



Product Change Notification / RMES-28IMGT211

Date:

11-Oct-2021

Product Category:

Smart Energy SOC

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4729 Final Notice: Implementation of Die Overcoat material with Polyimide for ATSENSEx01, ATSAM4CMxxx and ATSAM4CMx32 device families available in 20L SOIC, 32L TQFP and 100L LQFP packages.

Affected CPNs:

[RMES-28IMGT211_Affected_CPN_10112021.pdf](#)

[RMES-28IMGT211_Affected_CPN_10112021.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: Implementation of Die Overcoat material with Polyimide layer for ATSENSEx01, ATSAM4CMxxx and ATSAM4CMx32 device families available in 20L SOIC, 32L TQFP and 100L LQFP packages.

Pre and Post Change Summary:

	Pre Change	Post Change
--	------------	-------------

Fabrication Site	Microchip Fabrication site, Fab 5, Colorado Springs, USA (MCSO)	Microchip Fabrication site, Fab 5, Colorado Springs, USA (MCSO)
Die Overcoat Material	Without Polyimide layer	With Polyimide layer

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve manufacturability by implementing of Die Overcoat material (Polyimide layer). Die overcoat protect the die against scratches, package stress and increase mold compound adhesion during assembly process.

Change Implementation Status: In Progress

Estimated First Ship Date: October 28,2021 (date code: 2144)

Time Table Summary:

	October 2021				
Workweek	41	42	43	44	45
Qual Report Availability		X			
Final PCN Issue Date		X			
Estimated Implementation Date				X	

Method to Identify Change: Traceability code

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

Revision History: October 11, 2021: Issued final 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-28IMGT211_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.



MICROCHIP

PACKAGE QUALIFICATION REPORT
RELIABILITY LABORATORY

PCN #: RMES-28IMGT211

Date:
September 28, 2020

**Implementation of Die Overcoat material with Polyimide layer for
ATSENSEx01, ATSAM4CMxxx and ATSAM4CMx32 device families available in
20L SOIC, 32L TQFP and 100L LQFP packages.**

Purpose: Implementation of Die Overcoat material with Polyimide layer for ATSENSEx01, ATSAM4CMxxx and ATSAM4CMx32 device families available in 20L SOIC, 32L TQFP and 100L LQFP packages.

<u>Misc.</u>	Assembly site	ASEK
	BD Number	BD_63905_AZB_19_C_0.0
	MP Code (MPC)	36079TH7XC10
	Part Number (CPN)	ATSAM4CMS16CC-AUR
	Qual ID	QTP4145 Rev. A
	CCB Number	4324 and CCB 4729
<u>Lead Frame</u>	Paddle size	240x240 mils
	Core material	C7025
	Thickness	5 mils
	Part Number	A07754-0
<u>Bond Wire</u>	Material	CuPd
<u>Die Attach</u>	Part Number	CRM-1076WA
	Conductive	Yes
	Part Number	NEX-130SX
	Conductive	No
<u>Mold Compound</u>	Part Number	G631H
<u>PKG</u>	PKG Type	LQFP
	Pin/Ball Count	100
	PKG width/size	14x14x1.4 mm



MICROCHIP Package Qualification Report

Manufacturing Information

Lot	Assembly Lot No.	Wafer No.
1	ASE-203400560	U12I920148131.100 /16 MCSO520157184.110 / 22, 23
2	ASE-203400562	U12I920010911.000 /23, 24 MCSO520157186.100/17,22, 23
3	ASE-203600013	U12I920273459.000/4 MCSO520157185.100/17, 22

Result



Pass



Fail



SAM4CMS16CC: Qualification of the 63905 with the ATSENSE301 (56H31) using a layer of polyimide (MCM stacked) using the 100 LQFP 14x14x1.4mm package at ASE pass reliability test per AEC-Q006 which was conducted at MPHL rel lab. This package qualified Moisture/Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020D 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 3)	Electrical Test : 25°C, 85°C System: D10 Tester / MT9510	JESD22-A113	231 units per lot	Lot 1 0/270	Pass	
	Bake 125°C, 24 hrs System: HERAEUS			Lot 2 0/270	Pass	
	30°C/60%RH Moisture Soak 192hrs. System: Climats Excal 5423-HE	IPC/JEDEC J-STD-020E		Lot 3 0/269	Pass	
	3x Convection-Reflow 260°C max System: Mancorp CR.5000F					
Temperature Cycle	Electrical Test : 25°C, 85°C System: D10 Tester / MT9510					
	Stress Condition: (Standard) -55°C to +125°C, 500 Cycles System: Votsch VTS ² 7012	JESD22-A104	77 units per lot	Lot 1 0/90	Pass	
				Lot 2 0/90	Pass	
	Electrical Test : 85°C System: D10 Tester / MT9510			Lot 3 0/90	Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6	Pass	
				Lot 2 0/6	Pass	
				Lot 3 0/6	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Temperature Cycle	Stress Condition: (Standard) -55°C to +125°C, 1000 Cycles System: Votsch VTS ² 7012 Electrical Test : 85°C System: D10 Tester / MT9510	JESD22-A104	70 units per lot	Lot 1 0/79 Lot 2 0/79 Lot 3 0/79	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	
HAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs System: HIRAYAMA HASTEST PC-422R8 Electrical Test : 25°C, 85°C System: D10 Tester / MT9510	JESD22-A118	77 units per lot	Lot 3 0/84	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
HAST	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 3 0/6	Pass	
	Stress Condition: (Standard) +130°C/85%RH, 192 hrs System: HIRAYAMA HASTEST PC-422R8	JESD22- A118	77 units per lot	Lot 3 0/73	Pass	
	Electrical Test : 25°C, 85°C System: D10 Tester / MT9510			Lot 3 0/73	Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 3 0/6	Pass	
UHAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. no bias System: HIRAYAMA HASTEST PC-422R8	JESD22- A118	77 units per lot	Lot 1 0/90	Pass	
	Electrical Test : 25°C System: D10 Tester / MT9510			Lot 2 0/89	Pass	
				Lot 3 0/89	Pass	
	Stress Condition: (Standard) +130°C/85%RH, 192 hrs. no bias System: HIRAYAMA HASTEST PC-422R8	JESD22- A118	70 units per lot	Lot 1 0/79	Pass	
	Electrical Test : 25°C System: D10 Tester / MT9510			Lot 2 0/78	Pass	
				Lot 3 0/77	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HTSL	Stress Condition: Bake 150°C, 500 hrs. System: HERAEUS Electrical Test : 25°C, 85°C System: D10 Tester / MT9510	JESD22-A10	45 units per lot	Lot 1 0/60 Lot 2 0/60 Lot 3 0/60	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	
	Stress Condition: Bake 150°C, 1000 hrs. System: HERAEUS Electrical Test : 25°C, 85°C System: D10 Tester / MT9510	JESD22-A103	44 units per lot	Lot 1 0/48 Lot 2 0/49 Lot 3 0/49	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond <i>Shear</i> (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	

Affected Catalog Part Numbers (CPN)

ATSENSE101A-SU
ATSENSE301A-AU
ATSENSE201HA-AU
ATSENSE301HA-AU
ATSENSE201A-AU
ATSENSE301A-AN
ATSENSE301A-ANR
ATSENSE101A-SUR
ATSENSE301A-AUR
ATSENSE201HA-AUR
ATSENSE301HA-AUR
ATSENSE201A-AUR
ATSAM4CMP8CB-AU
ATSAM4CMS8CB-AU
ATSAM4CMS16CC-AU
ATSAM4CMS4CC-AU
ATSAM4CMS8CC-AU
ATSAM4CMP16CC-AU
ATSAM4CMP8CC-AU
ATSAM4CMP8CB-AUR
ATSAM4CMS8CB-AUR
ATSAM4CMS16CC-AUR
ATSAM4CMS4CC-AUR
ATSAM4CMS8CC-AUR
ATSAM4CMP16CC-AUR
ATSAM4CMP8CC-AUR
ATSAM4CMS32CB-AU
ATSAM4CMP32CB-AU
ATSAM4CMS32CB-AUR
ATSAM4CMP32CB-AUR