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

PCN Title : SLLIMMTM 2nd series IPM – High Side driver Front End relocation – INDUSTRIAL

PCN Reference : ADG/22/13442

Subject : Public Products List

Dear Customer,

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

STGIB10CH60TS-LZ	STGIF5CH60TS-X	STGIB30M60S-XZ
STGIB10CH60TS-X	STGIF7CH60S-X	STGIB30M60S-L
STGIB8CH60TS-LZ	STGIB8CH60TS-E	STGIB8CH60TS-L
STGIF10CH60TS-L	STGIB10CH60S-L	STGIB10CH60TS-L
STGIF5CH60TS-L	STGIF10CH60S-L	STGIB30M60TS-L
STIB1560DM2-L	STGIB15CH60TS-L	STGIB30M60TS-LZ
STIB1060DM2T-L	STGIB15CH60S-XZ	STGIF7CH60TS-L
STGIB15CH60TS-LZ	STGIB20M60S-XZ	STGIF5CH60S-X
STGIB30M60TS-E	STGIB10CH60TS-XZ	STGIF7CH60TS-X
STGIF5CH60TS-XZ	STGIB20M60TS-L	STGIB15CH60TS-E
STGIF5CH60TS-LZ	STGIB15CH60TS-X	STIB1560DM2T-L
STGIB15CH60S-L	STGIF10CH60TS-LZ	STGIB20M60S-L
STGIB15CH60TS-XZ	STGIB20M60TS-E	STGIB10CH60S-XZ
STGIB8CH60S-LZ	STGIF10CH60S-LZ	STGIF7CH60TS-LZ
STGIB20M60TS-LZ	STGIB10CH60TS-E	STIB1060DM2T-LZ
STIB1560DM2T-LZ	STGIB8CH60S-L	STGIF7CH60TS-XZ

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High Side Driver Releasing – Packages SDIP2B/SDIP2F Intelligent Power Module Reliability Evaluation Plan

***Note**: this report is a summary of the reliability trials performed in good faith by STMicroelectronics in order to evaluate the electronic device conformance to its specific mission profile for Industrial Application. This report and its contents shall not be disclosed to a third party without previous written agreement from STMicroelectronics or under the approval of the author (see below).*

Revision history

Rev.	Changes description	Author	Date
1.0		G. Carra' ADG Reliability	21st of July 2021
2.0	Added chip vehicles	G. Carra' ADG Reliability	4th March 2022
3.0	Fixed some typo	G. Carra' ADG Reliability	6th May 2022

Approved by

Function	Location	Name	Date
Division Reliability Manager	ST Catania (Italy)	V.Giuffrida	4th March 2022

Contents

1. Reliability Evaluation Overview

1.1. Objective and reliability strategy

Aim of this document is to present the reliability plan to release in mass production the new High Side Driver present inside Intelligent Power Module systems (dedicated to Industrial Application) to substitute the current one.

The reliability evaluation will be performed according to **ST 0061692** specification.

Details of each stress test and relevant conditions are reported on section 2 table.

1.2. Test Plan

Test Plan Table

#	TEST NAME	TEST FLAG
1	Pre and Post Stress Electrical Test	Yes
2	External Visual	Yes
3	Preconditioning (PC)	Not Applicable
4	Thermal Cycling (TC)	Yes
5	Vibration (V)	No
6	(Intermittent Operational Life/Thermal Fatigue) IOL/TF (PCmin)	No
7	PCsec (Pwcy)	No
8	AutoClave (AC)	Yes
9	High Temperature Storage (HTS)	Yes
10	Low Temperature Storage (LST)	No
11	High Temperature Reverse Bias (HTRB)	Yes
12	High Temperature Gate Bias (HTGB)	No
13	Temperature Humidity Bias (THB)	Yes

2. Vehicles Information

Commercial Product	Product Line	Technology	Package	Assembly Plant
STGIB10CH60TS-L	RI63P1	IGBT	SDIP2B 26L	STS (China)
STGIF5CH60TS-L	EI62P1	IGBT	SDIP2F 26L	
STIB1560DM2T-L	FR67P1	HV FDmesh II	SDIP2B 26L	

2.1. Test Summary table

Test method revision reference is the one active at the date of reliability trial execution.

Test #	Reference	Test name	STM Test Conditions	Lots			S.S.	Total	Comments
				RI63P1	FR67P1	EI62P1			
1		Pre and Post Stress Electrical Test	According to user specification or supplier's standard specification	1	1	1	30	90	All qualification parts before/after stress
2		External Visual		1	1	1	30	90	All qualification parts before/after stress
3	According to JESD22-A113 JSTD-020	Preconditioning	24h bake @125°C Store 168H @ TA=85°C RH=85% 3x IR Reflow @ 260°C	-	-	-	-	-	Not applicable
4	According to JESD22 A-104	Thermal Cycling (TC)	Ta= -40°C/125°C, duration= 1000cy	1	1	1	6	18	
5		Vibration (V)		-	-	-	-	-	
6	MIL-STD-750 Method 1037	IOL/TF (PCmin)	ΔTj≥100°C, **cycles≥6K** cycle duration =2min	-	-	-	-	-	
7		PCsec	ΔTj≥100°C, **cycles≥15K** cycle duration =7s	-	-	-	-	-	
8	According to JESD22 A-102	AutoClave	TA=121°C; PA=2ATM	1	1	1	6	18	
9	According to JESD22 A-103	High Temperature Storage (**HTS**)	Ta=150°C, duration=1000h	1	1	1	6	18	
10	According to JESD22 A-103	Low Temperature Storage (**LTS**)	Ta=-40°C, duration=1000h	-	-	-	-	-	
11	According to JESD22 A-108	High Temperature Reverse Bias (**HTRB**)	Vbias=0.8 Vdd, Ta=150°C, duration=1000h	1	1	1	6	18	
12	According to JESD22 A-108	High Temperature Gate Bias (**HTGB**)	Vbias=Vgs max, Ta=150°C, duration=1000h	-	-	-	-	-	
13	According to JESD22 A-101	Temperature Humidity Bias (**H3TRB**)	Vbias=80V, Ta=85°C, RH=85%, duration=1000h	1	1	1	6	18	

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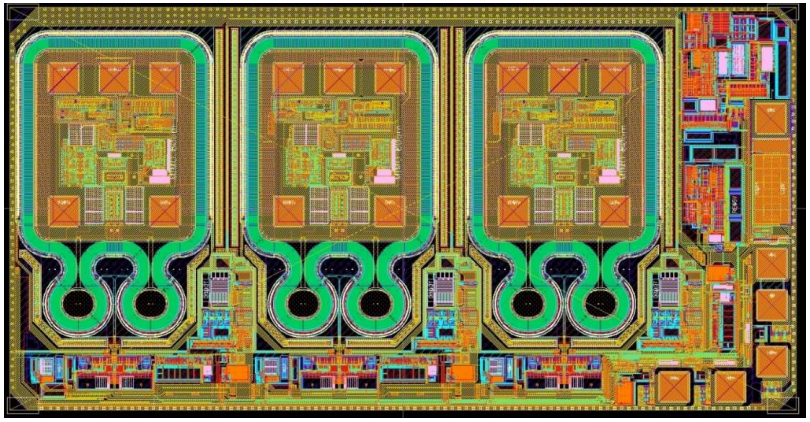
New High Side driver vs current one

- Chip redesign to include ESD protection on Vboot pin
- Bigger die size of about 8.5%
- No pad and connection changes
- Removal of NiPd from front metal
- Diffusion Plant transfer from Agrate (Italy) to AngMoKio (Singapore)

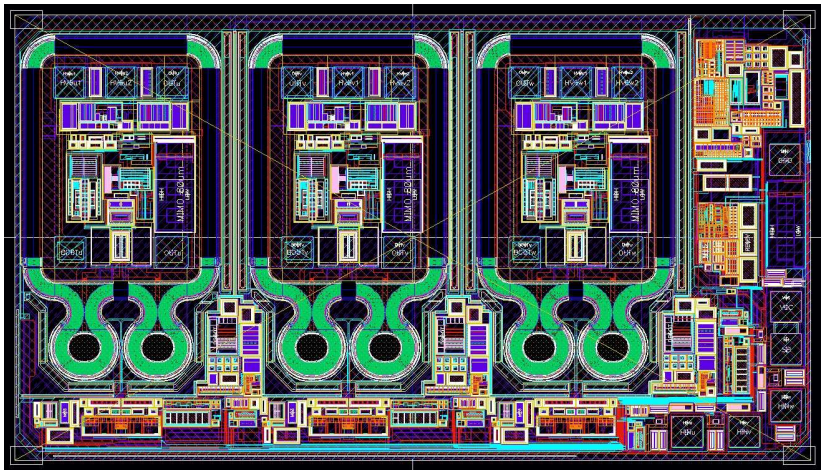
Current HS driver

4,13 x 2,18 = 9,0 mm²



New HS driver

4,13 x 2,36 = 9,75 mm²



life.augmented

PCN ADG/22/13442

Catania, May 6th 2022

Automotive Discrete Group (ADG)
Power Transistor MACRO-Division
IGBT & IPM Business Unit

Process Change Notification

SLLIMM™ 2nd series IPM – High Side driver Front End relocation – INDUSTRIAL

Dear Customer,

Following the continuous improvement of our service, in order to shorten production cycle time, improve output continuity and technically the ESD robustness, this document is announcing the change of Front end manufacturing of the High Side (HS) driver in our SLLIMM 2nd series IPM products listed in this PCN.
The High Side driver diffusion will be moved to Ang Mo Kio (Singapore) Front End and it will guarantee a better supply chain performance thanks to the removal of one process flow step, i.e. NiPd plating from front metal pad currently done in outsource and thanks to the re-union of diffusion and EWS at the same PLANT.
Moreover, this HS driver integrates an improved ESD protection circuit that makes our SLLIMM 2nd series IPM products safer against electrostatic discharge events (HBM and CDM).
Here in attachment a document detailing the main differences between current and new HS driver.

The involved product series are listed in the table below:

Product Family	Technology	Package	Part Numbers	Test Vehicles	Implementation schedule
IPM – SLLIMM 2nd series	IGBT Trench	SDIP2B-26L	STGIBxxxx-L	STGIB10CH60TS-L	Wk25 2022
			STGIBxxxx-LZ		
			STGIBxxxx-X		
			STGIBxxxx-XZ		
			STGIBxxxx-E		
		SDIP2F-26L	STGIFxxxx-L	STGIF5CH60TS-L	Wk35 2022
			STGIFxxxx-LZ		
			STGIFxxxx-X		
			STGIFxxxx-XZ		
	SJ MOSFET	SDIP2B-26L	STIBxxxx-L	STIB1560DM2T-L	Wk27 2022
			STIBxxxx-LZ		

Any other Product related to the above series, even if not expressly included or partially mentioned in the attached table, is affected by this change.

Qualification program and results availability:

The reliability test plan report is provided in attachment to this document.

Samples availability:

Samples of the test vehicle devices will be available upon request. Any other sample request will be processed and scheduled by IGBT&IPM Business Unit, upon request.

Change implementation schedule:

The production start and first shipments will be implemented as per above table.

Marking and traceability:

Unless otherwise stated by customer specific requirement, traceability of devices affected by this process change will be ensured by internal code (Finished Good) and Q.A. number.

Yours faithfully.