



MICROCHIP

**QUALIFICATION REPORT
RELIABILITY LABORATORY**

PCN #: CYER-27BVXY633

Date
August 02, 2013

Qualification of selected products available in the 28L SOIC package with palladium coated copper (PdCu) wire at MTAI assembly site.

Distribution

Somnuek T.
Wanphen L.
Wichai K.
Payungsak W.

Rangsun K.
A. Navarro
J. Fernandez
S. Kelsall
S. Melby



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of selected products available in the 28L SOIC package with palladium coated copper (PdCu) wire at MTAI assembly site.
CN	BC130515
QUAL ID	Q13042
MP CODE	A5AF14N3XE04
Part No.	PIC16F876-04E/SO
Bonding No.	A-024651 Rev. J
CCB No.	1155.03
<u>Package</u>	
Type	28L SOIC
Package size	300 mils
Die thickness	15 mils
Die size	179.20 x 199.60 mils
<u>Lead Frame</u>	
Paddle size	200 x 240 mils
Material	CDA194
Surface	Brown Oxide Treatment
Process	Stamp
Lead Lock	No
Part Number	10102801
<u>Die attach material</u>	
Epoxy	3280
Wire	PdCu wire
Mold Compound	G600
Plating Composition	Matte Tin



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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Trace Code
MTAI140102331	TMPE213384971.300	13145QE
MTAI140102332	TMPE213384971.200	13145QG
MTAI140102333	TMPE213384971.100	13145QH

Result

Pass Fail _____

28L SOIC assembled by MTAI 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. Additionally, all units pass extended read points per attachment.

Prepared By: *Thinnapol* Date: August 02, 2013 (Reliability Engineer)

(Mr. Thinnapol Nakkasun)

Approved By: *Som* Date: August 02, 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 MR1243 (IPC/JEDEC J-STD-020D)	IPC/JEDEC J-STD-020D	135	0/135	Pass	

Precondition Prior Perform Reliability Tests (At MSL Level 1)	Electrical Test :+25°C and 125°C System: J750	JESD22-A113	693(0)	693	Pass	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 and 125°C System: J750			0/693		

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: (Standard) -65°C to +150°C, 50, 250, 500 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750	JESD22-A104	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
	Stress Condition: (Extended) -65°C to +150°C, 1000, 1500, 2000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750		231(0)	0/231	Pass	
UNBIASED-HAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: + 25°C System: J750	JESD22-A118	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
	Stress Condition: (Extended) +130°C/85%RH, 192, 288, 384 hrs. System: HAST 6000X Electrical Test: + 25°C System: J750		231(0)	0/231	Pass	
HAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: +25°C and 125°C System: J750	JESD22-A110	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
	Stress Condition: (Extended) +130°C/85%RH, 192, 288, 384 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: +25°C and 125°C System: J750		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, 504 hrs System: SHEL LAB	JESD22- A103		45		45 units
	Electrical Test: :+25°C System: J750		45(0)	0/45	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams)	JESD22- B116	30 (0) Wires	0/30	Pass	
	Bond Shear (15.00 grams)		30 (0) bonds	0/30	Pass	