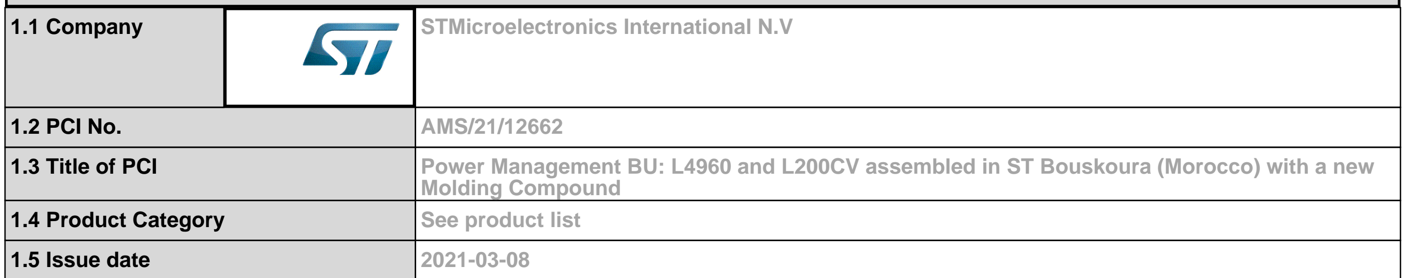
PRODUCT / PROCESS CHANGE INFORMATION

1. PCI basic data		
1.1 Company		STMicroelectronics International N.V
1.2 PCI No.		AMS/21/12662
1.3 Title of PCI		Power Management BU: L4960 and L200CV assembled in ST Bouskoura (Morocco) with a new Molding Compound
1.4 Product Category		See product list
1.5 Issue date		2021-03-08

2. PCI Team	
2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Marcello SAN BIAGIO
2.1.2 Marketing Manager	Salvatore DI VINCENZO
2.1.3 Quality Manager	Giuseppe LISI

3. Change		
3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	New direct material part number (same supplier, different supplier or new supplier), Mold compound	ST Bouskoura (Morocco)

4. Description of change		
	Old	New
4.1 Description	Molding compound : SAMSUNG SI-7200DXC	Molding compound : SUMITOMO EME-6650RL1L
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No changes of the Electrical Characteristics and Quality.	

5. Reason / motivation for change	
5.1 Motivation	Following the announcement of products obsolescence in the PTN#12276 having as last buy order April 1st, 2021, we are obliged to communicate the replacement of the current mold compound SAMSUNG SI-7200DXC with a new one SUMITOMO EME-6650RL1L because of its unvailability to cover all the requests. Then you could receive parts that have been produced by using both mold compound. It goes without saying that parts with the new mold compound have the same Electrical Characteristics and Quality Level.
5.2 Customer Benefit	SERVICE CONTINUITY

6. Marking of parts / traceability of change	
6.1 Description	The traceability of the new parts will be ensured by different internal codification and QA number

7. Timing / schedule	
7.1 Date of qualification results	2021-03-04
7.2 Intended start of delivery	2021-04-10
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation	
8.1 Description	12662 W1153-20-New Resin Sumitomo for L200_L740 M05-KSAD-L7651 Pentawatt_Heptawatt assembled in Bouskoura.pdf

8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2021-03-08

9. Attachments (additional documentations)
12662 Public product.pdf 12662 W1153-20-New Resin Sumitomo for L200_L740 M05-KSAD-L7651 Pentawatt_Heptawatt assembled in Bouskoura.pdf

10. Affected parts		
10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	L200CV	

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Public Products List

Publict Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

PCI Title : Power Management BU: L4960 and L200CV assembled in ST Bouskoura (Morocco) with a new Molding Compound
PCI Reference : AMS/21/12662

Subject : Public Products List

Dear Customer,

There is no Standard Public Products impacted by the change

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AMG (Analog & MEMS Group)
General Purpose Analog & RF Division
Signal Conditioning& Interface

Quality and Reliability

REL.6088-1153-W-20

Reliability Evaluation Report

QUALIFICATION of NEW RESIN Sumitomo for L200_L740 Pentawatt_Heptawatt assembled in Bouskoura

General Information	
Product Lines	*TV1: L20003* *TV2: L74003*
Product Description	*TV1: Linear Voltage Regulator* *TV2: Switchmode Power Supply*
P/N Positive voltage regulators	*TV1: L200CV* *TV2: L4960*
Product Group	*AMG*
Product division	*General Purpose Analog & RF Division*
Package	*TV1: Pentawatt* *TV2: Heptawatt*
Silicon Process technology	*BIP (>6um)*

Locations	
Wafer fab	*Singapore 6*
Assembly plant	*BOUSKOURA 2 - MOROCCO*
Reliability Lab	*BOUSKOURA 2 - MOROCCO*

DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Approved by	Comment
1.0	June 2020	6	Antonio Russo	Sergio Spampinato	Final Report

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1 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
JESD47	Stress-Test-Driven Qualification of Integrated Circuits

2 GLOSSARY

DUT	Device Under Test
SS	Sample Size

3 RELIABILITY EVALUATION OVERVIEW OBJECTIVES

To qualify new molding compound Sumitomo EME-6650RL1L for L200 (Pentawatt) and L740 (Heptawatt) assembled in BOUSKOURA 2 – MOROCCO.
Qualification activity have been performed on 1 assy lots for each TVs as requested by JEDEC JESD47 for this type of change.

4 CONCLUSION

Qualification plan has been fulfilled without exception. Reliability tests have shown that those devices behave correctly against environmental tests (no failure). Moreover, the stability of electrical parameters during the accelerated tests demonstrates the robustness of those products and safe operation, which is consequently expected during their lifetime.

5 DEVICE CHARACTERISTIC

5.1 Change description

Qualification of new molding compound Sumitomo EME-6650RL1L for L200 (Pentawatt) and L740 (Heptawatt) assembled in BOUSKOURA 2 – MOROCCO.

5.2 Construction note

	L20003	L74003
Wafer/Die fab. information		
Wafer fab manufacturing location	Ang Mo Kio 6”	
Technology	BIP (>6um)	
Die finishing back side	Cr/NiV/Au	
Die size	2.165 X 2.215	3.160 X 3.170
Passivation type	SiN (nitride)	
Assembly information		
Assembly Site	BOUSKOURA 2 - MOROCCO	
Package description	Pentawatt	Heptawatt
Molding compound	Sumitomo EME-6650RL1L	
Wires bonding materials/diameters	Cu 2 mil	

6 TEST VEHICLE & TEST RESULTS SUMMARY

6.1 Test vehicle

Lot #	T.V.	Package	Commercial product
1	L20003	Pentawatt	L200CV
2	L74003	Heptawatt	L4960

6.2 Test results summary

Test	PC	Std ref.	Conditions	ss	Steps	SS Lot 1	SS Lot 2
Die Oriented Reliability trials							
HTSL	N	JESD22A-103	Ta = 150°C	160	168 H	0/80	0/80
					500 H	0/80	0/80
					1000 H	0/80	0/80
Package Oriented Reliability trials							
AC	Y	JESD22A-102	Pa=2Atm / Ta=121°C	160	96 H	0/80	0/80
TC	Y	JESD22A-104	Ta = -65°C to 150°C	160	100 cy	0/80	0/80
					500 cy	0/80	0/80
Package Assembly Integrity trials							
WBP	-	M2011	30 wires, characterization	10	Final	Pass CPK>1.66	Pass CPK>1.66
WBS	-	M2011	30 wires, characterization	10	Final	Pass CPK>1.66	Pass CPK>1.66

7 ANNEXES

7.1 Devices details

7.1.1 Pin connections

Refer to products datasheet

7.1.2 Package Mechanical data

Refer to products datasheet

8 TEST DESCRIPTION

Test name	Description	Purpose
Die Oriented		
HTSL High Temperature Storage Life	The device is stored in unbiased condition at the max. temperature allowed by the package materials, sometimes higher than the max. operative temperature.	To investigate the failure mechanisms activated by high temperature, typically wire-bonds solder joint ageing, data retention faults, metal stress-voiding.
Package Oriented		
AC Auto Clave (Pressure Pot)	The device is stored in saturated steam, at fixed and controlled conditions of pressure and temperature.	To investigate corrosion phenomena affecting die or package materials, related to chemical contamination and package hermeticity.
TC Temperature Cycling	The device is submitted to cycled temperature excursions, between a hot and a cold chamber in air atmosphere.	To investigate failure modes related to the thermo-mechanical stress induced by the different thermal expansion of the materials interacting in the die-package system. Typical failure modes are linked to metal displacement, dielectric cracking, molding compound delamination, wire-bonds failure, die-attach layer degradation.
Other		
WBS Wire Bond Shear	A process in which an instrument uses a chisel shaped tool to shear or push a ball or wedge/stitch bond off the bonding surface. The force required to cause this separation is recorded and is referred to as the bond shear strength. The bond shear strength of a ball bond, when correlated to the diameter of the ball bond, is an indicator of the quality of the metallurgical bond between the ball bond and the die bonding surface metallization.	This test establishes a procedure for determining the strength of the interface between a ball bond and a package bonding surface. This strength measurement is extremely important in determining the integrity of the metallurgical bond which has been formed.
WBP Wire Bond Pull	The apparatus for this test shall consist of suitable equipment for applying the specified stress to lead wire or terminal as required in the specified test condition. A calibrated measurement and indication of the applied stress in grams force (gf) shall be provided by equipment capable of measuring stresses.	The purpose of this test is to measure bond strengths, evaluate bond strength distributions, or determine compliance with specified bond strength requirements of the applicable acquisition document.