Product Change Notification / NTDO-14MNBI131

Date:

15-Nov-2022

Product Category:

Linear Comparators, Linear Op Amps, Linear Regulators

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5025 Final Notice: Qualification of G700 as a new mold compound material for selected Micrel MIC3490, MIC52xx, MIC62xxxM5, SPN020xxxx device families available in 5L SOT-23 package assembled at STAR assembly site.

Affected CPNs:

NTDO-14MNBI131_Affected_CPN_11152022.pdf
NTDO-14MNBI131_Affected_CPN_11152022.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 G700 as a new mold compound material for selected Micrel MIC3490, MIC52xx, MIC62xxxM5, SPN020xxxx device families 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
DAP Surface Prep	NiPdAu with Roughened	NiPdAuAg with Roughened
Lead-frame Material	C194	C194

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve manufacturability by qualifying G700 mold compound material and DAP surface prep.

Change Implementation Status: In Progress

Estimated First Ship Date: November 15, 2022 (date code: 2247)

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

Time Table Summary:

	March 2022					**>**	**November 2022**				
Workweek	10	11	12	13	14		45	46	47	48	49
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: March 09, 2022: Issued initial notification.
November 11, 2022: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on November 15, 2022.
November 15, 2022: Re-issued final notification. Updated the DAP surface prep to NiPdAuAg with Roughened in the Post change field.

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

Attachments:

PCN_NTDO-14MNBI131_Pre_and_Post_Change Summary.pdf
PCN_NTDO-14MNBI131_Qual Report.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.

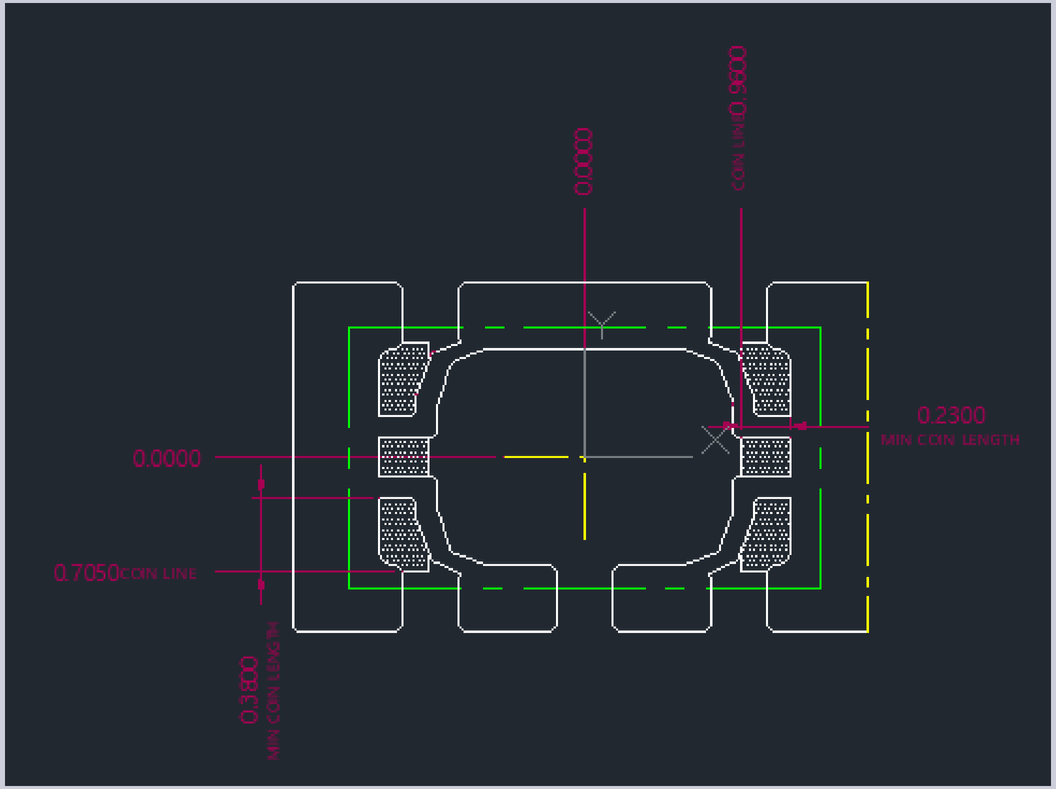
CCB 5025
Pre and Post Change Summary
PCN #: NTDO-14MNBI131

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

SMART | CONNECTED | SECURE

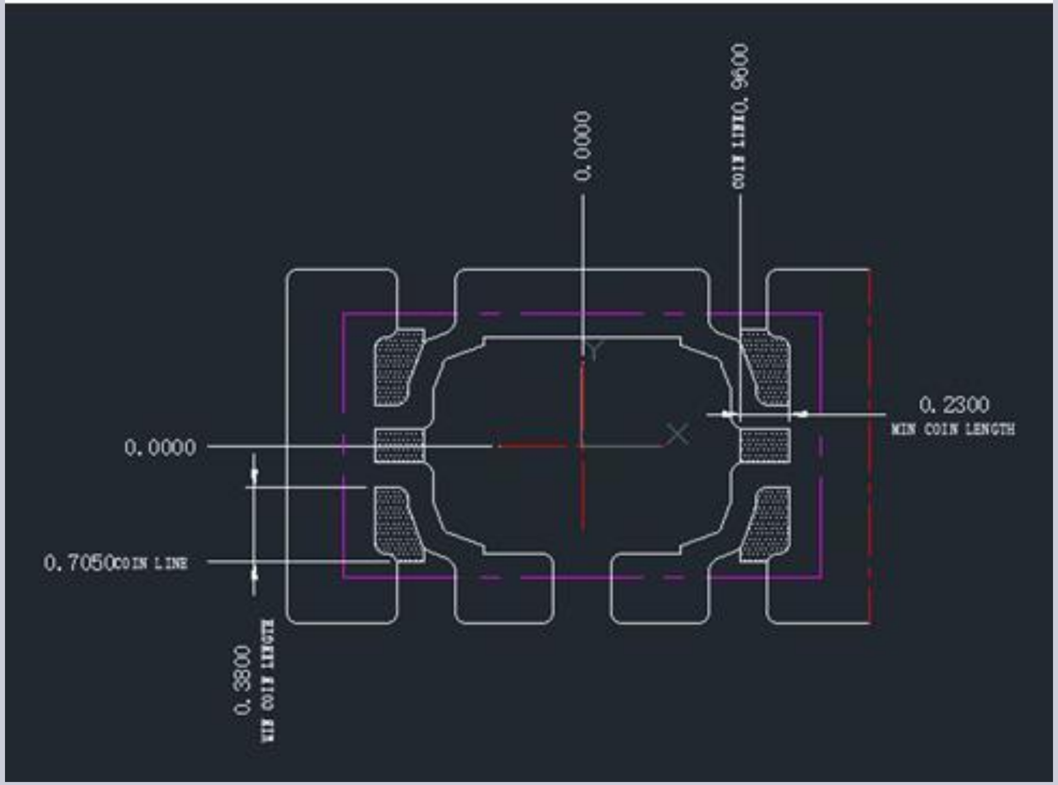
Leadframe Comparison

Pre Change



DAP Surface Prep	**NiPdAu with Roughened**
Lead-frame Material	**C194**

Post Change



DAP Surface Prep	**NiPdAuAg with Roughened**
Lead-frame Material	**C194**

Affected Catalog Part Numbers (CPN)

MIC5205-2.85YM5-TR
MIC5225-5.0YM5-TX
MIC5235-1.5YM5-TX
MIC5235-5.0YM5-TX
MIC5235-2.5YM5-TX
MIC5235-3.3YM5-TX
MIC5235YM5-TX
MIC5225-1.5YM5-TR
MIC5225-5.0YM5-TR
MIC5225-2.5YM5-TR
MIC5225-2.7YM5-TR
MIC5225-3.0YM5-TR
MIC5225-1.8YM5-TR
MIC5225-3.3YM5-TR
MIC5225YM5-TR
MIC5233-2.5YM5-TR
MIC5233YM5-TR
MIC5233-3.3YM5-TR
MIC5233-1.8YM5-TR
MIC5233-3.0YM5-TR
MIC5233-5.0YM5-TR
MIC5233-1.8YM5-TRVAO
MIC5233-3.3YM5A-TR
MIC3490-2.5YM5-TR
MIC5235-1.5YM5-TR
MIC5235-5.0YM5-TR
MIC3490-3.3YM5-TR
MIC5235-2.5YM5-TR
MIC5235-2.7YM5-TR
MIC5235-3.0YM5-TR
MIC3490-1.8YM5-TR
MIC5235-2.8YM5-TR
MIC3490-3.0YM5-TR
MIC3490-5.0YM5-TR
MIC5235-1.8YM5-TR
MIC5235-3.3YM5-TR
MIC5235YM5-TR
SPN020180Y-TR
SPN020127Y-TR
SPN020156G-TR
SPN020155G-TR
SPN020170G-TR
SPN020161G-TR
MIC5233YM5-TRVAO
MIC5233-5.0YM5-TRVAO
MIC5233-3.3YM5-TRVAO

MIC5206-2.5YM5-TR
MIC5206-2.7YM5-TR
MIC5206-3.0YM5-TR
MIC5206-3.2YM5-TR
MIC5206-3.3YM5-TR
MIC5206-3.6YM5-TR
MIC5206-3.8YM5-TR
MIC5206-4.0YM5-TR
MIC5206-5.0YM5-TR
MIC5216-2.5YM5-TR
MIC5216-3.3YM5-TR
MIC5216-3.6YM5-TR
MIC5216-5.0YM5-TR
MIC5203-2.6YM5-TR
MIC5203-2.8YM5-TR
MIC5203-3.0YM5-TR
MIC5203-3.3YM5-TR
MIC5203-3.6YM5-TR
MIC5203-3.8YM5-TR
MIC5203-4.0YM5-TR
MIC5203-4.5YM5-TR
MIC5203-4.7YM5-TR
MIC5203-5.0YM5-TR
MIC5238-1.0YM5-TR
MIC5238-1.1YM5-TR
MIC5238-1.3YM5-TR
MIC6211YM5-TR
MIC6270YM5-TR
MIC5205YM5-TX
MIC5207YM5-TX
MIC5205-2.5YM5-TX
MIC5207-5.0YM5-TX
MIC5219-2.5YM5-TX
MIC5219-3.3YM5-TX
MIC5219YM5-TX
MIC5207-1.8YM5-TR
MIC5207-1.8YM5-TX
MIC5205-2.5YM5-TR
MIC5205-2.7YM5-TR
MIC5205-2.8YM5-TR
MIC5205-2.9YM5-TR
MIC5205-3.0YM5-TR
MIC5205-3.1YM5-TR
MIC5205-3.2YM5-TR
MIC5205-3.6YM5-TR
MIC5205-3.8YM5-TR
MIC5205-4.0YM5-TR
MIC5205-5.0YM5-TR
MIC5205YM5-TR

MIC5205-3.3YM5-TR
MIC5207-2.5YM5-TR
MIC5207-2.8YM5-TR
MIC5207-2.9YM5-TR
MIC5207-3.0YM5-TR
MIC5207-3.1YM5-TR
MIC5207-3.2YM5-TR
MIC5207-4.0YM5-TR
MIC5207-5.0YM5-TR
MIC5207YM5-TR
MIC5207-3.3YM5-TR
MIC5219-2.6YM5-TR
MIC5219-2.7YM5-TR
MIC5219-2.8YM5-TR
MIC5219-2.85YM5-TR
MIC5219-2.9YM5-TR
MIC5219-3.1YM5-TR
MIC5219-3.6YM5-TR
MIC5219-2.5YM5-TR
MIC5219-3.0YM5-TR
MIC5219-3.3YM5-TR
MIC5219-5.0YM5-TR
MIC5219YM5-TR
MIC5205-3.3YM5-TR-HCM
MIC5207-2.5YM5-TX
MIC5207-3.3YM5-TX

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN ID#: NTDO-14MNBI131

Date:
October 26, 2022

Qualification of G700 as a new mold compound material and DAP Surface Prep for selected Micrel MIC3490, MIC52xx, MIC62xxxM5, SPN020xxxx device families available in 5L SOT-23 package assembled at STAR assembly site. This is a Q100 grade 1 qualification.

MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of G700 as a new mold compound material and DAP Surface Prep for selected Micrel MIC3490, MIC52xx, MIC62xxxM5, SPN020xxxx device families available in 5L SOT-23 package assembled at STAR assembly site. This is a Q100 grade 1 qualification.
CCB	5025
CN	E000095749
QUAL ID	R2200571 Rev. A
MP CODE	21803Y6BXVA1
Part No.	MIC5233YM5-TRVAO
Bonding No.	BD-000496 Rev. 01

Package

Type	5L SOT-23

Lead Frame

Paddle size	72 x 52 mils
Material	C194
Surface	NiPdAuAg with Roughened
Process	STAMP
Lead Lock	No
Part Number	MLEP00026MIC-T
Treatment	RT+UPG

Material

Epoxy	84-1LMISR4
Wire	Au wire
Mold Compound	G700
Plating Composition	PPF (NiPdAu)

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
STAR225000084.000	TMPE222174042.300	221069A
STAR225000085.000	TMPE222174042.300	22106AE
STAR225100003.000	TMPE222174042.300	22116AH

Result ☒ 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, 125°C and -40°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 and 125°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: +125°C System: TMT		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>5.00 grams)		15(0)	0/15	Pass	
	Bond Shear (>25.00 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:** 30 Volts System: HAST 6000X	JESD22-A110		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 125°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, 500 hrs. System: SHEL LAB	JESD22-A103		0/45		
	Electrical Test: +25°C and 125°C System: TMT		45(0)	0/45	Pass	
Solderability Temp 215°C	**Steam Aging:** Temp 93°C, 1Hr System: SAS-3000	J-STD-002	22(0)	0/22		
	Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63, Pb37 System: ERSA RA 2200D			0/22		
	Visual Inspection: External Visual Inspection			0/22	Pass	
Solderability Temp 245°C	**Steam Aging:** Temp 93°C, 1Hr System: SAS-3000	J-STD-002	22(0)	0/22		
	Solder Dipping: Solder Temp.245°C Solder material: Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D			0/22		
	Visual Inspection: External Visual Inspection			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 (>4.00 grams)	Mil. Std. 883-2011	30(0) Wires	0/30	Pass	
	Bond Shear (>23.10 grams)	CDF-AEC-Q100-001	30(0) bonds	0/30	Pass	