

Process Change Notification

This is to inform you that a design and/or process change will be implemented to the affected product(s) listed below. This notification requires your concurrence within 45 days upon receipt of this notification.

The plan change/s will take effect 90 calendar days from the date of this notification.

Please work with your local Taiwan Semiconductor Sales Representative to manage your inventory of unchanged/ existing product if your evaluation of this change will require more than 90 calendar days.

Please contact your local Taiwan Semiconductor Field Quality Service or Customer Quality Engineer within 45 days of receipt of this notification if you require any additional data or samples.

Change No: PCN25003 rev0

Title: Wafer Fab Change for FRED 600V Products

Issue Date: 2025/2/21

Change Type:

Wafer Fab Change for FRED 600V Products

Effectivity:

Expected 1st device shipment date: 2025/5/22

Last Order Date: 2025/8/20

Last Delivery Date: 2026/8/16

Product Category (Description):

FRED 600V products in SOD-123W, SMA(DO-214AC), ITO-220AB, TO-220AB and D2PAK-D

Full list of products affected are listed in “List of Affected Devices” section.

Description of Change:

This PCN is being issued to notify customers that in order to ensure product robustness and enhanced application capability, TSC has successfully qualified new wafer process for FRED 600V products.

In additional to above change, there is a typo correction for Peak forward surge current, IFSM. Refer to the IFSM change table for the details.

Full electrical characterization and reliability testing have been completed on representative part numbers to ensure that there is no change on product reliability and functionality.

Wafer Fab and Die Size

Item	Current		New	
Wafer Fab (All Parts)	Outsource Wafer		In-house Wafer	
Die Size (Specified Parts)	UGF1008GH	57 mil	UGF1008GH	62 mil
	UGF1008GAH	57 mil	UGF1008GAH	62 mil
	UG1008GH	57 mil	UG1008GH	62 mil
	UG1007GH	57 mil	UG1007GH	62 mil
	UGF1007GH	57 mil	UGF1007GH	62 mil
	UGF1007GAH	57 mil	UGF1007GAH	62 mil
	UGF2008GH	71 mil	UGF2008GH	78 mil
	UGF2007GH	71 mil	UGF2007GH	78 mil

Datasheet and Electrical Specification

Item	Current		New	
Junction Temperature (Specified Parts)	UGS20JH UGS30JH	Tjmax=150°C	UGS20JH UGS30JH	Tjmax=175°C
Peak forward surge current, IFSM (Specified Parts)	UGF2007GH UGF2008GH	150A	UGF2007GH UGF2008GH	125A

Ordering Code

Item	Current	New
Ordering Code (All Parts)	UGF1007GH UGF1008GH UGF1007GAH UGF1008GAH UG1007GH UG1008GH UGS20JH UGS30JH UGF2007GH UGF2008GH UF1JLWH UG2JAH	UGF1007GH_A UGF1008GH_A UGF1007GAH_A UGF1008GAH_A UG1007GH_A UG1008GH_A UGS20JH_A UGS30JH_A UGF2007GH_A UGF2008GH_A UF1JLWH_A UG2JAH_A

Qualification and Reliability Result:

No	Test	Specification	Condition	Readpoint	# of Lots	Result
1	Pre and Post Stress Electrical Test	Product Data Sheet	Test at room temp	-	3	0/1560
2	External Visual	JESD22-B101	Per reference standard	-	3	0/1560
3	Preconditioning	J-STD-020	MSL-1 (3x reflow at 245°C)	-	2	0/700
4	Temperature Cycle	JESD22-A104	-55°C to +150°C; 15 mins dwell	1016 cycs	3	0/240
5	Unbiased HAST	JESD22-A118	130°C/85% RH; unbiased	96 hrs	3	0/240
6	Highly Accelerated Stress Test	JESD22-A110	130°C/85% RH; V=80% VR; 42V max	96 hrs	3	0/240
7	Resistance to Solder Heat	JESD22-A111	SMD (Pb free): 260°C; 10 sec	10 secs	3	0/90
8	High Temp Reverse Bias	MIL-STD-750-1	175°C; V=100% rated V	1008 hrs	3	0/240
9	Intermittent Operating Life	MIL-STD-750	Ta=25°C; ΔTj=100°C; 2.0 min (on/off) Ta=25°C; ΔTj=100°C; 3.5 min (on/off)	15120 cycs 8640 cycs	3	0/240
10	Destructive Physical Analysis	AEC-Q101-004	Post-TC	results	3	0/6
11	Destructive Physical Analysis	AEC-Q101-004	Pst-HAST	results	3	0/6
12	Solderability	J-STD-002	245°C	5 secs	1	0/10
13	Thermal Resistance	JEDD24	per product datasheet	results	1	0/10
14	Die Shear	MIL-STD-750-2	per assembly spec	results	3	0/15

No	Test	Specification	Condition	Readpoint	# of Lots	Result
15	Parametric Verification	TSC Datasheet	per product datasheet	results	3	0/90
16	ESD - Human Body Model	AEC-Q101-001	per product spec	results	3	0/90
17	ESD - Charged Device Model	AEC-Q101-005	per product spec	results	3	0/90

Conclusion: Qualification test vehicles for each packages successfully passed Automotive-grade qualification per AEC-Q101.

Effect of Change:

There is no change of form, fit and function of the product.

Identification and Traceability:

Base P/N_X (_"X" denotes revision code e.g. A, B, ...)

Example Ordering code :

Before	After
UGF1007GH	UGF1007GH_A

List of Affected Products:

Family	Package	Existing Ordering Code	New Ordering Code
Ultra Fast Recovery	SOD-123W	UF1JLWH	UF1JLWH_A
Ultra Fast Recovery	SMA	UG2JAH	UG2JAH_A
Ultra Fast Recovery	ITO-220AB	UGF1007GH	UGF1007GH_A
Ultra Fast Recovery	ITO-220AB	UGF1008GH	UGF1008GH_A
Ultra Fast Recovery	ITO-220AB	UGF1007GAH	UGF1007GAH_A
Ultra Fast Recovery	ITO-220AB	UGF1008GAH	UGF1008GAH_A
Ultra Fast Recovery	TO-220AB	UG1007GH	UG1007GH_A
Ultra Fast Recovery	TO-220AB	UG1008GH	UG1008GH_A
Ultra Fast Recovery	D2PAK-D	UGS20JH	UGS20JH_A
Ultra Fast Recovery	D2PAK-D	UGS30JH	UGS30JH_A
Ultra Fast Recovery	ITO-220AB	UGF2007GH	UGF2007GH_A
Ultra Fast Recovery	ITO-220AB	UGF2008GH	UGF2008GH_A