

Process Change Notification

This is to inform you that a design and/or process change will be implemented to the affected product(s) and this notification is for your information and concurrence. This change is planned to take effect in 90 calendar days from the date of this notification.

Please work with your local Taiwan Semiconductor Sales Representative to manage your inventory of unchanged 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.

PCN No: PCN23010 rev0

Title: Qualifying additional site for TSM3911DCX6 of SOT-26

Issue Date: 2023/9/15

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

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PCN Type:

Qualifying additional site for TSM3911DCX6 of SOT-26

Effectivity:

Expected 1st device shipment date: 2023/12/14

Product Category (Description):

TSM3911DCX6 of package SOT-26 provided by Taiwan Semiconductor Co. Ltd.

Description of Change:

This PCN is being issued to inform TSC customers of qualifying additional site for package SOT-26 TSM3911DCX6. This will ensure the continuity of supply and guarantee commitment on customer service and satisfaction. In addition, the BOM comparison please see below table.

Site:

Item	From	To	Remarks
Site	Site G	Site G & P	Additional Site

BOM:

Item	Site G	Site P	Remarks
Wafer	RB	RB	Same
Lead frame	A194	A194	Same material with different LF outline
Die Attach	Epoxy	Epoxy	Same
Wire bond	Cu Wire 1.5mil	Cu Wire 1.5mil	Same
Compound	EME-G630AY	EME-G630AY	Same
Plating	Pure Sn	Pure Sn	Same

Electrical Test Comparison:

TSM3911DCX6	ITEM	BVDSS1 (V)	VGS(th) (V)	RDS(on) 1 (mΩ)	RDS(on)2 (mΩ)	RDS(on)3 (mΩ)	VFSDS(V)	IGSS1(nA)	IGSS2(nA)	IDSS(μA)
	TEST Condition	VGS=0V ID=-250μA	VDS=VGS ID=-250μA	VGS=-4.5V, ID=-2.2A	VGS=-2.5V, ID=-1.8A	VGS=-1.8V, ID=-1A	IS=-1.05A, VGS=0V	VGS = -8V, VDS = 0V	VGS = 8V, VDS = 0V	VDS=-16V, VGS=0V
	SPEC.	-20 (Min)	MIN : -0.45 MAX: -0.95	MAX:140	MAX:200	MAX:300	MAX: -1.2	-100	100	-1
Current	MIN	-24.46	-0.67	69.09	85.56	111.80	-0.83	-0.15	0.22	-0.0004
	MAX	-26.77	-0.78	85.36	103.67	133.20	-0.84	-6.71	5.73	-0.0062
	AVG.	-25.30	-0.72	73.21	90.20	117.87	-0.84	-1.33	1.97	-0.0029
	CPK	2.34	3.25	5.69	8.43	11.91	63.40	24.38	20.92	200.75
Additional	MIN	-23.15	-0.66	62.18	77.78	101.00	-0.83	-0.03	0.03	-0.0001
	MAX	-25.89	-0.71	78.59	95.78	122.80	-0.85	-4.10	6.00	-0.003
	AVG.	-24.48	-0.68	65.66	80.97	104.67	-0.84	-1.01	0.95	-0.001
	CPK	1.62	6.05	7.02	10.43	14.83	28.18	39.00	29.56	387.74

Conclusion: Additional site does not affect product electrical performance and product reliability.

Qualification and Reliability Result:

NO.	Test	Test Conditions/ Standard	No. of Lots	Sample Size	Result
1	Preconditioning	J-STD-020 MSL-1 (3x reflow at 260°C)	3 lots	77	PASS
2	Temperature Cycling	JESD22-A104 '-55(-10/+0)°C/15min to 150(+15/-0)°C/15min, 1000 cycles	3 lots	77	PASS
3	Unbiased Highly Accelerated Stress Test	JESD22-A118, Ta=130°C, 85%RH, 96hrs	3 lots	77	PASS
4	Highly Accelerated Stress Test	JESD22-A110, 130°C/85% RH; V=80% VR; 42V max, 96Hours	3 lots	77	PASS
5	High Temperature Storage Life	150°C, 1000Hours	3 lots	77	PASS
6	Intermittent Operational Life	MIL-STD-750 Ta=25°C; ΔTj=100°C; 2.0 min on/off 15000 cycles	3 lots	77	PASS
7	Resistance to Solder Heat	JESD22-A111 SMD Pb free: 260(+5/-0)°C, 10+2-0 sec	3 lots	10	PASS
8	High Temperature Reverse Bias	MIL-STD-750-1 M1038 150°C, at least 80% rated Vr, 1000Hours	3 lots	77	PASS
9	High Temperature Gate Bias	JESD22-A108, 150°C; V=100% rated Vgs, 1000 Hours	3 lots	77	PASS
10	Destructive Physical Analysis	AEC-Q101-004 TC passed choose 1 lot 2pcs HAST passed choose 1lot 2 pcs; Visual inspection, SAM,X-ray, de- capsulation than Visual inspection	3 lots	4	PASS
11	Solderability	J-STD-002 245 °C ± 5 °C (Pb-free) 5 sec	1 lot	10	PASS
12	Wire Bond Shear	MIL-STD-750 per assembly spec	1 lot	30	PASS
13	Wire Bond Pull	MIL-STD-750 per assembly spec	1 lot	30	PASS
14	Thermal Resistance	JESD24 per product datasheet	1 lot	5	PASS
15	Die Shear	MIL-STD-750-2 per assembly spec	1 lot	5	PASS
16	ESD characterization	HBM, JS-001 per product spec	1 lot	30	Cap 4KV
		CDM, JS-002 per product spec	1 lot	30	Cap 1KV

Conclusion: Additional site successfully passed consumer product reliability requirement.

Identification and Traceability:

Item	Identification
Traceability	Product Lot code

Effect of Change:

There is no impact in product electrical specification, functionality, quality and reliability. This change will guarantee Taiwan Semiconductor commitment on customer service and satisfaction through continuous improvement.

List of Affected Devices:

Family	Package	P/N
20V Dual P-Channel MOSFET	SOT-26	TSM3911DCX6