



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: JAON-27SGKS288

Date
August 8, 2019

Qualification of GTK as a new assembly site for selected Atmel products of 35.5K wafer technology available in 24L SOIC package using palladium coated copper with gold flash (CuPdAu) bond wire.



MICROCHIP

Package Qualification Report

Purpose: Qualification of GTK as a new assembly site for selected Atmel products of 35.5K wafer technology available in 24L SOIC package using palladium coated copper with gold flash (CuPdAu) bond wire.

<u>Misc.</u>	Assembly site	GTK
	Qual ID	QTP3747 Rev. A
	BD Number	BDM-002032A (GTK1811552CB)
	MP Code (MPC)	355TA7K3XC02
	Part Number (CPN)	AT90PWM216-16SU
	CCB No	3656, 3656.001, 3656.002
<u>Lead-Frame</u>	Paddle size	190x220 mil
	Material	A194
	DAP Surface Prep (Spot/Ring/Double ring)	Double Ring
	Treatment (roughened/ brown oxide(BOT) /micro-etched/ none)	Non roughened
	Process (stamped/Etched)	Stamped
	Lead-lock (Y/N)	Yes
	Part Number	11-0224W-007
	Lead Plating	Matte Sn
	Strip Size	213.36 x 58.42 mm
	Strip Density	4 x 10
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	EN-4900GC
	Conductive	Yes
<u>MC</u>	Part Number	G600F
<u>PKG</u>	PKG Type	SOIC
	Pin/Ball Count	24
	PKG width/size	300 mils
<u>Die</u>	Die Thickness	15 mils
	Die Size	115x169 mils
	Fab Process (site)	35.5K (MCSO6)
<u>Assembly Shipping</u>	Ship in strip / Singulated	Singulated
	Tray / Tube / Canister	Tube
	Tube Length	20 inches
	Units per tube	31
MSL		MSL 3 / 260



MICROCHIP

Package Qualification Report

Manufacturing Information

Assembly Lot No.	Wafer lot no.	Date code
GTK-194200004.000	MCSO519270470.100	1903
GTK-194200005.000	MCSO519270470.100	1903
GTK-194200006.000	MCSO519270470.100	1903

Result

Pass Fail _____

355TA device in 24L SOIC 300mils at GREATEK passed at Moisture/Reflow Sensitivity Classification Level 3 per IPC/JEDEC J-STD-020E standard. No delamination were observed on all the units.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test : +25°C, System: MAV1_PT / MUT	JESD22- A113,	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp	JIP/ IPC/JEDE C J-STD- 020D	693(0)	0/693	Pass	
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 30°C/60%RH Moisture Soak 192hrs. System: Climats Excal 5423-HE		693(0)			
	Reflow 3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)	0/693		
	Electrical Test : +25°C, System: MAV1_PT / MUT		693(0)	0/693		

Temperature Cycle Parts had been pre- conditioned at 260°C	Stress Condition: (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22- A104	231(0)			
	Electrical Test : +85°C System: MAV1_PT / MUT		231(0)	0/231	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	
	Stress Condition: (Standard) -65°C to +150°C, 1000 Cycles System: VOTSCH VT 7012 S2		216(0)	0/216		
	Electrical Test : +85°C System: MAV1_PT / MUT		216(0)	0/216	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	

Test Number (Reference)	Test Condition	Standard / Method	Qty. (Acc.)	Def/S S	Result	Remarks
UN-BIASED-HAST Parts had been pre-conditioned at 260°C	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8 Electrical Test: +25°C System: MAV1_PT / MUT Stress Condition: (Standard) +130°C/85%RH, 192 hrs. System: HIRAYAMA HASTEST PC-422R8 Electrical Test: +25°C System: MAV1_PT / MUT	JESD22-A118	231(0)			
			231(0)	0/231	Pass	
			231(0)			
			231(0)	0/231	Pass	
BIASED-HAST Parts had been pre-conditioned at 260°C	Stress Condition: (Standard) +130°C/85%RH, 96 hrs, Supply: 5V System: HIRAYAMA HASTEST PC-422R8 Electrical Test: +25°C , +85°C System: MAV1_PT / MUT Stress Condition: (Standard) +130°C/85%RH, 192 hrs., Supply: 5V System: HIRAYAMA HASTEST PC-422R8 Electrical Test: +25°C , +85°C System: MAV1_PT / MUT	JESD22-A110	231(0)			
			231(0)	0/231	Pass	
			231(0)			
			231(0)	0/231	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	Stress Condition: Bake 175°C, 500 hrs System: HERAEUS	JESD22- A103	45(0)			1 Lot only
	Electrical Test : +25°C , +85°C System: MAV1_PT / MUT		45(0)	0/45	Pass	
Solderability Temp 245°C	Bake: Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: Pb Free Material Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	0/22	Pass	Performed at MPHIL
Physical Dimensions		JESD22- B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Bond Pull	M2011.8 MIL-STD- 883	30(0) Wires	0/30	Pass	
	Wire Ball Shear	M2011.8 MIL-STD- 883	30(0) bonds	0/30	Pass	