PRODUCT/PROCESS CHANGE NOTIFICATION

PCN HED-HVD/07/2771
Notification Date 07/26/2007

TEA6420D / DT & TEA6422D / DT : Additional assembly site AMKOR

HVD - HOME VIDEO

Table 1. Change Identification

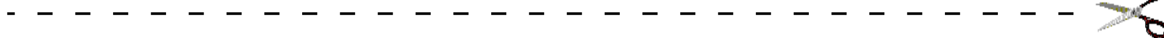
Product Identification (Product Family/Commercial Product)	TEA6420D, TEA6420DT, TEA6422D, TEA6422DT
Type of change	Package assembly location change
Reason for change	Capacity increase
Description of the change	In order to increase our production capacity for those products, we are re-activating AMKOR assembly site (in addition of current assembly site in MUAR).
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	Marking (device, box label)
Manufacturing Location(s)	

Table 2. Change Implementation Schedule

Forecasted implementation date for change	27-Aug-2007
Forecasted availabillity date of samples for customer	16-Aug-2007
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	19-Jul-2007
Estimated date of changed product first shipment	25-Oct-2007

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN HED-HVD/07/2771**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 07/26/2007**
☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Guglielmi, Gabriel	Division Marketing Manager
Chavade, Jacques	Division Product Manager
Jan, Didier	Division Q.A. Manager

TEA6420D / DT & TEA6422D / DT : Assembly in AMKOR

Dear valued customer,

In order to satisfy the increasing worldwide demand of TEA6420D, TEA6420DT, TEA6422D and TEA6422DT mainly for LCD TV and PDP TV, we are going to re-activate the assembly site in AMKOR (it has already been used in the past years for this products family), in addition of MUAR plant currently used.

Considering your significant demand for the Q3 peak season, we propose you the opportunity to ship products from AMKOR assembly starting from September 2007.

In this case, please could you inform by written your ST contact, about your acceptance.

Kind regards.
JC Dorille
HVD, Business Manager

HED BE Q&R RELIABILITY REPORT*

Assembly line: SO line Pure Tin – AMKOR-ATP1
Package family: SO28 (LR package code)

Abstract

The object of this reliability report is to validate the introduction of the pure tin finishing and the molding compound (G600) change.

Change identification

Reliability report reference / date	HPC-Rel-33-06-B	June 5, 2007
Qualification request reference /date	HPC 0063/05	December 7, 2005
Qualification plan reference / date	HPC QP06010	April 25, 2006
Affected products	SO 28 lead free	

Conclusion

Based on the results of reliability tests and TI, all SO 28 with pure tin finishing can be considered as qualified with JEDEC level 3 @260°C (peak reflow temperature).

* HED BE Q&R – GRENOBLE
Issued by Corinne TRIOMPHE
Approved by Massimo PICCOLI

Package construction note

PACKAGE FEATURES	
Package name	SO 28 .30 TO JEDEC MS-013AE
Body size (mm^3)	18 x 7.5 x 2.3
Pitch (mm)	1.27
Assembly site	AMKOR ATP1
Lead finish	Pure Tin
Solder plating machine	MECO
Solder plating chemistry	EXCEL 90
Die attach	Ablestik 8290
Molding compound	Resin Sumitomo G600
Wire material / diameter	GOLD WIRE 1.2 MILS DIAM.
Wire bonding	Thermosonic

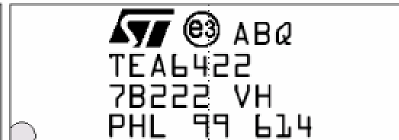
Lot traceability

A563 lot

Assy lot number: H6073850=1
Wafer lot number: VH607385

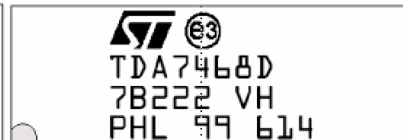
521 lot

Assy lot number: H606318=1
Wafer lot number: VH606318



A207 lot

Assy lot number: H547469=1
Wafer lot number: VH547469



Reliability test conditions and results

Line	Final test	Reliability plant	Particular points
A563	MUAR	MUAR	
A521	MUAR	MUAR	
A207	MUAR	MUAR	

		REJECTED PARTS		
TEST	**CONDITIONS**	*A563*	*A521*	*A207*
JL3	Preconditioning - T-SCAN + C-SAM @ time 0 - 24h bake @ 125°C - 192h @ 30°C / 60% RH - Reflow simulation (3 times) with standard JEDEC profile @ 260°C - T-SAM + C-SAM after reflow	*0/150*	*0/150*	*0/150*
JL3 + HdTS	Humidity storage Ta=85°C/85%Rh Steps: 0, 168, 500, 1000 hours T-SCAN + C-SAM after 1000 hours	*0/50*	*0/50*	*0/50*
JL3 + TCT	Thermal cycling Ta=-40/+150°C Steps: 0, 100, 500, 1000 cycles T-SCAN + C-SAM after 1000 cycles	*0/50*	*0/50*	*0/50*
HTS	High temperature storage Ta=150°C Steps: 0, 168, 500, 1000 hours T-SCAN + C-SAM after 1000 hours	*0/50*	*0/50*	*0/50*
JL3 + PPT	Pressure pot P=2atm, Ta=121°C, 100%RH Steps: 0, 168, 240h T-SCAN + C-SAM after 240h	*0/50*	*0/50*	*0/50*

Annex: Reliability tests description

TEST NAME	DESCRIPTION	PURPOSE
JLn: JEDEC Level n surface mounting simulation	The device is submitted to a typical temperature profile used for surface mounting, after controlled moisture absorption.	*As stand-alone test:* to investigate the level of moisture sensitivity. *As preconditioning before other reliability tests:* to verify that the surface mounting stress does not impact on the subsequent reliability performance. The typical failure modes are "pop corn" effect and delamination.
TCT: Temperature Cycles Test	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, and die attach layer degradation.
PPT: Pressure Pot Test	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.
HTS: High Temperature Storage	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.
HdST: Humid Storage Test	The device is stored at controlled conditions of temperature and relative humidity.	To investigate failure mechanisms activated in the die-package environment by wet conditions. Typical failure mechanisms are corrosion and surface effects related to the molding compound.

HED / MMC / APG / CPG.
BACK-END QUALITY ENGINEERING.

QUALIFICATION CERTIFICATE
N° QC-95-06-B HED/MMC/APG/CPG

Date ....June 6, 2007
Qualification request...........HPC/0063/05
Assembly plant ....AMKOR ATP1
Package..............................SO 28 .30 TO JEDEC MS-013AE
Products ....all SO 28 Lead-free

Materials ....Die Attach Material ....Ablestik 8290
Wire ....Au 1.2 mil
Molding compound ....Resin Sumitomo G600
Lead finish ....pure Sn
Plating machine ....MECO
Plating chemistry ....EXCEL 90

Assembly flow chart............7250105

Assembly report..................ST-HPC SOM 28L H547469=1 (ILN 613E0261).xls
ST-HPC SOM 28L H606318=1 (ILN 613E0253).xls
ST-HPC SOM 28L H6073850=1 (ILN 613E0252).xls
Written by Rolan Montinola, (April 26, 2006).

Construction analysis ....N° CA MALTA HPC38/06, HPC39/06, HPC40/06 – CTLib numbers 27607, 27566, 27567 – Written by Clifford CALLUS (October 10, 2006)

Corrective actions...............“ST-HPC SOIC 28lds Delam Concern.ppt”
Written by Judith NARVASA (November 16, 2006)
8D report following CA report: “Engg Report ST-HPC SOIC 28L.ppt”
Sent by Ma. Sabina MACUTAY-JALLORINA (November 24, 2006)

Reliability report..................HPC-Rel-33-06-B – ADCS 8066236
Written by Corinne TRIOMPHE (June 5, 2007)

Temporary instruction ....TIHPC06-44-A, written by Carole DEL-PUPPO (November 7, 2006)
Positive results received from Judith NARVASA (April 20, 2007)

Conclusion..........................

SO28 PACKAGE WITH PURE TIN FINISHING IN AMKOR ATP1
IS QUALIFIED WITH JEDEC LEVEL 3 @260°C (peak reflow temperature)

Approver list	
Responsibility group	Name
HED Back-End Engineering	Jean-Luc DIOT
HED Back-End Quality	Massimo PICCOLI
MMC Back-End Engineering	Jacques FERRARA
MMC Back-End Quality	Pascal MAURICE
APG Back-End Engineering	Marzio TERZOLI
CPG Back-End Engineering	Alain VEZZU
APG/CPG Back-End Quality	Claude DOUCE

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