Product Change Notification / ASER-28RAPG851

Date:

10-Jan-2023

Product Category:

Power Management - System Supervisors/Voltage Detectors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5128 Final Notice: Qualification of a new lead frame design and G700 as a new mold compound material for selected MIC277xxx device family available in 5L SOT-23 package assembled at STAR assembly site.

Affected CPNs:

ASER-28RAPG851_Affected_CPN_01102023.pdf
ASER-28RAPG851_Affected_CPN_01102023.csv

Notification Text:

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

Description of Change: Qualification of a new lead frame design and G700 as a new mold compound material for selected MIC277xxx device family available in 5L SOT-23 package assembled at STAR assembly site.

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	Stars Microelectronics (Thailand) Public Company Limited (STAR)	Stars Microelectronics (Thailand) Public Company Limited (STAR)
Wire Material	Au	Au
Die Attach Material	84-1LMISR4	84-1LMISR4
Molding Compound Material	G600	G700
Lead-Frame Material	C194	C194
DAP Surface Prep	NiPdAu with Roughened	NiPdAuAg with Roughened
	See Pre and Post Change Summary for comparison.	

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve productivity by qualifying a new lead frame design and G700 mold compound.

Change Implementation Status: In Progress

Estimated First Ship Date: February 10, 2023 (date code: 2306)

Note: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

Time Table Summary:

	May 2022					>	January 2023					February 2023			
Workweek	19	20	21	22	23		1	2	3	4	5	6	7	8	9
Initial PCN Issue Date	x														
Qual Report Availability								x							
Final PCN Issue Date								x							
Estimated Implementation												x			

Date															

Method to Identify Change: Traceability code

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History: May 3, 2022: Issued initial notification.
January 10, 2023: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on February 10, 2023.

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

Attachments:

PCN ASER-28RAPG851_Qual Report.pdf
PCN_ASER-28RAPG851_Pre and Post Change Summary.pdf

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

Terms and Conditions:

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QUALIFICATION REPORT SUMMARY

PCN #: ASER-28RAPG851

Date:
December 27, 2022

Qualification of a new lead frame design and G700 as a new mold compound material for selected MIC277xxx device family available in 5L SOT-23 package assembled at STAR assembly site.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of a new lead frame design and G700 as a new mold compound material for selected MIC277xxx device family available in 5L SOT-23 package assembled at STAR assembly site.
CCB:	5128
CN	E000107956
QUAL ID	R2200962 Rev. A
MP CODE	27802T6BXC09
Part No.	MIC2774L-31YM5-TR
Bonding No.	BD-000675 Rev.01
Package	
Type	5L SOT-23
Lead Frame	
Paddle size	52 x 72 mils
Material	C194
Surface	NiPdAuAg with Roughened (Thickness: AuAg = 0.2-2.5 uInch, Pd = 0.2-0.8 uInch, Ni = 10-50 uInch)
Process	STAMP
Lead Lock	No
Part Number	MLEP00026MIC-T
Treatment	RT+UPG
Material	
Epoxy	84-1LMISR4
Wire	Au wire
Mold Compound	G700
Plating Composition	NiPdAu (PPF)

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
STAR230600043.000	GRSM422321190.810	2219PBK
STAR230600049.000	GRSM422321190.810	2219PBU
STAR230700002.000	GRSM422321190.810	2220PC3

Result [X] Pass [ ] Fail [ ] ____________________

5L SOT-23 assembled by STAR 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
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test:** +25°C System: TMT	JESD22-A113	693(0)	0/693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		0/693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			0/693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			0/693		
	Electrical Test: +25°C System: TMT		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:** -65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H	JESD22-A104		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: TMT		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>3.00 grams)		15(0)	0/15	Pass	
	Bond Shear (>21.10 grams)		15(0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: TMT		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X	JESD22-A110		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: TMT		231(0)	0/231	Pass	77 units / lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs. System: SHEL LAB **Electrical Test:** +25°C System: TMT	JESD22-A103	45(0)	0/45 0/45	Pass	
Solderability Temp 215°C	**Steam Aging:** Temp 93°C,1Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63, Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22(0)	0/22 0/22 0/22	Pass	
Solderability Temp 245°C	**Steam Aging:** Temp 93°C,1Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22(0)	0/22 0/22 0/22	Pass	
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 (>21.10 grams)	CDF-AEC-Q100-001	30(0) bonds	0/30	Pass	

Affected Catalog Part Numbers (CPN)

MIC2774H-17YM5-TR
MIC2774H-22YM5-TR
MIC2774H-25YM5-TR
MIC2774H-28YM5-TR
MIC2774H-29YM5-TR
MIC2774H-44YM5-TR
MIC2774L-17YM5-TR
MIC2774L-22YM5-TR
MIC2774L-23YM5-TR
MIC2774L-25YM5-TR
MIC2774L-28YM5-TR
MIC2774L-29YM5-TR
MIC2774L-31YM5-TR
MIC2774L-44YM5-TR
MIC2774L-46YM5-TR
MIC2774N-17YM5-TR
MIC2774N-22YM5-TR
MIC2774N-23YM5-TR
MIC2774N-25YM5-TR
MIC2774N-28YM5-TR
MIC2774N-29YM5-TR
MIC2774N-31YM5-TR
MIC2774N-44YM5-TR
MIC2775-17YM5-TR
MIC2775-22YM5-TR
MIC2775-23YM5-TR
MIC2775-25YM5-TR
MIC2775-26YM5-TR
MIC2775-28YM5-TR
MIC2775-29YM5-TR
MIC2775-31YM5-TR
MIC2775-44YM5-TR
MIC2775-46YM5-TR
MIC2776L-YM5-TR
MIC2776N-YM5-TR
MIC2777-17YM5-TR
MIC2777-22YM5-TR
MIC2777-23YM5-TR
MIC2777-25YM5-TR
MIC2777-26YM5-TR
MIC2777-28YM5-TR
MIC2777-29YM5-TR
MIC2777-31YM5-TR
MIC2777-44YM5-TR
MIC2775-29YM5-TX
MIC2774H-23YM5-TR

MIC2774H-26YM5-TR
MIC2774H-31YM5-TR
MIC2774H-46YM5-TR
MIC2774L-26YM5-TR
MIC2774N-26YM5-TR
MIC2774N-46YM5-TR
MIC2776H-YM5-TR
MIC2777-46YM5-TR
MIC2774N-29YM5-TX
MIC2776L-YM5-TX
MIC2776N-YM5-TX

CCB 5128
Pre and Post Change Summary
PCN #: ASER-28RAPG851

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

Lead Frame Design Comparison

Pre Change

Lead Frame Material	DAP Surface Prep
C194	NiPdAu with Roughened

Post Change

Lead Frame Material	DAP Surface Prep
C194	NiPdAuAg with Roughened