QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: DSNO-17TVWI575

Date:
November 3, 2025

Qualification of Microchip Technology Gresham – Fab 4 (GRTM) as a new fabrication location for selected HCS370, MCP2150, MCP2155, PIC16F627, PIC16F628, PIC16F84A, PIC16F870, PIC16F871, PIC16F872, PIC16F873, PIC16F874, PIC16F876 and PIC16F877 device families available in various packages. This is a Q006 Grade 1 qualification.

Process Qualification Report

Purpose: Qualification of Microchip Technology Gresham – Fab 4 (GRTM) as a new fabrication location for selected HCS370, MCP2150, MCP2155, PIC16F627, PIC16F628, PIC16F84A, PIC16F870, PIC16F871, PIC16F872, PIC16F873, PIC16F874, PIC16F876 and PIC16F877 device families available in various packages.

Summary:

In keeping with guidelines established in Microchip CCB 7364.006, Three lots of PIC16F872 (A5010) were used for qualification testing. This qualification will release the 120K Flash, device family process to production.

I. Device Description:

Device	PIC16F872
MSL	724
Document Revision	A
CCB No.	7364.006

II. Qualification Material:

Test Lot	**Lot 1**	**Lot 2**	**Lot 3**
WAFER LOT	GRSM425511355.300	GRSM426042763.210	GRSM426202783.100
ASSEMBLY LOT	MMT-261300606.000	MMT-261400257.000	MMT-263800306.000
PACKAGE	28 SPDIP	28 SPDIP	28 SPDIP
QUAL TESTS	ELFR, EDR, HTOL, BAKE, ESD HBM/LU/CDM	ELFR, EDR, HTOL, BAKE	ELFR, EDR, HTOL, BAKE

III. Qualification Data:

Early Life Failure Rate (ELFR)

Test Method	AEC Q100-008
Test Condition	125°C / 48 hours Pre & Post Testing was done at +25°C, +85°C and +125°C.
Sample Size (800 ea. min)	(Fail/Sample Size)
Lot 1	0/809
Lot 2	0/824
Lot 3	0/825
Result	**Passed**

EDR + High Temperature Operational Life (HTOL)

Test Method	AEC Q100-005 | JESD22-A108
Test Condition	125°C / 1008 hours Pre & Post Testing done at +25°C, -40°C, +85°C and +125°C
Sample Size (77 ea. min)	(Fail/Sample Size)
Lot 1	0/78
Lot 2	0/82
Lot 3	0/79
Result	**Passed**

EDR + Retention Bake

Test Method	AEC Q100-005 | JESD22-A103
Test Condition	150°C / 1008 hours Pre & Post Testing done at +25°C, +85°C and +125°C
Sample Size (77 ea. min)	(Fail/Sample Size)
Lot 1	0/232
Lot 2	0/240
Lot 3	0/233
Result	**Passed**

ESD-HBM, CDM and Latch-Up

Test	Reference Method	Sample Size	Result
ESD – HBM	AEC-Q100-002 JS-001	12/Lot 1	± 3000V (**Passed**)
ESD – CDM	AEC-Q100-011 JS-002	18/Lot 1	± 2000V corner pins (**Passed**)
ESD – LU	AEC-Q100-004 JESD78	12/Lot 1	6 Pass @ +25°C, 105mA Pulse 6 Pass @ +125°C, 105mA Pulse (**Passed**)

Note: Electrical Pre and Post-test @ +25°C, +85°C and 125°C

IV. Conclusion:

Based on the results above, the devices comply with the reliability guidelines implemented in the qualification plan. Therefore, the device family and process are released to production.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of Microchip Technology Gresham – Fab 4 (GRTM) as a new fabrication location for selected HCS370, MCP2150, MCP2155, PIC16F627, PIC16F628, PIC16F84A, PIC16F870, PIC16F871, PIC16F872, PIC16F873, PIC16F874, PIC16F876 and PIC16F877 device families available in various packages. This is a Q006 Grade 1 qualification.
CN	E000276718
QUAL ID	R2500876 Rev. A
Bonding No.	A-066093 Rev A -Temp BD
MP CODE	A50104N3XC40
Part No.	PIC16F872/PIC16LF872
CCB No.	7413.005
<u>Lead Frame</u>	
Paddle size	160 x 205 mils
Material	CDA194
Surface	Ag
Process	Stamped
Lead lock	No
Part number	10102808
Plating composition	Matte Sn
<u>Bond Wire</u>	
Wire	CuPdAu wire
<u>Die Attach Material</u>	
Epoxy	3280
Mold compound	G600
<u>Package</u>	
Type	28L SOIC
Package size	.300in

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI261301779.000	GRSM425511355.310	2526BPV
MTAI261301915.000	GRSM425511355.310	2526C36
MTAI261301921.000	GRSM425511355.310	2526C3C

Result [X] Pass [ ] Fail [ ] ____________________

28L SOIC (.300in) assembled by MTAI pass reliability test per QCI-39000.This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max	IPC/JEDEC J-STD-020E		135		
	System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)		135(0)	0/135	Pass	

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test :**+25°C,85°C and 125°C System: J750	JESD22-A113	693(0)	693	Pass	Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max			693		
	System: Vitronics Soltec MR1243					
	Electrical Test :+25°C,85°C and 125°C System: J750		693(0)	0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -55°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C,85°C and 125°C System: J750		231(0)	0/231	Pass	
	Stress Condition: -55°C to +150°C, 2000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +25°C,85°C and 125°C System: J750		231(0)	0/231	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.7 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C,85°C and 125°C System: J750		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** 5.7 Volts System: HAST 6000X			231		
	Electrical Test: +25°C,85°C and 125°C System: J750		231(0)	0/231	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 500 hrs System: TPS Bake Oven	JESD22-A103		135		45 units / lot
	Electrical Test :+25°C,85°C and 125°C System: J750		135(0)	0/135	Pass	
	Stress Condition: Bake 175°C, 1000 hrs System: TPS Bake Oven			135		
	Electrical Test :+25°C,85°C and 125°C System: J750		135(0)	0/135	Pass	
Solderability Temp 245°C	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000	J-STD-002		22		
	Solder Dipping: Solder Temp.245°C **Solder material:** Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D			22		
	Visual Inspection: External Visual Inspection		22(0)	0/22	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Physical Dimensions	Physical Dimension, 10 units / 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams)	Mil.Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	CDF-AEC-Q100-001	30(0) Bonds	0/30	Pass	