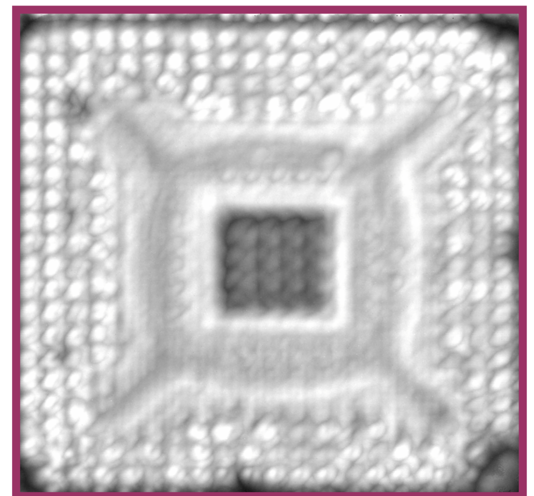
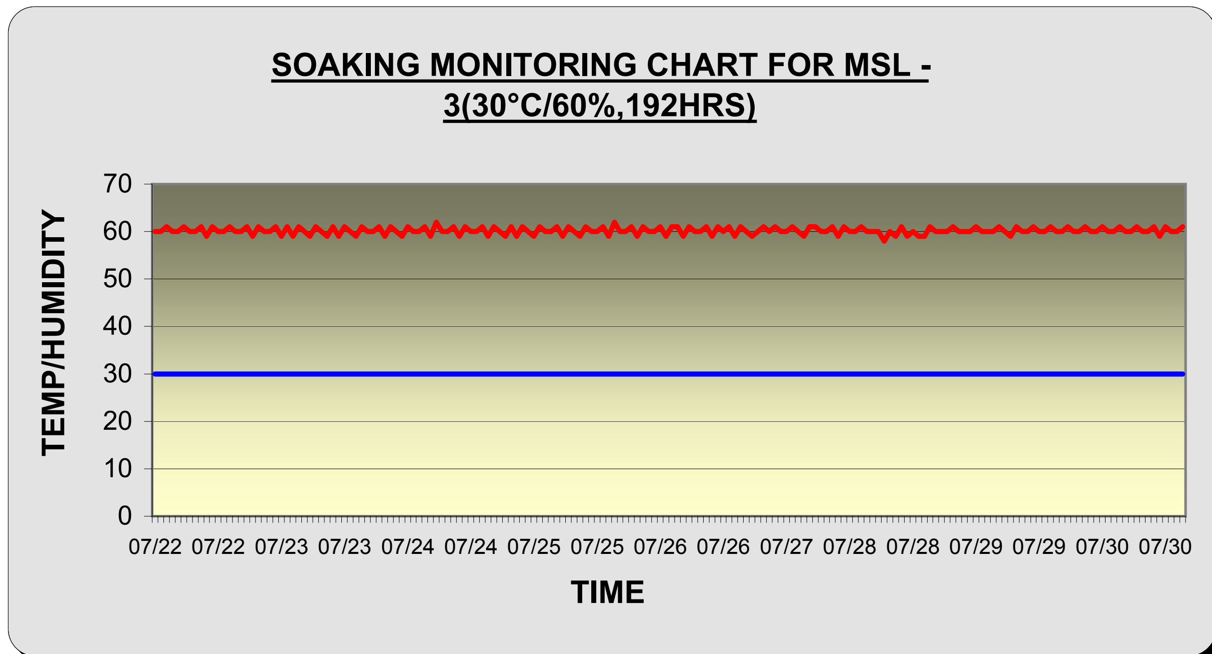


FIGURE 1b: NO DELAMINATION NOTED ON THRU SCAN AFTER MSL 3 CR@260°Cx3 (0/45 UNITS)

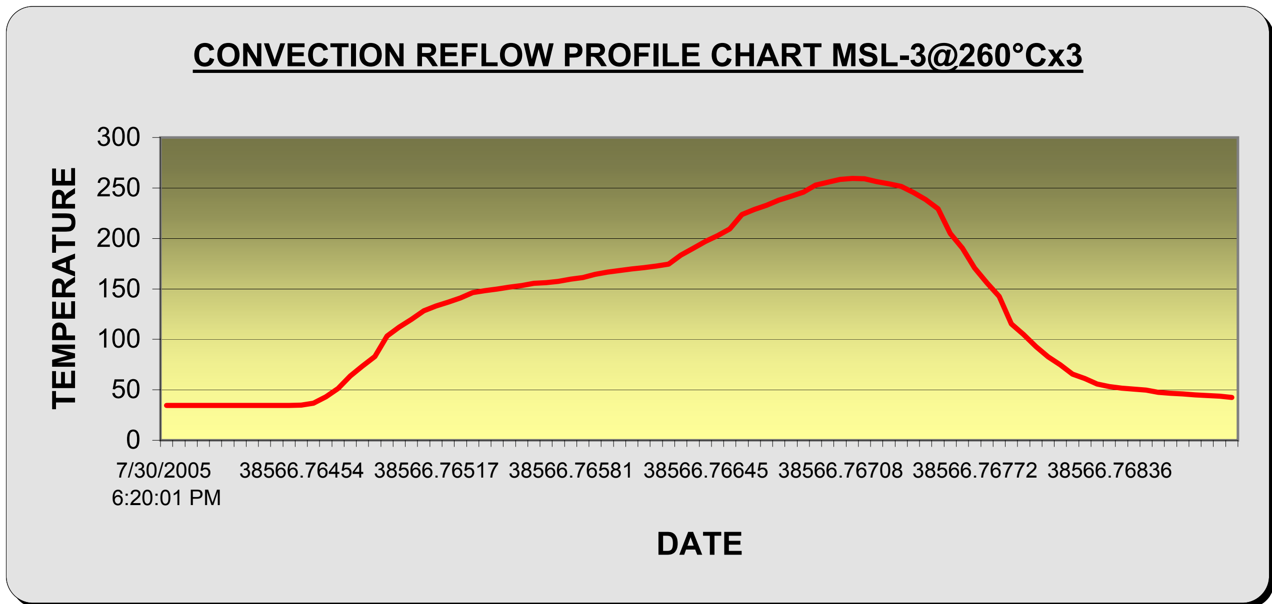
8.0 CHAMBER MONITORING CHARTS

8.1 PRECOND LEVEL 3 SOAKING MONITORING CHART @ 30°C/60%RH,192HRS

No significant abnormalities noted during moisture soaking 30/60 except few interuption due loading/unloading.



9.0 CONVECTION REFLOW PROFILE CHART MSL-3 @260°C.



1)	AVERAGE RAMP-UP RATE (217°C TO PEAK)	:	0.763 °C/SEC
2)	PREHEAT TEMPERATURE 175 (+/-25)°C	:	84.7 SEC
3)	TEMPERATURE MAINTAINED ABOVE 217°C	:	90.2 SEC
4)	TIME WITHIN 5°C OF ACTUAL PEAK TEMPERATURE	:	19.3 SEC
5)	PEAK TEMPERATURE RANGE	:	259.5°C
6)	RAMP-DOWN RATE	:	1.18°C/SEC
7)	TIME 25°C TO PEAK TEMPERATURE	:	3.07 MINUTE