Product Change Notification - KSRA-07HVQF409

Date:
08 Jan 2020

Product Category:
8-bit Microcontrollers; Temperature Sensors; Memory; Capacitive Touch Sensors

Affected CPNs:

Notification subject:
CCB 4031 Initial Notice: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

Notification text:

PCN Status:
Initial notification.

PCN Type:
Manufacturing Change

Microchip Parts Affected:
Please open one of the icons found in the Affected CPNs section above.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

Description of Change:
Qualification of Microchip Technology Tempe - Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

Pre Change:
Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6 inch wafer

Post Change:
Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6 inch wafer or Microchip Technology Tempe - Fab 2 (TMGR) using 8 inch wafer

Pre and Post Change Summary:

<table>
<thead>
<tr>
<th>Fabrication Supplier and Location</th>
<th>Pre Change</th>
<th>Post Change</th>
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<tbody>
<tr>
<td>Microchip Technology Colorado - Fab 5 (MCSO)</td>
<td>Microchip Technology Colorado - Fab 5 (MCSO)</td>
<td>Microchip Technology Tempe - Fab 2 (TMGR)</td>
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<tr>
<td>Wafer Diameter</td>
<td>6 inches</td>
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<tr>
<td>Die size</td>
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<td>ISO9001/TS16949 or IATF16949</td>
<td>ISO9001/TS16949 or IATF16949</td>
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</table>

Impacts to Data Sheet:
None

Change Impact:
None

Reason for Change:
To improve manufacturability and on-time delivery performance by qualifying a second fabrication source at Microchip Technology Tempe - Fab 2 (TMGR) fabrication site.

Change Implementation Status:
In Progress

Estimated Qualification Completion Date:
June 2020

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and
A final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

**Time Table Summary:**

<table>
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<th></th>
<th>December 2019</th>
<th></th>
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**Method to Identify Change:**
Traceability code

**Qualification Plan:**
Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

**Revision History:**

- **December 11, 2019:** Issued initial notification.
- **January 08, 2020:** Re-issued initial notification to update the Qualification Plan and Affected CPN list.

The change described in this PCN does not alter Microchip’s current regulatory compliance regarding the material content of the applicable products.

**Attachment(s):**

PCN_KSRA-07HVQF409_Qual_Plan.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

**Terms and Conditions:**

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.
Affected Catalog Part Numbers (CPN)

ATMEGA1284P-PU
ATMEGA1284-PU
ATMEGA1284P-MU
ATMEGA1284-MU
ATMEGA1284P-AU
ATMEGA1284-AU
ATMEGA1284P-MUR
ATMEGA1284-MUR
ATMEGA1284P-AUR
ATMEGA1284-AUR
ATTINY88-PU
ATTINY88-MMU
ATTINY88-MMH
ATTINY88-MU
ATTINY88-AU
ATTINY88-MMUR
ATTINY88-MMHR
ATTINY88-MUR
AT42QT1110-MUR
AT42QT2100-MUR
ATTINY88-MURA1
ATTINY88-AUR
AT42QT1110-AUR
ATMEGA128-16MU
ATMEGA128A-MU
ATMEGA128A-AUA2
ATMEGA128L-8AU
ATMEGA128A-AU
ATMEGA128-16AU
ATMEGA128A-AU-HCM
ATMEGA128L-8MN
ATMEGA128A-MN
ATMEGA128-16MN
ATMEGA128-16AN
ATMEGA128A-AN
ATMEGA128-16MNR
ATMEGA128L-8MNR
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ATMEGA128A-ANR
ATMEGA128A-MUR
ATMEGA128L-8MUR
ATMEGA128-16MUR
ATMEGA128A-AUR
ATMEGA128L-8AUR

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ATMEGA128L-8AURA6
ATMEGA128-16AURA0
ATMEGA128-16AUR
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ATMEGA324A-MU
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ATMEGA324A-AU
ATMEGA324PA-AUA1
ATMEGA324PA-PN
ATMEGA324PA-MN
ATMEGA324PA-AN
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ATMEGA324PA-ANR
ATMEGA324PA-MCHR
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AT42QT18C15-MUR
ATMEGA324PA-MUR
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ATMEGA324PA-MUR2
ATMEGA324PA-AUR
ATMEGA324A-AUR
ATMEGA324A-AURA3
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ATTINY43U-SUR
ATTINY43U-MUR
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ATTINY13A-MMF
ATTINY13A-SSH
ATTINY13A-SH
ATTINY13A-SSU
ATTINY13A-SU
ATTINY13A-PU
ATTINY13A-MMU
ATTINY13A-MU
ATTINY13A-SS7
ATTINY13A-SN
ATTINY13A-SS7RA3
ATTINY13A-SS7R
ATTINY13A-SNR
ATTINY13A-SSHRA3
ATTINY13A-SSHR
ATTINY13A-SHR

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ATTINY13A-SSURA4
ATTINY13A-SUR
ATTINY13A-SURA4
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ATMEGA16-16AUA2
AT42QT2640-AU
AT42QT1481-AU
ATMEGA16L-8AU
AT42QT1481-AN
AT42QT1481-ANR
ATMEGA16A-MUR
ATMEGA16L-8MUR
ATMEGA16-16MUR
ATMEGA16A-AUR
ATMEGA16L-8AURA1
ATMEGA16-16AUR
ATMEGA16L-8AUR
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ATMEGA32L-8AU
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ATMEGA32A-AURA5
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Date: Wednesday, January 08, 2020
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ATTINY861A-PU
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ATTINY861A-XUR
ATTINY861A-SUR
ATTINY861A-SURA0
ATTINY861A-MUR
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ATTINY44A-MF
ATTINY44A-CCU
ATTINY44A-PU
ATTINY44A-SSU
ATTINY44A-MMH
ATTINY44A-MU
ATTINY44A-SSN
ATTINY44A-SSNR
ATTINY44A-CCUR
ATTINY44A-SSUR
ATTINY44A-SSUR625
ATTINY44A-SSURB09
ATTINY44A-SSURA0
ATTINY44A-SSUR569
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ATTINY44A-MMHR
ATTINY44A-MUR
ATTINY44A-MUR861
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ATTINY44A-SSFRA1
ATTINY44A-MFR
ATTINY44A-MFRA0
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ATMEGA8L-8PU096
ATMEGA8-16PU
ATMEGA8A-MU
ATMEGA8-16MU
ATMEGA8L-8MU
ATMEGA8A-AU
ATMEGA8L-8AUBAX
ATMEGA8L-8UA1
ATMEGA8A-AU744
ATMEGA8L-8AU
ATMEGA8-16AU
ATMEGA8A-AU-HCM
ATMEGA8A-PN
ATMEGA8A-MN
ATMEGA8A-AN
ATMEGA8A-MNR
ATMEGA8A-ANR

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ATTINY24A-SSNR
ATTINY24A-CCUR
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ATTINY24A-SSFR
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ATTINY24A-MFR
ATTINY461A-XU
ATTINY461A-SU
ATTINY461A-PU
ATTINY461A-MU
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ATMEGA328P-AURA0
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ATMEGA164PA-CU
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ATMEGA164PA-PU
ATMEGA164A-MCH
ATMEGA164PA-MCH
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ATMEGA164PA-MU
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ATMEGA164PA-AU
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ATMEGA164A-AUA2
ATMEGA164PA-MN
ATMEGA164PA-AN
ATMEGA164PA-MNR
ATMEGA164PA-ANR
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ATMEGA164PA-CUR
ATMEGA164A-MCHR
ATMEGA164PA-MCHR
ATMEGA164A-MUR
ATMEGA164PA-MUR
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ATMEGA164A-AUR
ATMEGA164A-AURA2
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ATTINY2313A-SU
ATTINY2313A-PU
ATTINY2313A-MMH
ATTINY2313A-MU
ATTINY2313A-SUR
ATTINY2313A-MMHR
ATTINY2313A-MUR
ATTINY4313-SU

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ATTINY4313-PU
ATTINY4313-MMH
ATTINY4313-MU
ATTINY4313-SUR
ATTINY4313-MMHR
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ATTINY20-SSURB47
ATTINY20-SSUR
AT42QT1070-SSUR
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ATTINY20-SSUR892
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ATTINY40-SU
AT42QT2120-SU
AT42QT2120-MMH
ATTINY40-MMH
ATTINY40-XUR
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AT42QT2120-XUR
ATTINY40-SUR
AT42QT2120-SUR
AT42QT2120-MMHR
ATTINY40-MMHR
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ATTINY84A-CCU
ATTINY84A-PU
ATTINY84A-SSU
ATTINY84A-SSU710
ATTINY84A-MMH
ATTINY84A-MU
ATTINY84A-CCUR
ATTINY84A-SSUR
ATTINY84A-MMHR
ATTINY84A-MMHR651
ATTINY84A-MMHR690
ATTINY84A-MMHR989
ATTINY84A-MMHRA02
ATTINY84A-MMHRB81
ATTINY84A-MUR
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ATTINY828-AUR
ATTINY828R-AUR
ATTINY841-W
ATTINY841-SSU
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Date: Wednesday, January 08, 2020
KSRA-07HVQF409 - CCB 4031 Initial Notice: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

ATMEGA16M1-MU
ATMEGA32M1-AU
ATMEGA16M1-AU
ATMEGA32M1-AUR
ATTINY167-W-NG
ATTINY167-XU
ATTINY87-XU
ATTINY87-SU
ATTINY167-SU
ATTINY167-MU
ATTINY87-MU
ATTINY167-MMU
ATTINY167-XUR
ATTINY87-XUR
ATTINY87-SUR
ATTINY167-SUR
ATTINY87-MUR
ATTINY167-MUR
ATTINY167-MMUR
ATTINY167-MMURB20
ATMEGA16U4-MU
ATMEGA32U4-MU
ATMEGA32U4RC-MU
ATMEGA32U4-AU
ATMEGA16U4-AU
ATMEGA32U4RC-AU
ATMEGA16U4RC-AU
ATMEGA32U4-MUR
ATMEGA16U4-MUR
ATMEGA32U4RC-MUR
ATMEGA16U4-AUR
ATMEGA32U4-AUR
ATMEGA32U4RC-AUR
AT90PWM81-16SF
AT90PWM81-16MF
AT90PWM81EP-16SN
AT90PWM81-16SN
AT90PWM81EP-16MN
AT90PWM81-16MN
AT90PWM81OS-B16SNR
AT90PWM81OS-B16MNR
ATMEGA64M1-MU
ATMEGA64M1-AU
ATMEGA16U2-MU
ATMEGA8U2-MU
ATMEGA16U2-AU
ATMEGA8U2-AU
ATMEGA16U2-MUR
ATMEGA8U2-MUR
KSRA-07HVQF409 - CCB 4031 Initial Notice: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

ATMEGA16U2-AUR
ATMEGA8U2-AUR
ATMEGA6450P-AU
ATMEGA6450A-AU
ATMEGA6490A-AU
ATMEGA6490P-AU
ATMEGA645P-MU
ATMEGA645A-MU
ATMEGA645A-MU
ATMEGA649P-MU
ATMEGA645P-AU
ATMEGA649A-AU
ATMEGA645A-AU
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ATMEGA6490A-AUR
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ATMEGA649P-MUR
ATMEGA649A-AUR
ATMEGA645A-AUR
ATMEGA645P-AUR
ATMEGA649P-AUR
ATMEGA3250PA-AU
ATMEGA3290A-AU
ATMEGA3250A-AU
ATMEGA3290PA-AU
ATMEGA329A-MU
ATMEGA329PA-MU
ATMEGA325A-MU
ATMEGA325PA-MU
ATMEGA329PA-AU
ATMEGA325A-AU
ATMEGA325PA-AU
ATMEGA329A-AU
ATMEGA325A-MN
ATMEGA325A-AN
ATMEGA325A-MNR
ATMEGA325A-ANR
ATMEGA3250PA-AUR
ATMEGA3290A-AUR
ATMEGA3250A-AUR
ATMEGA3290PA-AUR
ATMEGA329PA-MUR
ATMEGA325A-MUR
ATMEGA325PA-MUR

Date: Wednesday, January 08, 2020
KSRA-07HVQF409 - CCB 4031 Initial Notice: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

Date: Wednesday, January 08, 2020
QUALIFICATION PLAN SUMMARY

PCN #: KSRA-07HVQF409

Date:
November 01, 2019

Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.
Purpose: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

CCB No: 4031

Die Qualification Plan: 3 lots per QCI-39000

<table>
<thead>
<tr>
<th>Test / Evaluation</th>
<th>Test Conditions / Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating (Dynamic) Life</td>
<td>• 150°C for 408 hrs at Vdd max</td>
</tr>
<tr>
<td>High Temp. Retention Bake (DLT) / High Temperature Operating Life (HTOL)</td>
<td>• 504 hrs @ 175°C.</td>
</tr>
<tr>
<td>Endurance Cycling</td>
<td>• 10,000 flash Erase/Write cycles at 85°C</td>
</tr>
<tr>
<td></td>
<td>• 100,000 EEPROM Erase/Write cycles at 85°C</td>
</tr>
<tr>
<td>ESD HBM</td>
<td>• Tested at 500V, 1000V, and 2000V</td>
</tr>
<tr>
<td>Latch-up</td>
<td>• Should meet a minimum of +/- 105mA injection on I/O pins with a clamp of 1.5 x VMax on the positive injection and 0.5 x VMax on the negative injection. Power supply pin shall be stressed at 1.5 x VMax with a 200mA clamp.</td>
</tr>
<tr>
<td>Electrical Validation</td>
<td>• 30 units from one wafer lot. Datalog parameters at room, hot and cold at vcc min/max and frequency min/max. Collection of this data may be done as part of any qualification test’s pre or post functional testing or from a separate group of parts”</td>
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</table>
## Package Qualification Plan

<table>
<thead>
<tr>
<th>Misc.</th>
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</thead>
<tbody>
<tr>
<td>Assembly site</td>
<td>MMT</td>
</tr>
<tr>
<td>BD Number</td>
<td>A-064764 / A</td>
</tr>
<tr>
<td>MP Code (MPC)</td>
<td>35473YRXBC01</td>
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<tr>
<td>Part Number (CPN)</td>
<td>ATMega328P-15MZ</td>
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<tr>
<td>MSL information</td>
<td>MSL-1/260</td>
</tr>
<tr>
<td>Assembly Shipping Media (T/R, Tube/Tray)</td>
<td>T/R</td>
</tr>
<tr>
<td>Base Quantity Multiple (BQM)</td>
<td>5000</td>
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<td>Reliability Site</td>
<td>MPHIL</td>
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<td>CCB No.</td>
<td>4031</td>
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<tr>
<td>Paddle size</td>
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<tr>
<td>Material</td>
<td>C194</td>
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<tr>
<td>DAP Surface Prep</td>
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<tr>
<td>Treatment</td>
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<tr>
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<tr>
<td>Part Number</td>
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<tr>
<td>Lead Plating</td>
<td>Matte Tin</td>
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<tr>
<td>Lead-Frame</td>
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<tr>
<td>Bond Wire</td>
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<td>Material</td>
<td>CuPdAu</td>
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<td>Conductive</td>
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<td>PKG</td>
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<td>Pin/Ball Count</td>
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<td>PKG width/size</td>
<td>5x5x0.9mm</td>
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<tr>
<td>Test Name</td>
<td>Conditions</td>
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<td>-----------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
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<tr>
<td>Standard Pb-free Solderability</td>
<td>J-STD-002: Perform 8 hour 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>
</tr>
<tr>
<td>Backward Solderability</td>
<td>J-STD-002; Perform 8 hours steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD.</td>
</tr>
<tr>
<td>Wire Bond Pull - WBP</td>
<td>Mil. Std. 883-2011</td>
</tr>
<tr>
<td>Wire Bond Shear - WBS</td>
<td>CDF-AEC-Q100-001</td>
</tr>
<tr>
<td>Wire Sweep</td>
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</tr>
<tr>
<td>Die Shear</td>
<td>Mil. Std. 883-2011</td>
</tr>
<tr>
<td>Physical Dimensions</td>
<td>Measure per JESD22 B100 and B108</td>
</tr>
<tr>
<td>External Visual</td>
<td>Mil. Std. 883-2009/2010</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 Jeeec-STD-020E for package type; Electrical test pre and post stress at +25°C  MSL1/MSL3 @ 260°C</td>
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<tr>
<td>Biased HAST</td>
<td>+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.</td>
</tr>
<tr>
<td>Unbiased HAST</td>
<td>+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.</td>
</tr>
<tr>
<td>Temp Cycle</td>
<td>-65°C to +150°C for 500 cycles. Electrical test pre and post stress at hot temp; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress.</td>
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