


**PRODUCT / PROCESS CHANGE NOTIFICATION**

**1. PCN basic data**

<b>1.1 Company</b>		STMicroelectronics International N.V
<b>1.2 PCN No.</b>	AMS/20/11886	
<b>1.3 Title of PCN</b>	New molding compound for DIP package to replace SAMSUNG SDI under termination phase	
<b>1.4 Product Category</b>	See product list	
<b>1.5 Issue date</b>	2020-01-28	

**2. PCN Team**

<b>2.1 Contact supplier</b>	
<b>2.1.1 Name</b>	KELLY MURPHY
<b>2.1.2 Phone</b>	
<b>2.1.3 Email</b>	kelly.murphy@st.com
<b>2.2 Change responsibility</b>	
<b>2.2.1 Product Manager</b>	Domenico ARRIGO,Marcello SAN BIAGIO
<b>2.1.2 Marketing Manager</b>	Salvatore DI VINCENZO,Fulvio PULICELLI
<b>2.1.3 Quality Manager</b>	Sergio Tommaso SPAMPINATO,Alessandro PLATINI

**3. Change**

<b>3.1 Category</b>	<b>3.2 Type of change</b>	<b>3.3 Manufacturing Location</b>
Materials	New direct material part number (same supplier, different supplier or new supplier), Mold compound	Assembly = Nantong Fujitsu (China)

**4. Description of change**

	<b>Old</b>	<b>New</b>
<b>4.1 Description</b>	Molding compound = Samsung SG8200DTA	Molding compound = Replacement of current molding compounds with alternative material from different supplier (see qualification report for more details)
<b>4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?</b>	No impact	

**5. Reason / motivation for change**

<b>5.1 Motivation</b>	As stated in the ST Corporate Product Change Information CRP/19/11478, the current molding compound supplied by Samsung will be terminated. So the goal of this PCN is to announce the qualification of a new molding compound for products in DIP package assembled in Nantong Fujitsu (China). The changed products do not present modified electrical, dimensional or thermal parameters, leaving unchanged the current information published in the product datasheet. There is no change in the packing modes and the standard delivery quantities either.
<b>5.2 Customer Benefit</b>	SERVICE CONTINUITY

**6. Marking of parts / traceability of change**

<b>6.1 Description</b>	New Finished good codes
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**7. Timing / schedule**

<b>7.1 Date of qualification results</b>	2019-12-15
<b>7.2 Intended start of delivery</b>	2020-05-01
<b>7.3 Qualification sample available?</b>	Upon Request

**8. Qualification / Validation**

<b>8.1 Description</b>	11886 Qual report.zip
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<b>8.2 Qualification report and qualification results</b>	Available (see attachment)	<b>Issue Date</b>	2020-01-28
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<b>9. Attachments (additional documentations)</b>
11886 Public product.pdf 11886 Qual report.zip

<b>10. Affected parts</b>		
<b>10. 1 Current</b>		<b>10.2 New (if applicable)</b>
<b>10.1.1 Customer Part No</b>	<b>10.1.2 Supplier Part No</b>	<b>10.1.2 Supplier Part No</b>
AVS1ACP08	AVS1ACP08	
L4971	L4971	
L4978	L4978	
L6561	L6561	
	L6562AN	
L6565N	L6565N	
MC34063ABN	MC34063ABN	
MC34063ACN	MC34063ACN	
MC34063EBN	MC34063EBN	
MC34063ECN	MC34063ECN	
TDE1798DP	TDE1798DP	
	UC2842BN	
UC2843BN	UC2843BN	
	UC2844BN	
	UC2845BN	
UC3842BN	UC3842BN	
UC3843BN	UC3843BN	
	UC3844BN	
	UC3845BN	
	VIPER06HN	
	VIPER06LN	
	VIPER06XN	
	VIPER16HN	
	VIPER17HN	
	VIPER17LN	
	VIPER26HN	
	VIPER26LN	
	VIPER27HN	
	VIPER27LN	
	VIPER28HN	
	VIPER28LN	
	VIPER37HE	
	VIPER37LE	
	VIPER38HE	
	VIPER38LE	

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## Reliability Evaluation Report

**QUALIFICATION of NEW RESIN on PDIP 08  
 NANTONG FUJITSU**

General Information		Locations	
<b>Product Lines</b>	<i>TV1: LL0401 TV2: U73803 TV3: U75203</i>	<b>Wafer fab</b>	<i>Singapore 6</i>
<b>Product Description</b>	<i>DC-DC CONVERTERS</i>	<b>Assembly plant</b>	<i>NANTONG FUJITSU - CHINA</i>
<b>P/N Positive voltage regulators</b>	<i>TV1: MC34063ECN TV2: L4971-6HF TV3: L4978-2HF</i>	<b>Reliability Lab</b>	<i>Catania Reliability LAB</i>
<b>Product Group</b>	<i>AMG</i>		
<b>Product division</b>	<i>General Purpose Analog &amp; RF Division</i>		
<b>Package</b>	<i>PDIP 08</i>		
<b>Silicon Process technology</b>	<i>TV1: BIPOLAR TV2: BCD 2 - 2S TV3: BCD 2 - 2S</i>		

### DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Approved by	Comment
1.0	December 2019	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 HHCK EMG-400-1F for PDIP 08 assembled in NANTONG FUJITSU – CHINA.  
Qualification activity have been performed on three different assy lots as requested by JEDEC JESD47 for these types of changes.

## **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 HHCK EMG-400-1F for PDIP 08 package in NANTONG FUJITSU - CHINA in replacement of current Samsung SG8200DTA.

### **5.2 Construction note**

	LL0401	U73803	U75203
<b>Wafer/Die fab. information</b>			
Wafer fab manufacturing location	Ang Mo Kio 6"		
Technology	BIPOLAR	BCD 2 - 2S	BCD 2 - 2S
Die finishing back side	Lapped Silicon	CHROMIUM/NICKEL	CHROMIUM/NICKEL
Die size	2.380 X 2.090	3.240 X 3.210	3.220 X 3.180
Passivation type	SiN (nitride)		
<b>Assembly information</b>			
Assembly Site	NANTONG FUJITSU - CHINA		
Package description	PDIP 08		
Molding compound	HHCK EMG-400-1F		
Die attach material	Epoxy		
Wires bonding materials/diameters	Cu 1mil	CU 1.5mil	CU 1.5mil

## **6 TEST VEHICLE & TEST RESULTS SUMMARY**

### **6.1 Test vehicle**

Lot #	T.V.	Process/ Package	Commercial product
1	LL0401	PDIP 08	MC34063ECN
2	U73803		L4971-6HF
3	U75203		L4978-2HF

### **6.2 Test results summary**

Test	PC	Std ref.	Conditions	ss	Steps	SS			Note
						Lot 1	Lot 2	Lot 3	
<b>Die Oriented Reliability trials</b>									
HTSL	N	JESD22 A-103	Ta = 150°C	270	168 H	0/90	0/90	0/90	
					500 H	0/90	0/90	0/90	
					1000 H	0/90	0/90	0/90	
<b>Package Oriented Reliability trials</b>									
AC	Y	JESD22 A-102	Pa=2Atm / Ta=121°C	270	96 H	0/90	0/90	0/90	
					168 H	0/90	0/90	0/90	Eng. evaluation
TC	Y	JESD22 A-104	Ta = -65°C to 150°C	270	100cy	0/90	0/90	0/90	
					500 cy	0/90	0/90	0/90	
<b>Package Assembly Integrity trials</b>									
WBP	-	M2011	30 wires, characterization	15	Final	Pass CPK>1.66	Pass CPK>1.66	Pass CPK>1.66	
WBS	-	JESD22- B116	30 balls, characterization	15	Final	Pass CPK>1.66	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
<b>Die Oriented</b>		
<b>HTSL</b> 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.
<b>Package Oriented</b>		
<b>AC</b> 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.
<b>TC</b> 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.
<b>Other</b>		
<b>WBS</b> 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.
<b>WBP</b> 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.



## Public Products List

Public 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

**PCN Title** : New molding compound for DIP package to replace SAMSUNG SDI under termination phase

**PCN Reference** : AMS/20/11886

**Subject** : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

VIPER16HN	VIPER35LE	VIPER38LE
MC34063ABN	MC34063ACN	UC2844BN
UC3842BN	L4978	TDE1798DP
UC3843BN	L4971	VIPER26LN
VIPER37LE	UC2843BN	VIPER17HN
L4976	VIPER25LN	VIPER28LN
VIPER27HN	VIPER38HE	VIPER27LN
L6565N	VIPER28HN	VIPER06HN
MC34063EBN	MC34063ECN	UC3844BN
VIPER26HN	UC2845BN	VIPER06LN
VIPER06XN	VIPER17LN	UC2842BN
VIPER25HN	UC3845BN	VIPER35HE
L6562AN	L6561	L6562N
VIPER37HE		



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