



MICROCHIP

**QUALIFICATION REPORT
RELIABILITY LABORATORY**

PCN#: CYER-16KWYW724

Date:
December 11, 2013

Qualification of 5L SC70 package with conductive die attach at ANAP (ATP) assembly site. The 3L SC70 package will qualify by similarity at ANAP (ATP) assembly site.

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MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of 5L SC70 package with conductive die attach at ANAP (ATP) assembly site. The 3L SC70 package will qualify by similarity at ANAP (ATP) assembly site.
CN	BC131333
QUAL ID	Q13108
MP CODE	ABBR1YB4XA00
Part No.	MCP6401T-E/LT
Bonding No.	BDM-000368 Rev. A
CCB No.	1328.01
<u>Package</u>	
Type	5L SC70
Die thickness	8 mils
Die size	27.30 x 28.40 mils
<u>Lead Frame</u>	
Paddle size	34.00 x 35.00 mils
Material	C194
Surface	Ag spot plated
Process	Stamped
Lead Lock	No
Part Number	101378719
Treatment	None
<u>Die attach material</u>	
Epoxy	8290
Wire	Au wire
Mold Compound	G700LS
Plating Composition	Matte Tin



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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
ANAP142200191	TMPE214088124.700	1335A4J
ANAP142200192	TMPE214088124.700	1335A4K
ANAP142200193	TMPE214088124.700	1335A4M

Result

Pass Fail _____

5L SC70 assembled by ATP (ANAP) pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260 °C reflow temperature per IPC/JEDEC J-STD-020D standard.

Prepared By:  Date: December 11, 2013 (Sr. Reliability Engineer)

(Mr. Udom Suksansakul)

Approved By:  Date: December 11, 2013 (Reliability Manager)

(Mr. Somnuek Thongprasert)

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR 1243 (IPC/JEDEC J-STD-020D)	IPC/JEDEC C J-STD-020D	135	0/135	Pass	

Precondition Prior Perform Reliability Tests (At MSL Level 1)	Electrical Test :+25°C System: ETS300	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C System: ETS300			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H Inspection: External crack inspection all units under 40X Optical magnification	JESD22- A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C System: ETS300			231	Pass	77 units / lot
UNBIASED-HAST	Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22- A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: ETS300			231(0)	0/231	Pass
HAST	Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: ETS300			231(0)	0/231	Pass
High Temperature Storage Life	Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB	JESD22- A103		45		45 units
	Electrical Test :+25°C System: ETS300			45(0)	0/45	Pass

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Solderability Temp 215°C	Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22- B102	22 (0)	22 22 0/22	Pass	
Solderability Temp 245°C	Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22- B102	22 (0)	22 22 0/22	Pass	
Bond Line Thickness	Bond Line Thickness	SPI-45528	15(0)	15(0)	Pass	5 units / lot
Physical Dimensions	Physical Dimension, 30 units from 1 lot	JESD22- B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Die Shear (1.0 kgf.)	QCI- 91021B	30 (0) Wires	0/30	Pass	
	Wire Pull (> 2.5 grams)	M2011	30 (0) bonds	0/30	Pass	
	Bond Shear (15.00 grams)	JESD22- B116	30 (0) bonds	0/30	Pass	