AEC-Q100G Qualification Results

Objective: **SPC5644AF0MMG3R ATMC Cu Wire Qualification**

Freescale PN: SPC5644AF0MMG3R Part Name: Andorra4M	Customer Name(s): "Varies" PN(s): "Varies"	Plan or Results: See revision history below Revision # & Date:
Technology: CMOS90FG Package: MAPBGA 208 17*17*0.8P1.0 (5253)	Design Engr: Not applicable	QUARTZ Tracking #: 224066
Fab / Assembly / Final Test Sites: FSL-ATMC / FSL-TJN-FM / FSL-KLM-FM	Product Engr: Jeremy Tee - B07476	(Signature/Date shown below may be electronic)
Maskset#: M14X Rev#: 10	GAO(Global Assembly Operation) Engr: Li Jun-B06675 022-85686448	GAO Approval (for DIM/BOM results) Signature & Date: J.Q Wang-R30716 17-Feb-2014
Die Size (in mm) W x L: 7.238 x 8.375 mm	NPI PRQE: Chew Kim Seong-B36347 603-78732723	NPI PRQE Approval Signature & Date: Chew Kim Seong-B36347 17-Feb-2014
Part Operating Temp. Grade: Grade 1 - 40°C to + 125°C	Trace/DateCode: LOT A WEME007YSR00; LOT B WEME0081DT00	CAB Approval Signature & Date: 13221380M 18-Feb-2014
		Customer Approval Signature & Date: May be N/A

TESTS HIGHLIGHTED IN YELLOW WILL BE PERFORMED FOR THIS STUDY

This testing is performed by Freescale Reliability Lab (KLM) unless otherwise noted in the Comments.

GROUP A - ACCELERATED ENVIRONMENTAL STRESS TESTS

Stress Test	Reference	Test Conditions	End Point Requirements	Minimum Sample Size	# of Lots	Total Units including spares	Results Lot ID-(#Rej/SS) NA=Not Applicable	Comments or Generic Data
PC	JESD22-A113 J-STD-020	**Preconditioning (PC) :** PC required for SMDs only. MSL 3 @ 260°C, +5/-0°C	TEST @ RH	All surface mount devices prior to THB, HAST, AC, UHST, TC, PC+PTC and as required per test conditions.			Lot A: 0/77 Lot B: 0/77	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/231 Lot B: 0/231 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/231
THB	JESD22-A101 A110	**Temperature-Humidity-Bias (THB):** PC before THB (for SMDs only): Required THB = 85°C/85%RH for 1008 hrs. Bias = Max Vdd. Timed RO of 48hrs. MAX	TEST @ RH	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77
UHST	JESD22-A102 A118	**Unbiased HAST (UHST):** PC before UHST (for SMDs only): Required UHST = 110°C/85%RH for 264 hrs. *Timed RO of 2-48hrs. MAX*	TEST @ R	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77
TC	JESD22-A104 AEC Q100-Appendix 3	**Temperature Cycle (TC):** PC before TC (for SMDs only): Required TC = -50°C to 150°C for 1000 cycles. For AEC only: WBP after TC on 5 devices from 1 lot; 2 bonds per corner and one mid-bond per side on each device. Record which pins were used.	TEST @ H For AEC: WBP =/> 3 grams	77	2	154	Lot A: 0/77 WP: 0/5, min>3grams Lot B: 0/77	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 WP: 0/5, min>3grams Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77 WP: 0/5, min>3grams
HTSL	JESD22-A103	**High Temperature Storage Life (HTSL):** 150°C for 1008 hrs. *Timed RO = 96hrs. MAX*	TEST @ RH	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77

TEST GROUP B - ACCELERATED LIFETIME SIMULATION TESTS

Stress Test	Reference	Test Conditions	End Point Requirements	Minimum Sample Size	# of Lots	Total Units including spares	Results Lot ID-(#Rej/SS) NA=Not Applicable	Comments or Generic Data
HTOL	JESD22-A108	**High Temperature Operating Life (HTOL):** AEC Ta = 125°C for 1008 hrs. Bias = Max Vdd Devices incorporating NVM shall receive 1X 'NVM endurance preconditioning'(W/E cycling). Test R, H, C after W/E cycling. *Timed RO of 96hrs. MAX*	TEST @ RHC	77	0	0	Not required	
ELFR	AEC Q100-008	**Early Life Failure Rate (ELFR):** AEC Ta = 125°C for 48 hrs. Bias = Max Vdd *Timed RO of 48 hrs MAX*	TEST @ RH	800	0	0	Not required	
EDR	AEC Q100-005	**NVM Endurance, Data Retention, and Operational Life (EDR):** 150°C for 1008 hrs. Devices incorporating NVM shall receive 'NVM endurance preconditioning'(W/E cycling). Test R, H, C after W/E cycling. *Timed RO of 96hrs. MAX*	TEST @ RHC	77	0	0	Not required	

TEST GROUP C - PACKAGE ASSEMBLY INTEGRITY TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments or Generic Data**
WBS	AEC Q100-001	**Wire Bond shear (WBS)**	Cpk = or > 1.67	30 bonds from minimum 5 units	2	10	Lot A: Cpk>1.67 Lot B: Cpk>1.67	
WBP	MilStd883-2011	**Wire Bond Pull (WBP):** Cond. C or D	Cpk = or > 1.67	30 bonds from minimum 5 units	2	10	Lot A: Cpk>1.67 Lot B: Cpk>1.67	
SD	JESD22-B102	**Solderability (SD):** 8hr.(1 hr. for Au-plated leads) Steam age prior to test. If production burn-in is done, samples must also undergo burn-in prior to SD.	>95% lead coverage of critical areas	15	0	0	Not required	
PD	JESD22-B100	**Physical Dimensions(PD):** PD per FSL 98A drawing	Cpk = or > 1.67	10	0	0	Not required	
DIM & BOM		**Dimensional (DIM):** GAO to verify PD results against valid 98A drawing. **BOM Verification (BOM):** GAO to verify qual lot ERF BOM is accurate.					DIM: Not required BOM: Approved	
SBS	AEC-Q100-010	**Solder Ball Shear (SBS):** Performed on all solder ball mounted packages e.g. PBGA, Chip Scale, Micro Lead Frame (but NOT Flip Chip). Two reflow cycles at MSL reflow temperature before shear.	Cpk = or >1.67	10 (5 balls from a min. of 10 devices)	0	0	Not required	
LI	JESD22-B105	**Lead Integrity (LI):** Not required for surface mount devices; Only required for through-hole devices.	No lead breakage or cracks	5 (10 leads from each of 5 parts)	0	0	Not required	

TEST GROUP D - DIE FABRICATION RELIABILITY TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments**
EM		**Electro Migration (EM)**					Not required	The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
TDDB		**Time Dependent Dielectric Breakdown (TDDB)**					Not required	The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
HCI		**Hot Carrier Injection (HCI)**					Not required	The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
SM		**Stress Migration (SM)**					Not required	The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
NBTI		**Negative Bias Temperature Instability (NBTI)**					Not required	The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.

TEST GROUP E - ELECTRICAL VERIFICATION TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments or Generic Data**
TEST	Freescale 48A	**Pre- and Post Functional / Parametrics (TEST):** For AEC, test software shall meet requirements of AEC-Q100-007. Testing performed to the limits of device specification in temperature and limit value.	0 Fails	All	All	All	See Results Summary	This action refers to Final Testing of all qualification units.
HBM	AEC-Q100-002 / JESD22-A114E Jan 2007	**ElectroStatic Discharge/** **Human Body Model Classification (HBM):** Test @ 500/1000/1500/2000 Volts For AEC, see AEC-Q100-002 for classification levels.	TEST @ RH 2KV min.	3 units per Voltage level	0	0	Not required	
MM	AEC-Q100-003 or JESD22	**ElectroStatic Discharge/** **Machine Model Classification m(MM):** Test @ 50/100/200 Volts For AEC, see AEC-Q100-003 for classification levels.	TEST @ RH 200V min.	3 units per Voltage level	0	0	Not required	
CDM	AEC-Q100-011	**ElectroStatic Discharge/** **Charged Device Model Classification (CDM):** Test @ 250/500/750 Volts For AEC, see AEC-Q100-011 for classification levels. ***Timed RO of 96hrs MAX.***	TEST @ RH All pins =/> 500V For AEC, Corner pins =/> 750V;	3 units per Voltage level	0	0	Not required	
LU	JESD78 plus AEC-Q100-004 for AEC	**Latch-up (LU):** Test per JEDEC JESD78 with the AEC-Q100-004 requirements for AEC. Ta= Maximum operating temperature Vsupply = Maximum operating voltage	TEST @ RH	6	0	0	Not required	

ED	AEC-Q100-009, Freescale 48A spec	**Electrical Distribution (ED)**	TEST @ RHC For AEC, Cpk target > 1.67	30	1	30	Pass: Cpk>1.67	Comparison between ATMC_Cu and ATMC_Au wire units at T0.
FG	For AEC, AEC-Q100-007	**Fault Grading (FG)**	FG shall be = or > 90% for qual units				FG%= No change	Production Test requirement: 98% w/o Iddq 95% w/Iddq 100% TYPE2 faults detection
CHAR	For AEC, AEC-Q003	**Characterization (CHAR):** Ony performed on new technologies and part families per AEC Q003.					Not required	
GL (for information only)	For AEC, AEC-Q100-006	**Electro-Thermally Induced Gate Leakage (GL):** 155℃, 2.0 min, +400/-400 V Per AEC Q100 Rev G, this test is performed for information only. *Timed RO of 96 hrs MAX.* *For all failures, perform unbiased bake (4hrs/125℃, or 2hrs/150℃) and retest; recovered units are GL failures.*	TEST @ R	6	0	0	Not required	Freescale does not plan Gate Leakage testing in alignment with the expected revision to AEC Q100 that will eliminate this "for information only" stress.

Product Information

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
224066	FSL-ATMC / 10M14X / C90FG	Andorra4M_SPC5644AF0MMG3R	7.238 x 8.375 mm	FSL-TJN-FM	MAP208 17*17 (5253)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Generic Data List:

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
224100	FSL-ATMC / 20N72D / C90FG	Komodo_SPC5675KFF0MMS2	8.481 x 8.996 mm	FSL-TJN-FM	MAP 473 19*19*1.6 P0.8 (004J)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu
224256	TSMC14 / 0N61C / C90FG	Fado_SPC5668GK0VMGR	6.850 x 6.850 mm	FSL-TJN-FM	MAP208 17*17 (5253)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Devices Qualify By Similarity

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
NA	FSL-ATMC / M35Y / C90FG	Monaco1.5M_SPC5634MF2MMG80	4.877 x 5.937	FSL-TJN-FM	MAP208 17*17 (5253)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Revision	Date	Comments	Author
Rev O	15-Feb-14	Qualification results update	Chew Kim Seong

AEC-Q100G Qualification Results

Objective: **SPC5675KFF0VMM2 ATMC Cu Wire Qualification**						
Freescale PN: SPC5675KFF0VMM2 Part Name: Komodo		Customer Name(s): "Varies" PN(s): "Varies"			Plan or Results: See revision history below Revision # & Date:	
Technology: CMOS90FG Package: MAPBGA 257 14*14*0.7P0.8 (004Q)		Design Engr: Not applicable			QUARTZ Tracking #: 224095	
Fab / Assembly / FSL-ATMC / FSL-TJN-FM / FSL-KLM-FM Final Test Sites:		Product Engr: Chia Kenn Yong-B32025				(Signature/Date shown below may be electronic)
Maskset#: N72D Rev#: 20		GAO(Global Assembly Li Jun-B06675 Operation) Engr: 022-85686448			GAO Approval (for J.Q Wang-R30716 DIM/BOM results) 17-Feb-2014 Signature & Date:	
Die Size (in mm) 8.481 x 8.996 mm W x L		NPI PRQE: Chew Kim Seong-B36347 603-78732723			NPI PRQE Approval Signature Chew Kim Seong-B36347 & Date: 17-Feb-2014	
Part Operating Temp. Grade: Grade 1 - 40℃ to + 125℃		Trace/DateCode:	LOT A WEME007ZJY0 0 (ASE Substrate)	LOT B WEME007YSL0 0 (UMTC Substrate)	LOT C	CAB Approval 13221380M Signature & Date: 11-Apr-2014
					Customer Approval May be N/A Signature & Date:	

TESTS HIGHLIGHTED IN YELLOW WILL BE PERFORMED FOR THIS STUDY

This testing is performed by Freescale Reliability Lab (KLM) unless otherwise noted in the Comments.

GROUP A - ACCELERATED ENVIRONMENTAL STRESS TESTS

Stress Test	Reference	Test Conditions	End Point Requirements	Minimum Sample Size	# of Lots	Total Units including spares	Results Lot ID-(#Rej/SS) NA=Not Applicable	Comments or Generic Data
PC	JESD22-A113 J-STD-020	**Preconditioning (PC) :** PC required for SMDs only. MSL 3 @ 260℃, +5/-0℃	TEST @ RH	All surface mount devices prior to THB, HAST, AC, UHST, TC, PC+PTC and as required per test conditions.			Lot A: 0/77 Lot B: 0/77	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/231 Lot B: 0/231 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/231
THB	JESD22-A101 A110	**Temperature-Humidity-Bias (THB):** PC before THB (for SMDs only): Required THB = 85℃/85%RH for 1008 hrs. Bias = Max Vdd. Timed RO of 48hrs. MAX	TEST @ RH	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77
UHST	JESD22-A102 A118	**Unbiased HAST (UHST):** PC before UHST (for SMDs only): Required UHST = 110℃/85%RH for 264 hrs. *Timed RO of 2-48hrs. MAX*	TEST @ R	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77
TC	JESD22-A104 AEC Q100-Appendix 3	**Temperature Cycle (TC):** PC before TC (for SMDs only): Required TC = -50℃ to 150℃ for 1000 cycles. For AEC only: WBP after TC on 5 devices from 1 lot; 2 bonds per corner and one mid-bond per side on each device. Record which pins were used.	TEST @ H For AEC: WBP =/> 3 grams	77	2	154	Lot A: 0/77 WP: 0/5, min>3grams Lot B: 0/77	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 WP: 0/5, min>3grams Lot B: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77 WP: 0/5, min>3grams
HTSL	JESD22-A103	**High Temperature Storage Life (HTSL):** 150℃ for 1008 hrs. *Timed RO = 96hrs. MAX*	TEST @ RH	77	0	0	Pass	**Generic Data** Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM, Q224100: Lot A: 0/77 Fado_SPC5668GK0VMGR, (N61C), MAP208 17*17, FSL_TJN_FM, Q224256: Lot A: 0/77

TEST GROUP B - ACCELERATED LIFETIME SIMULATION TESTS

Stress Test	Reference	Test Conditions	End Point Requirements	Minimum Sample Size	# of Lots	Total Units including spares	Results Lot ID-(#Rej/SS) NA=Not Applicable	Comments or Generic Data
HTOL	JESD22-A108	**High Temperature Operating Life (HTOL):** AEC Ta = 125℃ for 1008 hrs. Bias = Max Vdd Devices incorporating NVM shall receive 1X 'NVM endurance preconditioning'(W/E cycling). Test R, H, C after W/E cycling. *Timed RO of 96hrs. MAX*	TEST @ RHC	77	0	0	Not required	
ELFR	AEC Q100-008	**Early Life Failure Rate (ELFR):** AEC Ta = 125℃ for 48 hrs. Bias = Max Vdd *Timed RO of 48 hrs MAX*	TEST @ RH	800	0	0	Not required	
EDR	AEC Q100-005	**NVM Endurance, Data Retention, and Operational Life (EDR):** 150℃ for 1008 hrs. Devices incorporating NVM shall receive 'NVM endurance preconditioning'(W/E cycling). Test R, H, C after W/E cycling. *Timed RO of 96hrs. MAX*	TEST @ RHC	77	0	0	Not required	

TEST GROUP C - PACKAGE ASSEMBLY INTEGRITY TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments or Generic Data**
WBS	AEC Q100-001	**Wire Bond shear (WBS)**	Cpk = or > 1.67	30 bonds from minimum 5 units	2	10	Lot A: Cpk>1.67 Lot B: Cpk>1.67	
WBP	MilStd883-2011	**Wire Bond Pull (WBP):** Cond. C or D	Cpk = or > 1.67	30 bonds from minimum 5 units	2	10	Lot A: Cpk>1.67 Lot B: Cpk>1.67	
SD	JESD22-B102	**Solderability (SD):** 8hr.(1 hr. for Au-plated leads) Steam age prior to test. If production burn-in is done, samples must also undergo burn-in prior to SD.	>95% lead coverage of critical areas	15	0	0	Not required	
PD	JESD22-B100	**Physical Dimensions(PD):** PD per FSL 98A drawing	Cpk = or > 1.67	10	0	0	Not required	
DIM & BOM		**Dimensional (DIM):** GAO to verify PD results against valid 98A drawing. **BOM Verification (BOM):** GAO to verify qual lot ERF BOM is accurate.					DIM: Not required BOM: Approved	
SBS	AEC-Q100-010	**Solder Ball Shear (SBS):** Performed on all solder ball mounted packages e.g. PBGA, Chip Scale, Micro Lead Frame (but NOT Flip Chip). Two reflow cycles at MSL reflow temperature before shear.	Cpk = or >1.67	10 (5 balls from a min. of 10 devices)	0	0	Not required	
LI	JESD22-B105	**Lead Integrity (LI):** Not required for surface mount devices; Only required for through-hole devices.	No lead breakage or cracks	5 (10 leads from each of 5 parts)	0	0	Not required	

TEST GROUP D - DIE FABRICATION RELIABILITY TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments**
EM		**Electro Migration (EM)**						The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
TDDB		**Time Dependent Dielectric Breakdown (TDDB)**						The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
HCI		**Hot Carrier Injection (HCI)**						The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
SM		**Stress Migration (SM)**						The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.
NBTI		**Negative Bias Temperature Instability (NBTI)**						The data, test method, calculations and internal criteria should be available to the customer upon request for new technologies.

TEST GROUP E - ELECTRICAL VERIFICATION TESTS								
Stress Test	**Reference**	**Test Conditions**	**End Point Requirements**	**Minimum Sample Size**	**# of Lots**	**Total Units including spares**	**Results** Lot ID-(#Rej/SS) NA=Not Applicable	**Comments or Generic Data**
TEST	Freescale 48A	**Pre- and Post Functional / Parametrics (TEST):** For AEC, test software shall meet requirements of AEC-Q100-007. Testing performed to the limits of device specification in temperature and limit value.	0 Fails	All	All	All	See Results Summary	This action refers to Final Testing of all qualification units.
HBM	AEC-Q100-002 / JESD22-A114E Jan 2007	**ElectroStatic Discharge/** **Human Body Model Classification (HBM):** Test @ 500/1000/1500/2000 Volts For AEC, see AEC-Q100-002 for classification levels.	TEST @ RH 2KV min.	3 units per Voltage level	0	0	Not required	
MM	AEC-Q100-003 or JESD22	**ElectroStatic Discharge/** **Machine Model Classification m(MM):** Test @ 50/100/200 Volts For AEC, see AEC-Q100-003 for classification levels.	TEST @ RH 200V min.	3 units per Voltage level	0	0	Not required	

CDM	AEC-Q100-011	**ElectroStatic Discharge/** **Charged Device Model Classification (CDM):** Test @ 250/500/750 Volts For AEC, see AEC-Q100-011 for classification levels. ***Timed RO of 96hrs MAX.***	TEST @ RH All pins =/> 500V For AEC, Corner pins =/> 750V;	3 units per Voltage level	0	0	Not required	
LU	JESD78 plus AEC-Q100-004 for AEC	**Latch-up (LU):** Test per JEDEC JESD78 with the AEC-Q100-004 requirements for AEC. Ta= Maximum operating temperature Vsupply = Maximum operating voltage	TEST @ RH	6	0	0	Not required	
ED	AEC-Q100-009, Freescale 48A spec	**Electrical Distribution (ED)**	TEST @ RHC For AEC, Cpk target > 1.67	30	0	0	Pass	**Generic Data** Comparison between ATMC_Cu and ATMC_Au wire units at T0. Komodo_SPC5675KFF0MMS2 , (N72D), MAP 473 19*19, FSL-TJN-FM: Cpk > 1.67
FG	For AEC, AEC-Q100-007	**Fault Grading (FG)**	FG shall be = or > 90% for qual units				FG%= No change	Production Test requirement: 98% w/o Iddq 95% w/Iddq 100% TYPE2 faults detection
CHAR	For AEC, AEC-Q003	**Characterization (CHAR):** Ony performed on new technologies and part families per AEC Q003.					Not required	
GL (for information only)	For AEC, AEC-Q100-006	**Electro-Thermally Induced Gate Leakage (GL):** 155°C, 2.0 min, +400/-400 V Per AEC Q100 Rev G, this test is performed for information only. *Timed RO of 96 hrs MAX.* *For all failures, perform unbiased bake (4hrs/125°C, or 2hrs/150°C) and retest; recovered units are GL failures.*	TEST @ R	6	0	0	Not required	Freescale does not plan Gate Leakage testing in alignment with the expected revision to AEC Q100 that will eliminate this "for information only" stress.

Product Information

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
224095	FSL-ATMC / 20N72D / C90FG	Komodo_SPC5675KFF0VMM2	8.481 x 8.996 mm	FSL-TJN-FM	MAPBGA 257 14*14*0.7P0.8 (004Q)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Generic Data List:

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
224100	FSL-ATMC / 20N72D / C90FG	Komodo_SPC5675KFF0MMS2	8.481 x 8.996 mm	FSL-TJN-FM	MAP 473 19*19*1.6 P0.8 (004J)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu
224256	TSMC14 / 0N61C / C90FG	Fado_SPC5668GK0VMGR	6.850 x 6.850 mm	FSL-TJN-FM	MAP208 17*17 (5253)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Devices Qualify By Similarity

Quartz#	Fab/Mask Set/Tech	Product-Qual Description/Part Number (s)	Die Area (mm)	Assembly Site	Package (Code)	Die Attach	Mold Compound	Wire Description
NA	FSL-ATMC / N89D / C90FG	Leopard_SPC5643LF2MMM1R	6.052 x 6.297	FSL-TJN-FM	MAPBGA 257 14*14*0.7P0.8 (004Q)	ABLEBOND 2025D	SUMITOMO G770SFL	20um Pd Cu

Revision	Date	Comments	Author
Rev O	10-Apr-14	Qualification results update	Chew Kim Seong