Texas Instruments Enhanced Plastic Products Reliability Report

(Device To Attached Disclaimers)

Device Type/Device Family: INA193AMDBVREP
Package Type: 5/DBV
Wafer Fabrication Facility: HIJI FAB (Hiji, Japan)
Assembly/Test Facility: Carsem M
Compiled: 04/11

Biased Life Test

Test Method: JESD22-A108
Test Condition: 125°C / 1000 hours or equivalent
Sample Size: 6822
Rejects: 3
Activation Energy (eV): 0.5
Equivalent Device Hours: 1.12E+08
Failure Rate (FIT)*: 37.26

*Derated to +55°C with a 60% Confidence Level

Package Related Tests

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition</th>
<th>Referenced Method</th>
<th>Sample Size</th>
<th>Rejects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biased Humidity</td>
<td>85°C / 85% / 1000 hours</td>
<td>JESD22-A101</td>
<td>385</td>
<td>0</td>
</tr>
<tr>
<td>or HAST</td>
<td>or 130°C / 85% / 96 hours</td>
<td>JESD22-A110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoclave</td>
<td>121°C @ 2 atmospheres absolute for 96 hours</td>
<td>JESD22-A102</td>
<td>308</td>
<td>0</td>
</tr>
<tr>
<td>Temperature Cycle</td>
<td>-65°C to +150°C non-biased for 500 cycles or equivalent</td>
<td>JESD22-A104</td>
<td>392</td>
<td>0</td>
</tr>
<tr>
<td>High Temp Storage</td>
<td>150°C / 1,000 hours</td>
<td>JESD22-A103-A</td>
<td>49</td>
<td>0</td>
</tr>
</tbody>
</table>

* Preconditioning per JEDEC Std. 22, Method A112/A113
**Initial Product Qualification**

The subject Enhanced Plastic device, device family, and/or package family have passed Texas Instruments product qualification as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition</th>
<th>Referenced Method</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Characterization</td>
<td>TI Data Sheet</td>
<td>N/A</td>
<td>1 lot(s)/30 Units</td>
</tr>
<tr>
<td>Electrostatic Discharge</td>
<td>HBM</td>
<td>EIA/JESD22-A114</td>
<td>3 Units/voltage</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>MM</td>
<td>EIA/JESD22-A115</td>
<td>3 Units/voltage</td>
</tr>
<tr>
<td></td>
<td>CDM</td>
<td>JESD22-C101</td>
<td>3 Units/voltage</td>
</tr>
<tr>
<td>Latch-up</td>
<td>Per Technology</td>
<td>EIA/JESD78</td>
<td>6/0</td>
</tr>
<tr>
<td>Physical Dimensions</td>
<td>TI Data Sheet</td>
<td>EIA/JESD22- B100</td>
<td>15/0</td>
</tr>
<tr>
<td>Thermal Impedance</td>
<td>Theta-JA on board</td>
<td>EIA/JESD51</td>
<td>Per Pin-Package</td>
</tr>
<tr>
<td>Bias Life Test</td>
<td>125°C / 1000 hours or equivalent</td>
<td>JESD22-A108</td>
<td>385/0</td>
</tr>
<tr>
<td>Biased Humidity</td>
<td>85°C / 85% / 1000 hours or HAST</td>
<td>JESD22-A101</td>
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<td>JESD22-A104</td>
<td>392/0</td>
</tr>
<tr>
<td>High Temp Storage</td>
<td>150°C / 1,000 hours</td>
<td>JESD22-A103-A</td>
<td>49/0</td>
</tr>
<tr>
<td>Solder Heat</td>
<td>260°C for 10 seconds</td>
<td>JESD22-B106</td>
<td>15/0</td>
</tr>
<tr>
<td>Solderability</td>
<td>Condition A (steam age for 8 hours)</td>
<td>ANSI/J-STD-002-92</td>
<td>66/0</td>
</tr>
<tr>
<td>Bond Strength</td>
<td>-</td>
<td>ASTM F-459</td>
<td>30/0</td>
</tr>
<tr>
<td>Moisture Sensitivity</td>
<td>Surface Mount Only</td>
<td>J-STD-020-A</td>
<td>LVL2-260</td>
</tr>
</tbody>
</table>

* Preconditioning per JEDEC Std. 22, Method A112/A113

**Suplemental Device Characteristics**

Master Die: JINA1820CAPZ
Wafer Fab: HIJ1 FAB (Hiji, Japan)
Fab Process: LBC-SOI
Fab Technology: BiCMOS
Die Revision: C
Passivation: 6kA SiO2 / 11kA +/- 1kA of SIN
Metal 1: 300A TiW / 4.6kA AlCu(5%) / 3
Metal 2: 3kA TiW / 6kA AlCu(5%) / 300
Assembly Site: Carsem M
Pin/Package Type: 5/DBV
Lead Composition: Cu
Lead Finish: NiPdAu
Mount Compound: ABLESTIK 8290
Bond: Au/1.0 mil
Die Thickness: 25 Milis BG @ CAR to 9.5Mils
Mold Compound: HITACHI CEL9220HF13

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*Note: The above information is a fictional representation for demonstration purposes.*
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