

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: PCN25013 rev0

Title: SMPC4.6U Trench SKY Parts Wafer Source Change

Issue Date: 2025/10/2

If you have any questions concerning this change, please contact:

Change Coordinator

Name :

E-Mail :

Phone :

Change Originator

Name :

E-mail :

Phone :

Reliability Engineer

Name :

E-mail :

Phone :

Change Type: Change of Wafer Supplier

Effectivity:

Expected 1st device shipment date: 2025/12/31 or earlier if approved by customer

Last Order Date: 2025/12/31

Last Delivery Date: 2026/3/31

Product Category (Description):

Trench SKY products assembled in TO-277A (SMPC4.6U) package.

Description of Change:

Taiwan Semiconductor Company with head office located in Taipei qualified new wafer source for Trench SKY products. This change will improve the delivery support and service to all TSC customers.

Reliability tests and electrical characterization has been completed on representative part numbers to ensure no change to device functionality or electrical performance.

Item	Current	New	Remarks
Wafer Source	Supplier 5075 Taiwan	Supplier 3556 China	Change of Wafer Supplier.
IFSM			
TSUP5102	215 A	145 A	Updated Datasheet based on the new IFSM Value, and Characteristics Curve
TSUP10102	395 A	320 A	
TSUP12122	415 A	360 A	
TSUP15102	430 A	360 A	
Thermal Performance, °C/W (RθJA / RθJC)			
TSUP5102	47 / 8	56 / 12.9	Updated Datasheet based on new performance
TSUP10102	46 / 6	46 / 8	
TSUP12122	48 / 6	46 / 8	
TSUP15102	48 / 6	48 / 8	
Die Size			
TSUP5102	75 mil	67 mil	Qualified die size
TSUP10102	94 mil	96 mil	
TSUP12122	102 mil	106 mil	
TSUP15102	102 mil	106 mil	

Qualification and Reliability Result:

Stress Test	Abbrev	Test Methods	Test Conditions	Final Readpoint	Requirements		Results	
					SS	# Lots	Rej/SS	Remarks
Environmental and Lifetime Stress Tests								
Pre- and Post-Stress Electrical Test	TEST	Product Datasheet	Test at room temp	-	All	5	PASS	PASS
Extrenal Visual	EV	JESD22-B101	per reference standard	-	All	5	PASS	PASS
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	77	3	0/231	PASS
Temperature Cycle	TC	JESD22-A104	-55°C to +150°C; 15 mins dwell	1000 cycs	77	3	0/231	PASS
Unbiased HAST	UHAST	JESD22-A118	130°C/85% RH; unbiased	96 hrs	77	3	0/231	PASS
Highly Accelerated Stress Test	HAST	JESD22-A110	110°C/85% RH; V=80% VR; 42V max	264 hrs	77	3	0/231	PASS
Resistance to Solder Heat	RSR	JESD22-A111	SMD (Pb free): 260°C; 10 sec	10 secs	10	3	0/30	PASS
High Temp Storage Life	HTSL	JESD22-A103	175°C	1000 hrs	77	3	0/231	PASS
High Temp Reverse Bias	HTRB	MIL-STD-750- 1	175°C; V=100% rated V	1000 hrs	77	5	0/385	PASS
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=125° C; 2.0 min on/off	7500 cyc	77	3	0/231	PASS
				15000 cycs*	77	1	0/77	PASS

Electrical Verification Tests								
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	25	5	0/125	PASS
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	30	3	±8kV a	Class H3A
					30	2	±6kV b	Class H3A
ESD - Charged Device Model	ESD - HBM	AEC-Q101-005	per product spec	results	30	5	±1kV	Class C3

Conclusion:

New Wafer Source for the affected parts is TSC qualified supplier and can meet datasheet electrical specifications.

There will be changes in IFSM, Thermal performance and characteristics curve to indicate the new supplier's performance.

There will be no change in form, fit and function of the affected devices.

Identification and Traceability:

Product Date Code

List of Affected Devices:

Family	Package	TSC P/N
Trench SKY	SMPC4.6U	TSUP10102
Trench SKY	SMPC4.6U	TSUP12122
Trench SKY	SMPC4.6U	TSUP15102
Trench SKY	SMPC4.6U	TSUP5102