



## Product Change Notification / RMES-09ZZXT280

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### 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.**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.

**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 210 x 210 mils paddle size without locking holes. **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 210 x 210 mils paddle size without locking holes.

**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:**

**For wettable flank products:**

	Pre Change			Post Change			
<b>Assembly Site</b>	ASE Group Chung-Li (ASCL)	UTAC Thai Limited (UTL-1) LTD.  (NSEB)	Microchip Technology Thailand (Branch) / (MMT)	ASE Group Chung-Li (ASCL)	UTAC Thai Limited (UTL-1) LTD. (NSEB)	Microchip Technology Thailand (Branch) / (MMT)	<b>Microchip Technology Thailand  (HQ) (MTAI)</b>
<b>Wire material</b>	Au	Au or CuPdAu	Au	Au	Au or CuPdAu	Au	<b>Au</b>



Final PCN Issue Date										X
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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: 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.

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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

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

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ATSAMC21G18A-MZ  
ATSAMC21G17A-MZ  
ATSAMC21G16A-MZ  
ATSAMC21G15A-MZ  
ATSAMC20G18A-MZ  
ATSAMC20G17A-MZ  
ATSAMC20G16A-MZ  
ATSAMC20G15A-MZ  
ATSAMC21G17A-MU  
ATSAMC20G15A-MNT  
ATSAMC20G16A-MNT  
ATSAMC20G17A-MNT  
ATSAMC20G18A-MNT  
ATSAMC21G15A-MNT  
ATSAMC21G16A-MNT  
ATSAMC21G17A-MNT  
ATSAMC21G18A-MNT  
ATSAMC21G18A-MUT  
ATSAMC20G15A-MUT  
ATSAMC20G16A-MUT  
ATSAMC20G17A-MUT  
ATSAMC20G18A-MUT  
ATSAMC21G15A-MUT  
ATSAMC21G16A-MUT  
ATSAMC21G17A-MUT  
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ATSAMC21G16A-MZT  
ATSAMC21G15A-MZT  
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ATSAMC20G16A-MZT  
ATSAMC20G15A-MZT  
ATSAMD20G18A-MUA1  
ATSAMD20G14A-MUA1  
ATSAMD20G16A-MUA1  
ATSAMD20G17A-MUA1  
ATSAMD20G15A-MUA1  
ATSAMD20G14A-MUTA1  
ATSAMD20G15A-MUTA1  
ATSAMD20G16A-MUTA1  
ATSAMD20G17A-MUTA1  
ATSAMD20G18A-MUTA1  
ATSAMD21G17A-MF  
ATSAMD21G18A-MF  
ATSAMD21G18A-MZ  
ATSAMD21G17A-MZ  
ATSAMD21G18A-MU

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

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ATSAMD21G17A-MU  
ATSAMD21G17A-MUA1  
ATSAMD21G18A-MUA1  
ATSAMD21G18A-MU-SLL  
ATSAMD21G17A-MUT  
ATSAMD21G18A-MUT  
ATSAMD21G18A-MUTA0  
ATSAMD21G17A-MUTA1  
ATSAMD21G18A-MUTA1  
ATSAMD21G17A-MUTA0  
ATSAMD21G18A-MUTN01  
ATSAMD21G17A-MFT  
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ATSAMD21G18A-MZT  
ATSAMD21G17A-MZT  
ATSAMD20G14A-MUA4  
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ATSAMD20G17A-MUA4  
ATSAMD20G14A-MU  
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ATSAMD20G16A-MU  
ATSAMD20G17A-MU  
ATSAMD20G18A-MU  
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ATSAMD20G16A-MUT  
ATSAMD20G17A-MUT  
ATSAMD20G18A-MUT  
ATSAMD20G18A-MUTA3

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RMES-09ZZXT280 - CCB 4523 and 4523.001 Initial Notice: Qualification of MTAI as an additional assembly site for selected ATSAMC20xx, ATSAMC21xx, ATSAMMD20xx, ATSAMMD21xx and ATSAMDA1xx device families available in 48L VQFN packages.

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ATSAMMD20G17A-MUTA3

ATSAMMD20G14A-MUTA2

ATSAMMD20G15A-MUTA2

ATSAMMD20G16A-MUTA2

ATSAMMD20G17A-MUTA2

ATSAMMD20G18A-MUTA2



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.

Affected Catalog Part Numbers(CPN)

ATSAMD21G17D-MF  
ATSAMD21G17L-MF  
ATSAMD21G17D-MZ  
ATSAMD21G17D-MU  
ATSAMD21G17L-MU  
ATSAMD21G17L-MN  
ATSAMD21G17L-MNT  
ATSAMD21G17D-MUT  
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ATSAMD20G17A-MNT  
ATSAMD20G18A-MNT

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ATSAMD20G15A-MUT  
ATSAMD20G16A-MUT  
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ATSAMD20G18A-MUT  
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**



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A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

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



SMART | CONNECTED | SECURE

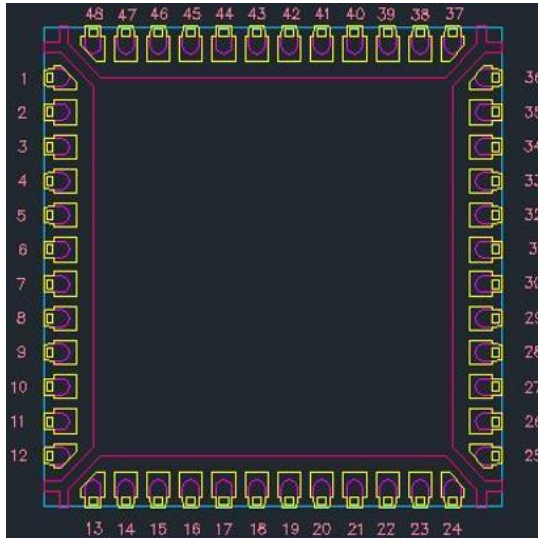
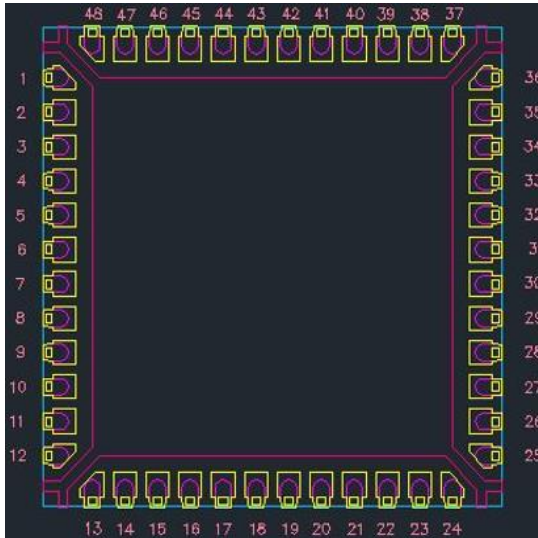
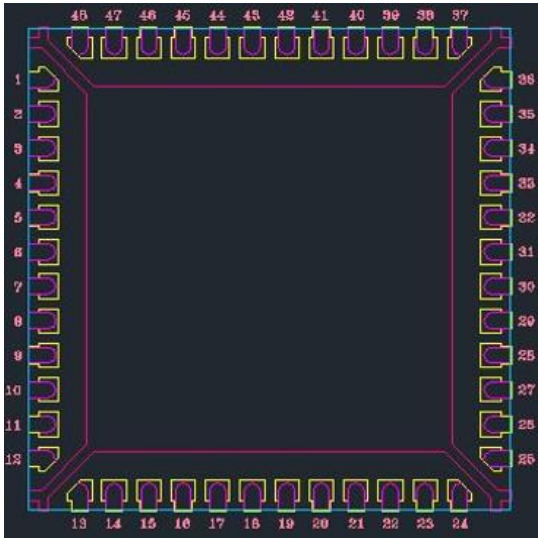
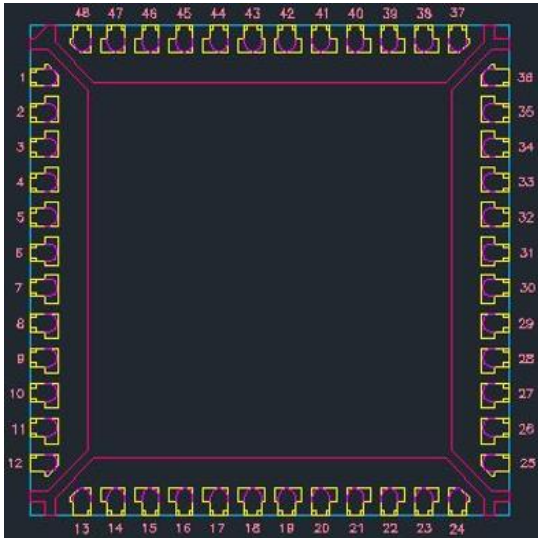
# Leadframe design comparison – for wetable flank products

**ASCL**

**NSEB**

**MMT**

**MTAI - New**



Lead frame material	C194
Paddle size	210 x 210 mils
Lead Lock (Locking Holes)	No

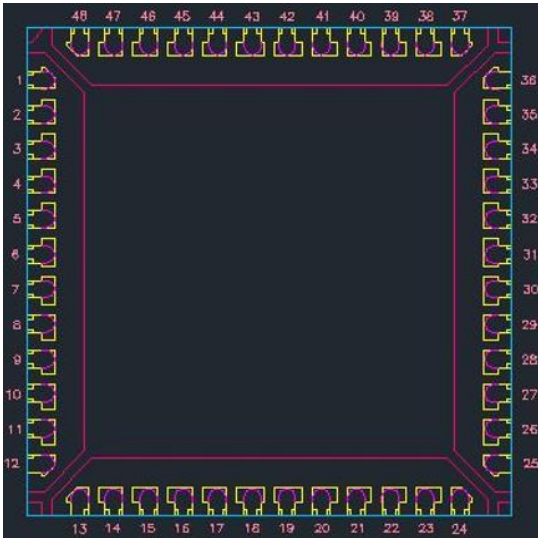
Lead frame material	C194
Paddle size	208 x 208 mils
Lead Lock (Locking Holes)	No

Lead frame material	C194
Paddle size	217 x 217 mils
Lead Lock (Locking Holes)	Yes

Lead frame material	C194
Paddle size	217 x 217 mils
Lead Lock (Locking Holes)	Yes

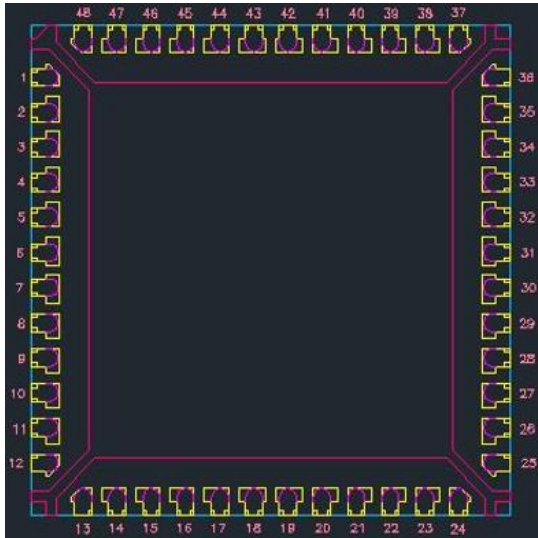
# Leadframe design comparison – for non-wettable flank products

**ASE**



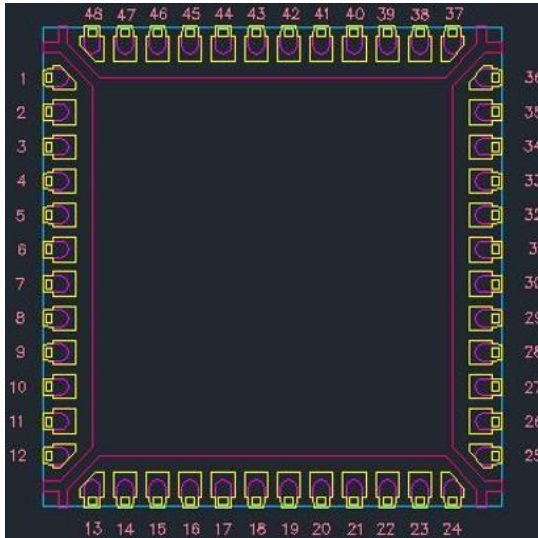
Lead frame material	C7025
Paddle size	217 x 217 mils
Lead Lock (Locking Holes)	No

**ASCL**



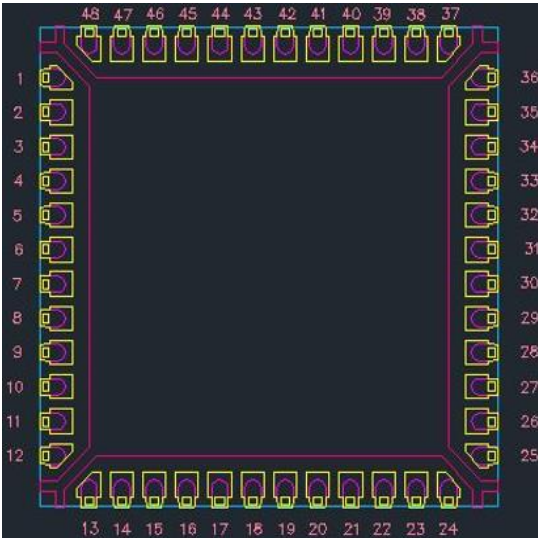
Lead frame material	C194
Paddle size	210 x 210 mils
Lead Lock (Locking Holes)	No

**MMT**



Lead frame material	C194
Paddle size	217 x 217 mils
Lead Lock (Locking Holes)	Yes

**MTAI - New**



Lead frame material	C194
Paddle size	217 x 217 mils
Lead Lock (Locking Holes)	Yes



# **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.**

<u>Misc.</u>	Assembly site	MTAI
	BD Number	BDM-002793 rev.A
	MP Code (MPC)	661P2YU5BVA1
	Part Number (CPN)	ATSAMC21G18A-MZTVAO
	CCB No	4523 and 4523.001
<u>Lead-Frame</u>	Paddle size	217 x 217 mils
	Material	C194
	DAP Surface Prep	Bare Copper
	Treatment	Yes
	Process	Etched
	Lead-lock	Yes
	Part Number	10104803
	Lead Plating	Matte Tin
	Strip Size	70 x 250 mm
	Strip Density	240 units/strip
<u>Bond Wire</u>	Material	Au
<u>Die Attach</u>	Part Number	3280
	Conductive	Yes
<u>MC</u>	Part Number	G700
<u>PKG</u>	PKG Type	VQFN Wettable flank
	Pin/Ball Count	48
	PKG width/size	7x7x1.0 mm

Test Name	Conditions	Reliability Stress Read Point  Grade 1: -40°C to +125°C (MCHP E Temp)	Pre & Post Reliability Stress Test Temperature  Grade 1: -40°C to +125°C (MCHP E Temp)	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Pkg. Type	Special Instructions
Standard Pb-free Solderability	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 & through hole packages.			22	5	1	27	>95% lead coverage	5				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.
Wire Bond Pull - WBP	Mil. Std. 883-2011			5	0	1	5	0 fails after TC	5				30 bonds from a min. 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001			5	0	1	5	0	5				30 bonds from a min. 5 devices.
Physical Dimensions	Measure per JESD22 B100 and B108			10	0	3	30	0	5				
External Visual	Mil. Std. 883-2009/2010			All devices prior to submission for qualification testing	0	3	ALL	0	5				
Preconditioning - Required for surface mount devices	J-STD-020JESD22-A113+150°C Bake for 24 hours, moisture loading requirements per MSL level <b>(MSL1/260)</b> + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type		Grade 1: +25°C	231	15	3	738	0	15	MPHIL	MPHIL		Spares should be properly identified. 77 parts from each lot to be used for HAST, uHAST, Temp Cycle test.

Test Name	Conditions	Reliability Stress Read Point  Grade 1: -40°C to +125°C (MCHP E Temp)	Pre & Post Reliability Stress Test Temperature  Grade 1: -40°C to +125°C (MCHP E Temp)	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Pkg. Type	Special Instructions
HAST	JESD22-A101 or A110  +130°C/85% RH for 96 hrs	Grade 1: 96 hrs (+130°C/85% RH)	Grade 1: +25°C, +85°C, +125°C	77	5	3	246	0	10 - 14	MPHIL	MPHIL		Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
UHAST	JESD22-A102, A118, or A101  +130°C/85% RH for 96 hrs o	Grade 1: 96 hrs (+130°C/85% RH)	Grade 1: +25°C	77	5	3	246	0	10	MPHIL	MPHIL		Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Temp Cycle	JESD22-A104 and Appendix 3  -65°C to +150°C	Grade 1: 500 cycles (-65°C to 150°C)	Grade 1: +85°C, +125°C	77	5	3	246	0	15 - 60	MPHIL	MPHIL		Spares should be properly identified. Use the parts which have gone through Pre-conditioning.