QUALIFICATION PLAN SUMMARY

PCN #: KSRA-20KRVB706

Date:
January 12, 2017

Qualification of ASSH as an additional assembly site for selected products of 160K wafer technology available in 8L SOIC package using palladium coated copper with gold flash (CuPdAu) bond wire
Purpose: Qualification of ASSH as an additional assembly site for selected products of 160K wafer technology available in 8L SOIC package using palladium coated copper with gold flash (CuPdAu) bond wire

CCB No.: _______________ 2845
MP code: _______________ DE0244C2XB04
Part No.: _______________ PIC12F683-E/SN
BD No: _______________ BDM-001172

Process/CUP ____________ 160K TLM

Package
Type/pin ____________ 8ISOIC
Package Code _________ C2X
Die size: ____________ 80x88.7
MSL: _______________ 1

Subcon facility Aresh
Package type/pin SOP 8L 150mil
Package code C2X

Lead frame:
Part number LI-WSO000008-07
Paddle size: 2.489x3.302
Material C194
Leadframe Internal Plating Double Ring
(spot/ring/double ring)
Treatment roughened/brown oxide(BOT)/micro-etched/none None
Process (Etched/Stamped) stamped
Leadlock No
Strip dimension 90x270
Strip size(row x column) 36x13
Shipped Strip/Singulated Singulated

Wire:
Material CuPdAu

Die Attach Epoxy:
Part Number EN 4900G
Conductive conductive
Mold Compound:
Part Number CEL-9240HF10AK

Lead finish:
Chemistry PureTin
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Conditions</th>
<th>Reliability Stress Read Point</th>
<th>Pre &amp; Post Reliability Stress Test Temperature</th>
<th>Sample Size</th>
<th>Min. Qty of Spares per Lot (should be properly marked)</th>
<th>Qty of Lots</th>
<th>Total Units</th>
<th>Fail Accept Qty</th>
<th>Est. Dur. Days</th>
<th>Test Site</th>
<th>Special Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Pb-free Solderability</td>
<td>JESD22B-102E; Perform 8 hours of steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Standard Pb-free: Matte tin/ NiPdAu finish, SAC solder, wetting temp 245°C for both SMD &amp; through hole packages.</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>22</td>
<td>5 1 27 &gt;95% lead coverage</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Standard Pb-free solderability is the requirement. SnPb solderability (backward solderability: SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes.</td>
</tr>
<tr>
<td>Backward Solderability</td>
<td>JESD22B-102E; Perform 8 hour steam aging for Matte tin finish and 1 hr steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD.</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>22</td>
<td>5 1 27 &gt;95% lead coverage</td>
<td>5</td>
<td></td>
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<tr>
<td>Wire Bond Pull - WBP</td>
<td>Mil. Std. 883-2011</td>
<td></td>
<td></td>
<td>5</td>
<td>0 1 5 0 fails after TC</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire Bond Pull - WBP</td>
<td>CDF-AEC-Q100-001</td>
<td></td>
<td></td>
<td>5</td>
<td>0 1 5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire Bond Shear - WBS</td>
<td>CDF-AEC-Q100-001</td>
<td></td>
<td></td>
<td>5</td>
<td>0 1 5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physical Dimensions</td>
<td>Measure per JESD22 B100 and B108</td>
<td></td>
<td></td>
<td>10</td>
<td>0 3 30 0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>----------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>External Visual</td>
<td>Mil. Std. 883-2009/2010</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>-40°C to +125°C datasheet operating range (E Temp)</td>
<td>All devices prior to submission for qualification testing</td>
<td>0</td>
<td>3</td>
<td>ALL</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTSL (High Temp Storage Life)</td>
<td>JESD22A-103, 150°C for 1000 or 175°C for 504 hours. Read points at 1000 hours. Electrical test pre and post stress at +25°C and hot temp.</td>
<td>500hrs</td>
<td>+25°C, +125°C</td>
<td>45</td>
<td>5</td>
<td>1</td>
<td>50</td>
<td>0</td>
<td>10</td>
<td>Spares should be properly identified.</td>
<td></td>
</tr>
<tr>
<td>Preconditioning - Required for surface mount devices</td>
<td>+150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020D for package type. Perform SAM analysis using the standard sample size MSL1 @+260°C</td>
<td>96 hrs/192hrs</td>
<td>+25°C, +125°C</td>
<td>231</td>
<td>15</td>
<td>3</td>
<td>738</td>
<td>0</td>
<td>15</td>
<td>Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.</td>
<td></td>
</tr>
<tr>
<td>HAST</td>
<td>+130°C/85% RH for 96hrs + 192hrs. Electrical test pre and post stress at +25°C and hot temp.</td>
<td>96 hrs/192hrs</td>
<td>+25°C, +125°C</td>
<td>77</td>
<td>5</td>
<td>3</td>
<td>246</td>
<td>0</td>
<td>10</td>
<td>Perform per the requirements in AEC-Q006. Spares should be properly identified.</td>
<td></td>
</tr>
<tr>
<td>UHAST</td>
<td>+130°C/85% RH for 96/192hrs</td>
<td>130°C/85% RH for 96/192hrs</td>
<td>+25°C</td>
<td>77</td>
<td>5</td>
<td>3</td>
<td>246</td>
<td>0</td>
<td>10</td>
<td>Spares should be properly identified. Use the parts which have gone through Pre-conditioning.</td>
<td></td>
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<tr>
<td>Temp Cycle</td>
<td>Cond C -65°C to +150°C for 1000 Cycles... Electrical test pre and post stress at hot temp.</td>
<td>Cond C: 500cycle -1X, 1000cycles-2X</td>
<td>+25°C +125°C</td>
<td>77</td>
<td>5</td>
<td>3</td>
<td>246</td>
<td>0</td>
<td>15</td>
<td>Perform per the requirements in AEC-Q006. Spares should be properly identified. Use the parts which have gone through Pre-conditioning.</td>
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