



PRODUCT/PROCESS CHANGE NOTIFICATION

PCN AMS-AAS/13/8268
Dated 19 Dec 2013

TDA7292 ; TDA7265B TRANSFER FROM AMK5 (5" wafers) TO AMK6 (6" wafers)

Table 1. Change Implementation Schedule

Forecasted implementation date for change	19-Dec-2013
Forecasted availability date of samples for customer	12-Dec-2013
Forecasted date for STMicroelectronics change Qualification Plan results availability	19-Dec-2013
Estimated date of changed product first shipment	20-Mar-2014

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	TDA7292 ; TDA7265B
Type of change	Waferfab process change
Reason for change	To rationalize the production capacity
Description of the change	TDA7292 and TDA7265B , diffused on bipolar BI70II process, will be transferred from the AMK5 (5" wafers) production line to AMK6 (6" wafers) production line, both inside the Ang Mo Kyo (Singapore) site. Note: with the agreement of the customer, parts from 6" wafers can be delivered even in advance in respect of the scheduled date.
Change Product Identification	Change of FG code
Manufacturing Location(s)	

DOCUMENT APPROVAL

Name	Function
Ferri, Simone	Marketing Manager
Onetti, Andrea Mario	Product Manager
Speroni, Ernesto Fabrizio	Q.A. Manager



TDA7292 ; TDA7265B TRANSFER FROM AMK5 (5" wafers) TO AMK6 (6" wafers)

WHAT

As part of the running program to convert to 6" wafers the silicon lines diffused on the bipolar processes in the Ang Mo Kio plant, the products TDA7292 and TDA7265B , diffused on bipolar BI70II process, will be transferred from the AMK5 (5" wafers) production line to AMK6 (6" wafers) production line, both inside the Ang Mo Kyo (Singapore) site.

WHY

To rationalize the production capacity.

HOW

The bipolar diffusion process family is qualified and running in volumes on 6" wafers.

The qualification of the silicon line is done trough a set of reliability stress tests and the monitoring of the alignment of electrical parameters of the impacted devices.

Attached the reliability report/plan with the updated results.

Note: with the agreement of the customer, parts from 6" wafers can be delivered even in advance in respect of the scheduled date.

Reliability Report

*TDA7292 ; TDA7265B TRANSFER FROM
AMK5 (5" wafers) TO AMK6 (6" wafers)*

General Information	
Product Line	<i>L791AC6</i>
Product Description	<i>40 W + 40 W stereo amplifier with mute and standby</i>
Finished Good Codes	<i>TDA7292; TDA7265B</i>
Product division	<i>AMS Analog and Audio Systems</i>
Package	<i>Multiwatt 11</i>
Silicon process technology	<i>BI70II</i>

Locations	
Wafer fab location	<i>AMK6 6</i>
Assembly fab location	<i>ST BOUSKOURA 2 - MOROCCO</i>
Reliability assessment	<i>Passed</i>

DOCUMENT HISTORY

Version	Date	Pages	Author	Comment
1.0	11/12/2013	7	Fabio Fiabane	

Issued by **Fabio Fiabane**

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1 RELIABILITY EVALUATION OVERVIEW

1.1 Objectives

Aim of this report is to present the results of the reliability evaluation performed on TDA7292 product.

TDA7292 is processed in *BI70II* and diffused in *AMK6 6 inches*.

TDA7292 is assembled in Multiwatt 11 in *ST BOUSKOURA 2 - MOROCCO*.

1.2 Conclusion

All reliability tests have been completed with positive results.

Parameter drift analysis performed on samples submitted to die oriented test showed a good stability of the main electrical monitored parameters.

Package oriented tests have not put in evidence any criticality.

ESD & Latch-Up on are in accordance with ST spec.

On the ground of the overall positive results we can conclude that TDA7292 device can be qualified from a reliability point of view.

2 DEVICE CHARACTERISTICS

2.1 Device description



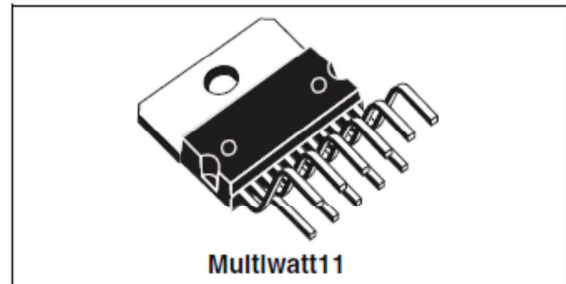
TDA7292

40 W + 40 W stereo amplifier with mute and standby

Datasheet – production data

Features

- Wide supply voltage range (up to ± 33 V)
- Split supply
- High output power
- 40 W + 40 W into 8 Ω
with $V_S = \pm 26$ V and THD = 10%
- No “pop” at turn on/off
- Mute (“pop”-free)
- Standby feature (low I_q)
- Short-circuit protection
- Thermal overload protection



Description

The TDA7292 is a class-AB dual audio power amplifier assembled in a Multiwatt package.

It has been specifically designed for high-quality sound applications such as hi-fi music centers and stereo TV sets.

Table 1. Device summary

Order code	Operating temp. range	Package	Packaging
TDA7292	0° to 70° C	Multiwatt11	Tube

2.2 Traceability

Wafer fab information	
Wafer fab manufacturing location	AMK6 6
Wafer diameter	6 inches
Silicon process technology	BI70II
Die finishing back side	CHROMIUM/NICKEL/GOLD
Die size	4790 x 4620 μm^2
Metal levels	1

Assembly Information	
Assembly plant location	ST BOUSKOURA 2 - MOROCCO
Package description	MULTIWATT 11L SPLIT VERT.

3 TESTS DESCRIPTION & DETAILED RESULTS

3.1 Die and Package tests description

TEST NAME	DESCRIPTION	PURPOSE
HTOL: High Temperature Operating Life	The device is stressed in dynamic configuration, approaching the operative max. absolute ratings in terms of junction temperature, load current, internal power dissipation.	To simulate the worst-case application stress conditions. The test is oriented to investigate typical IC failure modes like oxide faults and metal degradation and to check overall IC the parametric stability.
HTS: High Temperature Storage	The device is stored in unbiased condition at the maximum temperature allowed by the package materials, sometimes higher than the maximum operative temperature.	To investigate the failure mechanisms activated by high temperature, typically wire-bonds solder joint ageing, data retention faults, metal stress-voiding.
PC (JL3): Preconditioning (solder simulation)	The device is submitted to a typical temperature profile used for surface mounting, after controlled moisture absorption.	To investigate in general the effect of customer manufacturing soldering enhanced by package water 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.
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, moulding wire-bonds failure.
ESD (HBM): Electrostatic Discharge (Human Body Model)	The device is submitted to a high voltage peak on all his pins simulating ESD stress according to different simulation models.	To classify the device according to his susceptibility to damage or degradation by exposure to electrostatic discharge.
ESD (MM): Electrostatic Discharge (Machine Model)		
ESD (CDM): Electrostatic Discharge (Charged Device Model)		
LU (CI): Latch-up (Overvoltage and Current Injection)	The device is submitted to a direct current forced/sinked into the input/output pins. Removing the direct current no change in the supply current must be observed.	To verify the presence of bulk parasitic effects inducing latch-up.
THB: Temperature Humidity Bias	The device is stored at controlled conditions for ambient temperature and relative humidity.	To investigate failure mechanisms activated in the die-package environment by wet conditions. It is mainly oriented to highlight typical failure mechanisms of IC in these conditions like chemical corrosion.

3.2 Detailed results

Num.	Test	Test Conditions	Fail / sample size
1	TC	T= -50°C / +150°C for 1000 cycles	0 / 50
2	AC	T= +121°C, P=2atm for 96 hours	0 / 50
3	OLT	Tj=150° t=1000h The device is stressed in dynamic configuration	0 / 50
4	HTRB	Tj=150° t=1000h The device is biased in static configuration	0 / 50
5	THB	T=85° RH=85% t=1000h The device is biased in static configuration	0 / 50
6	LU	Latch up Overvoltage and injection current AEC Q100- 004	PASS
7	ESD HBM	HBM +/-2kV AEC Q100-002	PASS
8	ESD CDM	CDM +/-750V +/-500V +/-250V AEC Q100-003	PASS
9	ESD MM	MM +/-200V AEC Q100-003	PASS

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