MPC850 / MPC823
PowerQUICC Communications Processor
256 PBGA
Qualification Report

MPC823VR, MPC850VR 256 PBGA Lead Free Reliability Data Summary

MCP860/855T MOS11 357 PBGA ZQ package reliability data with substrate suppliers A, B, and C utilized for qual.

Electrical Characterization

Electrical Characterization 0ºC, 25ºC and 120ºC	
D74838/1K48M	0/5
D74913/1K48M	0/5
D75179/1K48M	0/5
Totals	**0/15**

Moisture Sensitivity Level Characterization

Product / Assembly Site / Lots	**MSL3 / 260ºC**
357 PBGA KLM / 3 assy lots Substrate Supplier A	0 / 72
357 PBGA KLM / 3 assy lots Substrate Supplier B	0 / 66
357 PBGA KLM / 3 assy lots Substrate Supplier C	0 / 65
357 PBGA KLM / 3 assy lots WaferTech	0 / 66
Totals	**0 / 269**

MPC823VR, MPC850VR 256 PBGA Lead Free Reliability Data Summary(cont.)

Temperature Cycle / -65ºC to 150ºC Air to Air with Preconditioning @ MSL3 / 260ºC IR Reflow
Temperature Humidity Bias / 85ºC, 85%R.H., Nominal Bias with Preconditioning @ MSL3 / 260ºC IR Reflow

Stress	Conditions	Read Points	Criteria	Results
Temperature Cycle w/PC Supplier A	MSL3 30°C / 60%RH/260°C IR -65ºC - 150ºC Air to Air	192 hours 500* cycles	0/1 0/1	0/246 0/246
Temperature Humidity & No Bias w/PC Supplier A	MSL3 30°C / 60%RH/260°C IR 85ºC, 85%R.H., 3.3 V	192 hours 1008* hours	0/1 0/1	0/240 0/240
Temperature Cycle w/PC Supplier B	MSL3 30°C / 60%RH/260°C IR -65ºC - 150ºC Air to Air	192 hours 500* cycles	0/1 0/1	0/240 0/240
Temperature Humidity w/ No Bias w/PC Supplier B	MSL3 30°C / 60%RH/260°C IR 85ºC, 85%R.H.	192 hours 1008* hours	0/1 0/1	0/240 0/240
Temperature Cycle w/PC Supplier C	MSL3 30°C / 60%RH/260°C IR -65ºC - 150ºC Air to Air	192 hours 500* cycles	0/1 0/1	0/237 0/237
Temperature Humidity w/ No Bias w/PC Supplier C	MSL3 30°C / 60%RH/260°C IR 85ºC, 85%R.H.	192 hours 1008* hours	0/1 0/1	0/240 0/240

*** Required read point for qualification decision**

MPC850 256 PBGA Cu Wire Qualification at Freescale Kuala Lumpur, Malaysia

Temperature Cycle / -55°C - 125°C Air to Air with Preconditioning @ MSL3/ 260°C		
Lot	400 Cycles	700 Cycles
Lot A	0/80	0/80
Lot B	0/80	0/80
Lot C	0/80	0/80
Totals	0/240	0/240

***QBS to MPC862B 357 PBGA Cu Wire Qualification**

Unbiased HAST / 110°C, 85% RH, 17.7 psia with Preconditioning @ MSL3/ 260°C	
Lot	264 hours
Lot A	0/80
Lot B	0/80
Lot C	0/80
Totals	0/240

*** QBS to MPC862B 357 PBGA Cu Wire Qualification**

MSL3/ 260°C Characterization	
Lot	MSL3/ 260°C
Lot A	0/11
Lot B	0/11
Lot C	0/11
Totals	0/33

*** QBS to MPC862B 357 PBGA Cu Wire Qualification**

Temperature Humidity Bias / 85°C, 85% RH, Nominal Bias with Preconditioning @ MSL3 / 260°C		
Lot	504 Hours	1008 Hours
Lot A	0/80	0/80
Lot B	0/80	0/80
Lot C	0/80	0/80
Totals	0/240	0/240

***QBS to 0.18NVM & 0.25NVM Technology Cu Wire Qualification**

High Temperature Storage Life at 150 °C		
Lot	504 Hours	1008 Hours
Lot A	0/80	0/80
Lot B	0/80	0/80
Lot C	0/80	0/80
Totals	0/240	0/240

***QBS to 0.18NVM & 0.25NVM Technology Cu Wire Qualification**

Revision History:

Revision History			
Revision	Date	Comment	Author
Original	6/16/04	Original MPC823VR and MPC850VR Qualification Report.	Aaron Chapa
A	3/8/05	Updated qual report with 260C reflow temp data.	Aaron Chapa
B	7/17/14	Added MPC850 Cu wire qualification data	Navin Kumar