

Process Change Notification

This is to inform you that a design and/or process change/s will be implemented to the following 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 the existing product if your evaluation of this change will require more than 90 calendar days.

For additional data and samples, you can contact your local Taiwan Semiconductor Field Quality Service or Customer Quality Engineer within 45 days upon receipt of this notification

PCN No: PCN22007

Title: SMD and Axial Package, TVS<10V Additional Wafer Source

Issue Date: 2022/5/4

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

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PCN Type: Additional Wafer Source

Effectivity:

Expected 1st device shipment date: 2022/8/2

Last order date: 2022/10/31

Last delivery date: 2023/10/31

Product Category (Description) :

TVS series <10V in SMA/ SMB/ SMC/ DO-15/ DO-41/ DO-201 package.

See detailed part numbers in the List of Affected Devices.

Description of Change:

This change notification is being issued to notify customer that in order to ensure continuity of supply, Taiwan Semiconductor Company is qualifying its own wafer fabrication located in Li-je for TVS <10V, assembled in SMA/ SMB/ SMC/ DO-15/ DO-41/ DO-201 package.

Full electrical characterization and high reliability testing has been completed on the representative devices to ensure no change to the device functionality or electrical specifications in the datasheet.

Wafer Structure Comparison:

Item	Current	Additional	Remarks
Die Source	ANOVA (Taiwan)	TSC Lije (Taiwan)	Additional wafer source
Die Size	SMA/DO-41: 58mil SMB/DO-15:80mil SMC/DO-201:114 mil	SMA/DO-41: 60mil SMB/DO-15: 82mil SMC/DO-201: 114 mil	No significant difference
Die Passivation	Oxide	Oxide/ Nitride/ Oxide	Different Passivation Material

Remarks: No major differences that can affect product quality and reliability. No expected impact to the product functionality (form, fit and function).

Qualification Results:

Qual Vehicle: SMAJ5.0CA, SMCJ5.0A, SMCJ5.0CA, SMAJ6.0A, SMCJ6.0CA, SMCJ8.5CA

Qualification/Reliability Result (AECQ-101)

Item	Test Condition / Duration	Reference Standard	#lot	Sample Size	Remarks
Pre- and Post-Stress Electrical Test	Electrical characteristic @25°C	Data sheet	6	463*6	Pass
Pre-conditioning	Bake:125°C 24hrs Soak:85°C RH:85% 168hrs IR Reflow: Tpeak=245±5°C 3cycles	JESD22A-113	6	231*6	Pass
EV (External Visual)	Inspect part construction and marking, per TSC Spec.	JESD22B-101	6	463*6	Pass
PV (Parameter Verification)	Electrical characterization @-55/25/150°C	Data sheet	6	25 *6	Pass

Item	Test Condition / Duration	Reference Standard	#lot	Sample Size	Remarks
HTRB (High Temperature Reverse Bias)	100% Rated VR (Tj=175°C) / 1008hrs	MIL-STD-750 Method 1038	6	77*6	Pass
TC (Temp. Cycling)	150°C(+15,-0)/15mins, -55°C(-10,+0)/15mins, 1016 cycles	JESD22A-104 Appendix 6	6	77*6	Pass
UHASt (Unbiased Highly Accelerated Stress Test)	Ta=130°C, 85% RH/ 96hrs	JESD22-A118	6	77*6	Pass
HAST (Highly Accelerated Stress Test)	Ta=110°C, 85% RH 80% rated VR up to 42Vmax /264H	JESD22-A110	6	77*6	Pass
ESD (IEC)	Contact: (C=150pf R:330Ω)/ 10Pulses	IEC-61000-4-2	6	15*6	Pass
ESD HBM	HBM: (C=100pf R:1500Ω)/ 6Pulses	AEC-Q101-001	6	30*6	8KV/H3B
ESD CDM	CDM: (Field induced charge)/ 6Pulses	AEC-Q101-005	6	30*6	>1KV/C5
DPA (Destructive Physical Analysis)	TC passed chose 2pcs of the 1 lot HAST or HTRB passed chose 2pcs of the 1 lot	AEC-Q101-004	6	4*6	Pass
RSH (Resist.to Solder Heat)	Ta=260±5°C/ 10secs	JESD22-A111 (SMD)	6	30*6	Pass
TR (Thermal Resistance)	Per. TSC Spec.	JESD24-3, 24-4, 24-6 as appropriate	2	10*2	Pass

Conclusion: The product passed the full reliability required in AECQ101 standard.

Identification and Traceability:

Item	Identification
Traceability	Product date code

Effect of Change:

There is no impact in product Form, Fit and Function. This change will guarantee Taiwan Semiconductor commitment on customer service and satisfaction through continuous improvement.

List of Affected Devices:

Package	P/N			
DO-41	P4KE6.8	P4KE7.5	P4KE8.2	P4KE9.1
	P4KE6.8A	P4KE7.5A	P4KE8.2A	P4KE9.1A
	P4KE6.8C	P4KE7.5C	P4KE8.2C	P4KE9.1C
	P4KE6.8CA	P4KE7.5CA	P4KE8.2CA	P4KE9.1CA
	P4KE6.8H	P4KE7.5H	P4KE8.2H	P4KE9.1H
	P4KE6.8AH	P4KE7.5AH	P4KE8.2AH	P4KE9.1AH
	P4KE6.8CH	P4KE7.5CH	P4KE8.2CH	P4KE9.1CH
	P4KE6.8CAH	P4KE7.5CAH	P4KE8.2CAH	P4KE9.1CAH
DO-15	P6KE6.8	P6KE7.5	P6KE8.2	P6KE9.1
	P6KE6.8A	P6KE7.5A	P6KE8.2A	P6KE9.1A
	P6KE6.8C	P6KE7.5C	P6KE8.2C	P6KE9.1C
	P6KE6.8CA	P6KE7.5CA	P6KE8.2CA	P6KE9.1CA
	P6KE6.8H	P6KE7.5H	P6KE8.2H	P6KE9.1H
	P6KE6.8AH	P6KE7.5AH	P6KE8.2AH	P6KE9.1AH
	P6KE6.8CH	P6KE7.5CH	P6KE8.2CH	P6KE9.1CH
	P6KE6.8CAH	P6KE7.5CAH	P6KE8.2CAH	P6KE9.1CAH
DO-201	1.5KE6.8	1.5KE7.5	1.5KE8.2	1.5KE9.1
	1.5KE6.8A	1.5KE7.5A	1.5KE8.2A	1.5KE9.1A
	1.5KE6.8C	1.5KE7.5C	1.5KE8.2C	1.5KE9.1C
	1.5KE6.8CA	1.5KE7.5CA	1.5KE8.2CA	1.5KE9.1CA
	1.5KE6.8H	1.5KE7.5H	1.5KE8.2H	1.5KE9.1H
	1.5KE6.8AH	1.5KE7.5AH	1.5KE8.2AH	1.5KE9.1AH
	1.5KE6.8CH	1.5KE7.5CH	1.5KE8.2CH	1.5KE9.1CH
	1.5KE6.8CAH	1.5KE7.5CAH	1.5KE8.2CAH	1.5KE9.1CAH
SMA	P4SMA6.8	P4SMA7.5	P4SMA8.2	P4SMA9.1
	P4SMA6.8A	P4SMA7.5A	P4SMA8.2A	P4SMA9.1A
	P4SMA6.8C	P4SMA7.5C	P4SMA8.2C	P4SMA9.1C
	P4SMA6.8CA	P4SMA7.5CA	P4SMA8.2CA	P4SMA9.1CA
	P4SMA6.8H	P4SMA7.5H	P4SMA8.2H	P4SMA9.1H
	P4SMA6.8AH	P4SMA7.5AH	P4SMA8.2AH	P4SMA9.1AH
	P4SMA6.8CH	P4SMA7.5CH	P4SMA8.2CH	P4SMA9.1CH
	P4SMA6.8CAH	P4SMA7.5CAH	P4SMA8.2CAH	P4SMA9.1CAH
	SMAJ5.0	SMAJ6.0CH	SMAJ7.0H	SMAJ8.0C
	SMAJ5.0A	SMAJ6.0CAH	SMAJ7.0AH	SMAJ8.0CA
	SMAJ5.0C	SMAJ6.5	SMAJ7.0CH	SMAJ8.0H
	SMAJ5.0CA	SMAJ6.5A	SMAJ7.0CAH	SMAJ8.0AH
	SMAJ5.0H	SMAJ6.5C	SMAJ7.5	SMAJ8.0CH

	SMAJ5.0AH	SMAJ6.5CA	SMAJ7.5A	SMAJ8.0CAH
	SMAJ5.0CH	SMAJ6.5H	SMAJ7.5C	SMAJ8.5
	SMAJ5.0CAH	SMAJ6.5AH	SMAJ7.5CA	SMAJ8.5A
	SMAJ6.0	SMAJ6.5CH	SMAJ7.5H	SMAJ8.5C
	SMAJ6.0A	SMAJ6.5CAH	SMAJ7.5AH	SMAJ8.5CA
	SMAJ6.0C	SMAJ7.0	SMAJ7.5CH	SMAJ8.5H
	SMAJ6.0CA	SMAJ7.0A	SMAJ7.5CAH	SMAJ8.5AH
	SMAJ6.0H	SMAJ7.0C	SMAJ8.0	SMAJ8.5CH
	SMAJ6.0AH	SMAJ7.0CA	SMAJ8.0A	SMAJ8.5CAH
SMB	P6SMB6.8	P6SMB7.5	P6SMB8.2	P6SMB9.1
	P6SMB6.8A	P6SMB7.5A	P6SMB8.2A	P6SMB9.1A
	P6SMB6.8C	P6SMB7.5C	P6SMB8.2C	P6SMB9.1C
	P6SMB6.8CA	P6SMB7.5CA	P6SMB8.2CA	P6SMB9.1CA
	P6SMB6.8H	P6SMB7.5H	P6SMB8.2H	P6SMB9.1H
	P6SMB6.8AH	P6SMB7.5AH	P6SMB8.2AH	P6SMB9.1AH
	P6SMB6.8CH	P6SMB7.5CH	P6SMB8.2CH	P6SMB9.1CH
	P6SMB6.8CAH	P6SMB7.5CAH	P6SMB8.2CAH	P6SMB9.1CAH
	SMBJ5.0	SMBJ6.0CH	SMBJ7.0H	SMBJ8.0C
	SMBJ5.0A	SMBJ6.0CAH	SMBJ7.0AH	SMBJ8.0CA
	SMBJ5.0C	SMBJ6.5	SMBJ7.0CH	SMBJ8.0H
	SMBJ5.0CA	SMBJ6.5A	SMBJ7.0CAH	SMBJ8.0AH
	SMBJ5.0H	SMBJ6.5C	SMBJ7.5	SMBJ8.0CH
	SMBJ5.0AH	SMBJ6.5CA	SMBJ7.5A	SMBJ8.0CAH
	SMBJ5.0CH	SMBJ6.5H	SMBJ7.5C	SMBJ8.5
	SMBJ5.0CAH	SMBJ6.5AH	SMBJ7.5CA	SMBJ8.5A
	SMBJ6.0	SMBJ6.5CH	SMBJ7.5H	SMBJ8.5C
	SMBJ6.0A	SMBJ6.5CAH	SMBJ7.5AH	SMBJ8.5CA
	SMBJ6.0C	SMBJ7.0	SMBJ7.5CH	SMBJ8.5H
	SMBJ6.0CA	SMBJ7.0A	SMBJ7.5CAH	SMBJ8.5AH
	SMBJ6.0H	SMBJ7.0C	SMBJ8.0	SMBJ8.5CH
	SMBJ6.0AH	SMBJ7.0CA	SMBJ8.0A	SMBJ8.5CAH
SMC	1.5SMC6.8	1.5SMC7.5	1.5SMC8.2	1.5SMC9.1
	1.5SMC6.8A	1.5SMC7.5A	1.5SMC8.2A	1.5SMC9.1A
	1.5SMC6.8C	1.5SMC7.5C	1.5SMC8.2C	1.5SMC9.1C
	1.5SMC6.8CA	1.5SMC7.5CA	1.5SMC8.2CA	1.5SMC9.1CA
	1.5SMC6.8H	1.5SMC7.5H	1.5SMC8.2H	1.5SMC9.1H
	1.5SMC6.8AH	1.5SMC7.5AH	1.5SMC8.2AH	1.5SMC9.1AH
	1.5SMC6.8CH	1.5SMC7.5CH	1.5SMC8.2CH	1.5SMC9.1CH
	1.5SMC6.8CAH	1.5SMC7.5CAH	1.5SMC8.2CAH	1.5SMC9.1CAH

	SMCJ5.0	SMCJ6.0CH	SMCJ7.0H	SMCJ8.0C
	SMCJ5.0A	SMCJ6.0CAH	SMCJ7.0AH	SMCJ8.0CA
	SMCJ5.0C	SMCJ6.5	SMCJ7.0CH	SMCJ8.0H
	SMCJ5.0CA	SMCJ6.5A	SMCJ7.0CAH	SMCJ8.0AH
	SMCJ5.0H	SMCJ6.5C	SMCJ7.5	SMCJ8.0CH
	SMCJ5.0AH	SMCJ6.5CA	SMCJ7.5A	SMCJ8.0CAH
	SMCJ5.0CH	SMCJ6.5H	SMCJ7.5C	SMCJ8.5
	SMCJ5.0CAH	SMCJ6.5AH	SMCJ7.5CA	SMCJ8.5A
	SMCJ6.0	SMCJ6.5CH	SMCJ7.5H	SMCJ8.5C
	SMCJ6.0A	SMCJ6.5CAH	SMCJ7.5AH	SMCJ8.5CA
	SMCJ6.0C	SMCJ7.0	SMCJ7.5CH	SMCJ8.5H
	SMCJ6.0CA	SMCJ7.0A	SMCJ7.5CAH	SMCJ8.5AH
	SMCJ6.0H	SMCJ7.0C	SMCJ8.0	SMCJ8.5CH
	SMCJ6.0AH	SMCJ7.0CA	SMCJ8.0A	SMCJ8.5CAH