



MICROCHIP

**QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY**

PCN#: LIAL-25ZCPA706

Date

September 19,2018

**Qualification of MTAI as an additional assembly site for selected
Atmel ATTINYXX non-automotive products in 35.4k and 35.5K wafer
technology available in 8L SOIJ package.**



MICROCHIP

Package Qualification Report

Purpose: Qualification of MTAI as an additional assembly site for selected Atmel ATTINYXX non-automotive products in 35.4k and 35.5K wafer technology available in 8L SOIJ package.

CCB No.: 3257

Quad ID: QTP3390

Revision: A

| | | |
|-----------------------------|--------------------------|-------------------|
| <u>Miscellaneous</u> | Assembly site | MTAI |
| | BD Number | BDM-001676 rev. A |
| | MP Code (MPC) | 355C4YC3XC01 |
| | Part Number (CPN) | ATTiny45-15SZ |
| <u>Lead-Frame</u> | Paddle size | 140x160 mils |
| | Material | CDA194 |
| | Surface | Bare Cu paddle |
| | Treatment | Roughening |
| | Process | Stamped |
| | Lead-lock | No |
| | Part Number | 10100840 |
| | Lead Plating | Matte Tin |
| <u>Bond Wire</u> | Material | Au |
| <u>Die Attach</u> | Part Number | 8390A |
| | Conductive | Yes |
| <u>Mold Compound</u> | Part Number | G600 |
| <u>PKG</u> | PKG Type | SOIJ |
| | Pin/Ball Count | 8 |
| | PKG width/size | 208 mils |
| <u>Die</u> | Die Thickness | 15 mils |
| | Die Size | 90.0 x 88.0 mils |
| MSL | | MSL1/260 |



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Package Qualification Report

Manufacturing Information

| Assembly Lot No. | Wafer lot No. | Date Code |
|-------------------|-------------------|-----------|
| MTAI184804030.000 | MCSO518466665.110 | 1808A68 |
| MTAI184802538.000 | MCSO518466665.110 | 180827Y |
| MTAI184804035.000 | MCSO518466665.110 | 1808BC6 |

Result:

Pass

Fail

Atmel 355C4 using 0.9 mil Au wire for 8L SOIJ at MTAI is qualified at Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020E standard. Red Spot observed on 1 unit at die attach paddle and inner lead but unit is electrically Passing.

PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|--|----------------------|-------------|--------|--------|--|
| <u>Precondition</u> <u>Prior Perform</u> <u>Reliability Tests</u> (At MSL Level 1) | Electrical Test: +25°C, +130°C | JESD22-A113 | 810(0) | 0/810 | | Good Devices |
| | Bake 150°C, 24 hrs System: HERAEUS | | 810 | | | |
| | 85°C/85%RH Moisture Soak 168 hrs. System: Climats Excal 5423-HE | IPC/JEDEC J-STD-020D | 810 | | | |
| | 3x Convection-Reflow 260°C max System: Mancorp CR.5000F | | 810 | | | |
| | Electrical Test: +25°C, +130°C | | | 0/810 | Passed | |
| Temp Cycle | Stress Condition: (Standard) 65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2 | JESD22-A104 | 252 | | | Parts had been preconditioned at 260°C |
| | Electrical Test: +25°C, + 130°C | | 252(0) | 0/252 | Passed | |
| | Bond Strength: Wire Pull (> 6.00 grams) Bond Shear (>22.00 grams) | | | 15(0) | 0/15 | Passed |
| UNBIASED-HAST | Stress Condition: (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8 | JESD22-A118 | 255 | | | Parts had been preconditioned at 260°C |
| | Electrical Test: +25°C, + 130°C | | 255(0) | 0/255 | Passed | |
| HAST | Stress Condition: (Standard) +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HIRAYAMA HASTEST PC-422R8 | JESD22-A110 | 255 | | | Parts had been preconditioned at 260°C |
| | Electrical Test: +25°C, + 130°C | | 255(0) | 0/255 | Passed | |
| High Temperature Storage Life | Stress Condition: Bake 175°C, 504 hrs System: HERAEUS | JESD22-A103 | 60 | | | 60 units |
| | Electrical Test : +25°C ,+130°C | | 60(0) | 0/60 | Passed | |

| | | | | | | |
|--|---|------------------------|----------------|------|--------|-----------------------|
| Solderability Temp 245°C | Bake: Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: SnPb Visual Inspection: External Visual Inspection | J-STD-002 | 15 (0) | 0/15 | Passed | Performed at MPHIL |
| Physical Dimensions | Physical Dimension, 10 units from 3 lot | JESD22- B100/B108 | 32(0) Units | 0/32 | Passed | |
| Bond Strength Data Assembly | Wire Pull (> 6.00 grams) | M2011.8 MIL-STD-883 | 30(0) Wires | 4.94 | Passed | |
| Bond Strength Data Assembly | Bond Shear (>22.00 grams) | M2011.8 MIL-STD-883 | 30(0) bonds | 2.04 | Passed | |