Product Change Notification / RMES-09ZZXT280

Date:
25-Feb-2021

Product Category:
32-bit Microcontrollers

PCN Type:
Manufacturing Change

Notification Subject:
CCB 4523 and 4523.001 Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

Affected CPNs:
RMES-09ZZXT280_Affected_CPN_02252021.pdf
RMES-09ZZXT280_Affected_CPN_02252021.csv

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 MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN package.

Pre Change: For wettable flank products:
Assembled at ASCL using gold (Au) bond wire, 8600 die attach, G700 molding compound material with 210 x 210 mils paddle size without locking holes leadframe.
Assembled at NSEB using gold (Au) or palladium coated copper wire with gold flash (CuPdAu) bond wire, EN-4900G or ATB-125 die attach, G700 molding compound material with 208 x 208 mils paddle size without locking holes leadframe.
or
Assembled at MMT using gold (Au) bond wire, 3280 die attach, G700 molding compound material with 217 x 217 mils paddle size with locking holes leadframe.

For non-wettable flank products: Assembled at ASE using palladium coated copper wire with gold flash (CuPdAu) or palladium coated copper (PdCu) bond wire, EN-4900F die attach, G631H molding compound and C7025 leadframe material with 217 x 217 mils paddle size without locking holes.

or
Assembled at ASCL using palladium coated copper wire with gold flash (CuPdAu) bond wire, EN-4900GC die attach, G700 molding compound and C194 leadframe material with 217 x 217 mils paddle size with locking holes leadframe.

or
Assembled at MMT using gold (Au) bond wire, 3280 die attach, G700 molding compound and C194 leadframe material with 217 x 217 mils paddle size with locking holes leadframe.

Post Change: For wettable flank products:
Assembled at ASCL using gold (Au) bond wire, 8600 die attach, G700 molding compound material with 210 x 210 mils paddle size without locking holes leadframe.

or
Assembled at NSEB using gold (Au) or palladium coated copper wire with gold flash (CuPdAu) bond wire, EN-4900G or ATB-125 die attach, G700 molding compound material with 208 x 208 mils paddle size without locking holes leadframe.

or
Assembled at MMT using gold (Au) bond wire, 3280 die attach, G700 molding compound material with 217 x 217 mils paddle size with locking holes leadframe.

or
Assembled at MTAI using gold (Au) bond wire, 3280 die attach, G700 molding compound material with 217 x 217 mils paddle size with locking holes leadframe.

For non-wettable flank products: Assembled at ASE using palladium coated copper wire with gold flash (CuPdAu) or palladium coated copper (PdCu) bond wire, EN-4900F die attach, G631H molding compound and C7025 leadframe material with 217 x 217 mils paddle size without locking holes.

or
Assembled at ASCL using palladium coated copper wire with gold flash (CuPdAu) bond wire, EN-4900GC die attach, G700 molding compound and C194 leadframe material with 217 x 217 mils paddle size without locking holes leadframe.

or
Assembled at MMT using gold (Au) bond wire, 3280 die attach, G700 molding compound and C194 leadframe material with 217 x 217 mils paddle size with locking holes leadframe.

or
Assembled at MTAI using gold (Au) bond wire, 3280 die attach, G700 molding compound and C194 leadframe material with 217 x 217 mils paddle size with locking holes leadframe.

Pre and Post Change Summary:

<table>
<thead>
<tr>
<th>Assembly Site</th>
<th>Pre Change</th>
<th>Post Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE Group</td>
<td>AU or CuPdAu</td>
<td>AU or CuPdAu</td>
</tr>
<tr>
<td>Chung-Li</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
</tr>
<tr>
<td>(ASCL)</td>
<td>UTAC Thai Limited (UTL-1) LTD. (NSEB)</td>
<td>UTAC Thai Limited (UTL-1) LTD. (NSEB)</td>
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<tr>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
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<tr>
<td>Wire material</td>
<td>Au</td>
<td>Au</td>
</tr>
<tr>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Au</td>
<td>Au</td>
</tr>
<tr>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
<td>Microchip Technology Thailand (Branch) / (MMT)</td>
</tr>
</tbody>
</table>

or
Assembled at MMT using gold (Au) bond wire, 3280 die attach, G700 molding compound material with 217 x 217 mils paddle size with locking holes leadframe.
Die attach material

<table>
<thead>
<tr>
<th>Material</th>
<th>8600</th>
<th>EN-4900G or ATB-125</th>
<th>3280</th>
<th>8600</th>
<th>EN-4900G or ATB-125</th>
<th>3280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molding compound material</td>
<td>G700</td>
<td>G700</td>
<td>G700</td>
<td>G700</td>
<td>G700</td>
<td>G700</td>
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<tr>
<td>Lead frame material</td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
</tr>
<tr>
<td>Paddle size</td>
<td>210 x 210 mils</td>
<td>208 x 208 mils</td>
<td>217 x 217 mils</td>
<td>210 x 210 mils</td>
<td>208 x 208 mils</td>
<td>217 x 217 mils</td>
</tr>
<tr>
<td>Lead Lock (Locking Holes)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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</tbody>
</table>

For non-wettable flank products:

<table>
<thead>
<tr>
<th>Assembly Site</th>
<th>ASE Inc. (ASE)</th>
<th>ASE Group Chung-Li</th>
<th>Microchip Technology Thailand (Branch) / (MMT)</th>
<th>Microchip Technology Thailand (Branch) / (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire material</td>
<td>CuPdAu or PdCu</td>
<td>CuPdAu</td>
<td>Au</td>
<td>CuPdAu or PdCu</td>
</tr>
<tr>
<td>Die attach material</td>
<td>EN-4900F</td>
<td>EN-4900GC</td>
<td>3280</td>
<td>EN-4900F</td>
</tr>
<tr>
<td>Molding compound material</td>
<td>G631H</td>
<td>G700</td>
<td>G700</td>
<td>G631H</td>
</tr>
<tr>
<td>Lead frame material</td>
<td>C7025</td>
<td>C194</td>
<td>C194</td>
<td>C7025</td>
</tr>
<tr>
<td>Paddle size</td>
<td>217 x 217 mils</td>
<td>210 x 210 mils</td>
<td>217 x 217 mils</td>
<td>210 x 210 mils</td>
</tr>
<tr>
<td>Lead Lock (Locking Holes)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve on-time delivery performance by qualifying MTAI as an additional assembly site.

Change Implementation Status: In Progress

Estimated Qualification Completion Date: March 2021

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>
<thead>
<tr>
<th>February 2021</th>
<th>March 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workweek</td>
<td>06 07 08 09 10 11 12 13 14</td>
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<tr>
<td>Initial PCN Issue Date</td>
<td>X</td>
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<tr>
<td>Qual Report Availability</td>
<td>X</td>
</tr>
</tbody>
</table>
Method to Identify Change: Traceability code

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

Revision History: February 25, 2021: Issued initial notification.

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

Attachments:

PCN_RMES-09ZZXT280_Pre and Post Change Summary.pdf
PCN_RMES-09ZZXT280_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)

ATSAMD21G17D-MF
ATSAMD21G17L-MF
ATSAMD21G17D-MZ
ATSAMD21G17D-MU
ATSAMD21G17L-MU
ATSAMD21G17L-MN
ATSAMD21G17L-MNT
ATSAMD21G17D-MUT
ATSAMD21G17L-MUT
ATSAMD21G17D-MFT
ATSAMD21G17L-MFT
ATSAMD21G17D-MZT
ATSAMD21G15B-MF
ATSAMD21G16B-MF
ATSAMD21G16B-MU
ATSAMD21G15B-MU
ATSAMD21G16L-MNT
ATSAMD21G16L-MNTP01
ATSAMD21G16B-MUT
ATSAMD21G15B-MUT
ATSAMD21G16L-MUT
ATSAMD21G15B-MFT
ATSAMD21G16B-MFT
ATSAMD21G16B-MZ
ATSAMD21G15B-MZ
ATSAMD21G16L-MNTA7
ATSAMDA1G16B-MBT
ATSAMDA1G15B-MBT
ATSAMDA1G14B-MBT
ATSAMD21G16L-MUTN01
ATSAMD21G15B-MZT
ATSAMD21G16B-MZT
ATSAMD20G16B-MZ
ATSAMD20G15B-MZ
ATSAMD20G16B-MU
ATSAMD20G15B-MU
ATSAMD20G14B-MU
ATSAMD20G16B-MN
ATSAMD20G14B-MN
ATSAMD20G15B-MN
ATSAMD20G16B-MNT
ATSAMD20G14B-MNT
ATSAMD20G15B-MNT
ATSAMD20G16B-MUT
ATSAMD20G14B-MUT
ATSAMD20G15B-MUT

Date: Wednesday, February 24, 2021
RMES-09ZZXT280 - CCB 4523 and 4523.001 Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

Date: Wednesday, February 24, 2021
Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

Date: Wednesday, February 24, 2021
RMES-09ZZXT280 - CCB 4523 and 4523.001 Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

ATSAMD20G17A-MUTA3
ATSAMD20G14A-MUTA2
ATSAMD20G15A-MUTA2
ATSAMD20G16A-MUTA2
ATSAMD20G17A-MUTA2
ATSAMD20G18A-MUTA2
RMES-09ZXT280 - CCB 4523 and 4523.001 Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

Affected Catalog Part Numbers(CPN)

ATSAMD21G17D-MF
ATSAMD21G17L-MF
ATSAMD21G17D-MZ
ATSAMD21G17D-MU
ATSAMD21G17L-MU
ATSAMD21G17L-MN
ATSAMD21G17L-MNT
ATSAMD21G17D-MUT
ATSAMD21G17L-MUT
ATSAMD21G17D-MFT
ATSAMD21G17L-MFT
ATSAMD21G17D-MZT
ATSAMD21G17L-MZT
ATSAMD21G16B-MF
ATSAMD21G16B-MF
ATSAMD21G16B-MU
ATSAMD21G15B-MU
ATSAMD21G16L-MNT
ATSAMD21G15L-MNT
ATSAMD21G16L-MNTP01
ATSAMD21G16B-MUT
ATSAMD21G15B-MUT
ATSAMD21G16L-MUT
ATSAMD21G15B-MFT
ATSAMD21G16B-MFT
ATSAMD21G16L-MZ
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ATSAMD21G16L-MNTA7
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ATSAMD21G16L-MUTN01
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ATSAMD20G18A-MUTA3
ATSAMD20G17A-MUTA3
ATSAMD20G14A-MUTA2
ATSAMD20G15A-MUTA2
ATSAMD20G16A-MUTA2
ATSAMD20G17A-MUTA2
ATSAMD20G18A-MUTA2
CCB 4523 and 4523.001
Lead Frame design comparison
PCN #: RMES-09ZZXT280

Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN package.
## Leadframe design comparison – for wettable flank products

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<tr>
<th></th>
<th>ASCL</th>
<th>NSEB</th>
<th>MMT</th>
<th>MTAI - New</th>
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</thead>
<tbody>
<tr>
<td><strong>Lead frame material</strong></td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
<td>C194</td>
</tr>
<tr>
<td><strong>Paddle size</strong></td>
<td>210 x 210 mils</td>
<td>208 x 208 mils</td>
<td>217 x 217 mils</td>
<td>217 x 217 mils</td>
</tr>
<tr>
<td><strong>Lead Lock (Locking Holes)</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Leadframe design comparison – for non-wettable flank products

<table>
<thead>
<tr>
<th></th>
<th>ASE</th>
<th>ASCL</th>
<th>MMT</th>
<th>MTAI - New</th>
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<tbody>
<tr>
<td><strong>Lead frame material</strong></td>
<td>C7025</td>
<td>C194</td>
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<td><strong>Paddle size</strong></td>
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<td>210 x 210 mils</td>
<td>217 x 217 mils</td>
<td>217 x 217 mils</td>
</tr>
<tr>
<td><strong>Lead Lock (Locking Holes)</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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</table>

*Microchip*
QUALIFICATION PLAN SUMMARY

PCN #: RMES-09ZZXT280

Date:
January 21, 2021

Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN package. This is Q100 grade 1 qualification.
**Purpose:** Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMD20xx, ATSAMD21xx and ATSAMDA1xx device families available in 48L VQFN package. This is Q100 grade 1 qualification.

<table>
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<tr>
<th>Misc.</th>
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<tr>
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<td>MTAI</td>
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<td>Part Number (CPN)</td>
<td>ATSAMC21G18A-MZTVAO</td>
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<tr>
<td>CCB No</td>
<td>4523 and 4523.001</td>
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<table>
<thead>
<tr>
<th>Lead-Frame</th>
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<tbody>
<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>
<td>Yes</td>
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<td>Process</td>
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<td>Lead-lock</td>
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<tr>
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<tr>
<td>Strip Size</td>
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<tr>
<td>Strip Density</td>
<td>240 units/strip</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Material</td>
<td>Au</td>
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<table>
<thead>
<tr>
<th>Die Attach</th>
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<td>Part Number</td>
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<td>Conductive</td>
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<thead>
<tr>
<th>PKG</th>
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<tbody>
<tr>
<td>PKG Type</td>
<td>VQFN Wetttable flank</td>
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<tr>
<td>Pin/Ball Count</td>
<td>48</td>
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<tr>
<td>PKG width/size</td>
<td>7x7x1.0 mm</td>
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<tr>
<td>Test Name</td>
<td>Conditions</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Standard Pb-free Solderability</td>
<td>J-STD-002D : 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>
</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>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>J-STD-020JESD22- A113+150°C Bake for 24 hours, moisture loading requirements per MSL level (MSL1/260) + 3X reflow at peak reflow temperature per Jedeck-STD-020E for package type</td>
</tr>
<tr>
<td>Test Name</td>
<td>Conditions</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>HAST</td>
<td>JESD22-A101 or A110</td>
</tr>
<tr>
<td>UHAST</td>
<td>JESD22-A102, A118, or A101</td>
</tr>
<tr>
<td>Temp Cycle</td>
<td>JESD22-A104 and Appendix 3</td>
</tr>
</tbody>
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