



MICROCHIP

QUALIFICATION PLAN

PCN #: IIRA-03OEGH109

**Date:
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Qualification of selected products available in 28L QFN (6x6x0.9mm) package with palladium coated copper (PdCu) bond wire at MTAI assembly site. The 28L QFN (5x5x0.9mm), 20L QFN (5x5x0.9mm and 4x4x0.9mm) and 16L QFN (4x4x0.9mm and 3x3x0.9mm) packages will qualify by similarity at MTAI assembly site.

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Purpose: _____ Qualification of selected products available in 28L QFN (6x6x0.9mm) package with palladium coated copper (PdCu) bond wire at MTAI assembly site. The 28L QFN (5x5x0.9mm), 20L QFN (5x5x0.9mm and 4x4x0.9mm) and 16L QFN (4x4x0.9mm and 3x3x0.9mm) packages will qualify by similarity at MTAI assembly site.

MP code: _____ LEBE14M4XDXF

Part No.: _____ PIC24FV16KA302

BD No: _____ BDM-000436 rev.A

CCB No: _____ 1355.03

Package:

Type _____ 28L QFN

Width or Size _____ 6 x 6 x 0.9mm

Die thickness: _____ 11 mils

Die size: _____ 127.4 x 158.5 mils

Lead frame:

Paddle size: _____ 173 x 173 mils

Material _____ A194

Surface _____ Bare Cu

Process _____ Etched

Lead Lock _____ Yes

Part Number _____ 10102828

Treatment _____ Micro Etching (ME-2)

Wire:

Material _____ PdCu

Die Attach Epoxy:

Part Number _____ 3280

Conductive _____ Yes

Mold Compound: _____ G700LTD

Reliability Test plan: _____ See attached, STD Package Reliability Test plan on each package.

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Special Instructions
Standard Pb-free Solderability	JESD22B-102E; 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 & 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.
Backward Solderability	JESD22B-102E; 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.	22	5	1	27	> 95% lead coverage	5	
Wire Bond Pull - WBP	Mil. Std. 883-2011	5	0	1	5	0 fails after TC	5	30 bonds from a minimum of 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	1	5	0	5	30 bonds from a minimum of 5 devices.
Wire Sweep								Required for any reduction in wire bond thickness.
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	
HTSL (High Temp Storage Life)	+175 C for 504 hours or 150°C for 1008 hrs. Electrical test pre and post stress at +25C and hot temp.	45	5	1	50	0	10	Must be in progress at time of package release to production, but completion is not required for release to production. For hot temp testing, pre/post test 1 lot at 85°C and 125°C (if applicable)

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Special Instructions
Preconditioning - Required for surface mount devices	+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; Electrical test pre and post stress at +25°C. Perform SAM analysis using the standard sample size. MSL-1 @ 260°C	231	15	3	738	0	15	Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
HAST	+130°C/85% RH for 96 hours. Electrical test pre and post stress at +25°C and hot temp. (1 lot to be tested at 85°C and 125°C)	77	5	3	246	0	10	Spares should be properly identified. Use the parts which have gone through Pre-conditioning. For hot temp testing, pre/post test 1 lot at 85°C and 125°C (if applicable)
Unbiased HAST	+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.	77	5	3	246	0	10	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Temp Cycle	-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. (1 lot to be tested at 85°C and 125°C)	77	5	3	246	0	15	Spares should be properly identified. Use the parts which have gone through Pre-conditioning. For hot temp testing, pre/post test 1 lot at 85°C and 125°C (if applicable).