

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: PCN21003

Title: TSC ILAN SMA Devices to Yangxin Site Transfer Qual

Issue Date: 2021/2/8

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

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PCN Type: Change of Assembly and Test Site

Effectivity:

Expected 1st device shipment date: 2021/5/9

Last Time Buy/order entry: 2021/8/7

Expected last shipment date: 2022/8/7

Product Category (Description) :

All devices in SMA packages assembled and tested in TSC ILAN Facility.

Description of Change:

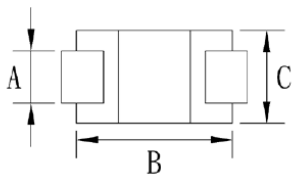


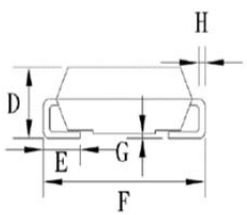


Taiwan Semiconductor Company with head office located in Taipei will transfer its SMA devices from ILAN Facility to Yangxin Facility. This change will improve delivery support and service to all TSC customers. Yangxin SMA line was introduced in PCN17007 and PCN17008.

There will be changes on the product BOM and package outline without compromising product quality and reliability.

In line with this change, the product datasheet will also be revised to simplify the ordering code for SMA devices affected by this site transfer. See list of affected devices.

1. Package Outline Comparison

DO-214AC (SMA)	JEDEC		TSC Dsheet		ILAN E2/E3 (Clip)		YEW M2/R3 (Matrix)		Remarks
	Min	Max	Min	Max	Min	Max	Min	Max	
A	1.250	1.650	1.270	1.580	1.270	1.580	1.300	1.500	Meet
B	3.950	4.600	4.060	4.600	4.060	4.600	4.145	4.195	Meet
C	2.250	2.950	2.290	2.830	2.290	2.830	2.575	2.625	Meet
D	1.950	2.900	1.990	2.500	1.990	2.500	2.000	2.200	Meet
E	0.750	1.600	0.900	1.410	0.900	1.410	1.040	1.240	Meet
F	4.800	5.600	4.950	5.330	4.950	5.330	4.980	5.180	Meet
G	0.050	0.200	0.100	0.200	0.100	0.200	0.100	0.200	Meet
H	0.150	0.410	0.150	0.310	0.150	0.310	0.190	0.210	Meet

	TSC Outline	ILAN	YEW
Top	 <p>Diagram showing top view dimensions: A (height), B (width), and C (height of leads).</p>	 <p>Photograph of ILAN package top view showing two leads.</p>	 <p>Photograph of YEW package top view showing two leads.</p>
Side view	 <p>Diagram showing side view dimensions: D (height), E (lead width), F (total width), G (lead length), and H (lead thickness).</p>	 <p>Photograph of ILAN package side view.</p>	 <p>Photograph of YEW package side view.</p>

Conclusion: YEW package outline dimension is within TSC standard outline and JEDEC and will not affect the TSC datasheet recommended landing pattern.

2. Bill of Materials Comparison

Material	ILAN	YEW	Remarks
Fast GPP / STD GPP / HER GPP / SF GPP / TVS GPP / SKY / Zener	TEW / TSC Lije / LiOn	TEW / TSC Lije / LiOn	Same source
T-SKY	Mosel	Mosel / LiON	YEW has two qualified source
Leadframe/Clip	Copper Alloy	Copper Alloy	Same material
Die Attach Solder	Pb92.5/Sn5/Ag2.5	Pb92.5/Sn5/Ag2.5	Same composition
Molding Compound	EME-1100SA / EME- E110GH	EME-E500	Green compound
Lead Plating	Matte Sn	Matte Sn	Same composition
Carrier Tape	Conductive	Conductive	No difference
Reel Size/ Type/ Color	13/ 7 inch Plastic / Blue & White	13 inch Plastic / Black	No potential risk in color differences

Remarks: Yangxin Facility has the same qualified die source as I-LAN. It will be fully using green compound to be compliant to global environmental standards. Reel size will be in 13inch reel for standardization.

3. Product Datasheet Revisions

Package	From	To
SMA (DO-214AC)	Ordering Information (with packing Code) 13inch Size Paper Reel 7 inch Size Plastic Reel	Ordering Information (without Packing Code) 13inch Size Plastic Reel

Remarks: ILAN SMA devices shared with Yangxin SMA devices.

Identification and Traceability:

Item	From	To	Remarks
Product Marking	YWF	GYWF	G denotes Halogen Free compound F denotes the factory code

Qualification Results:

1. Reliability Qualification Result:

Item	Test Condition / Duration	Standard	#lots	Sample Size	Remarks
Parameter Verification	Electrical characterization @-55/25/150°C	Datasheet	3	25 *3	Passed
Pre-conditioning	Bake:125°C 24hrs Soak:85°C RH:85% 168hrs IRReflow: Tc=260°C 3cycles	JESD22A-113	3	308*3	Passed
Temp. Cycling	150°C(+15,-0)/15mins, -55°C(-10,+0)/15mins / 1016 cycles	JESD22A-104 Appendix 6	3	77*3	Passed
UHASt	Ta=130°C, 85%RH/96hrs	JESD22-A118	3	77*3	Passed
HAST	Ta=110°C, 85% RH 80% rated VR up to 42Vmax /264H	JESD22-A110	3	77*3	Passed
IOL TEST	On/2mins, Off/2mins,15120cycles	MIL-STD-750 Method 1037 AEC-Q101 Table 2A	3	77*3	Passed
H.T.R.B.	100% Rated VR (Tj=175°C) /1000hrs	MIL-STD-750 Method 1038	3	77*3	Passed
ESD AEC-HBM	HBM:(C=100pf R:1500Ω)/6Pulses	AEC-Q101-001	3	30*3	Passed
ESD AEC-CDM	CDM: (Field induced charge)/6Pulses	AEC-Q101-005	3	30*3	Passed
Resist.to Solder Heat	Ta=260±5°C/10 secs	JESD22-A111 (SMD),B106 (PTH)	3	30*3	Passed
Thermal resistance	Per. TSC SPEC..	JESD24-3, 24-4, 24-6 as appropriate	1	10	Passed
DPA (Destructive Physical Analysis)	Per. TSC SPEC	AEC-Q101-004	1	4	Passed

Conclusion: TSC Yangxin facility is capable to assemble and test SMA devices from TSC ILAN.

2. Electrical Test Result TSSA5U60 (T-SKY)

Item	VF @5A(V)	VBR (V)	IR (μA)	Remarks
Spec LSL	-	60.00	-	Electrical parameter meet specification and Cpk > 1.67
Spec USL	0.560	-	300.00	
Max.	0.511	72.610	3.751	
Avg.	0.500	71.351	3.220	
Min.	0.493	69.810	2.727	
Sigma	0.004	0.531	0.150	
Cpk	5.233	7.130	661.094	

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.

Identification and Traceability:

Item	From	To	Remarks
Product Marking	YWF	GYWF	G denotes Halogen Free compound F denotes the factory code

List of Affected Devices:

1SMA110Z	P4SMA12A	P4SMA91	SMAJ28C
1SMA120Z	P4SMA12C	P4SMA91A	SMAJ28CA
1SMA130Z	P4SMA12CA	P4SMA91C	SMAJ30
1SMA150Z	P4SMA13	P4SMA91CA	SMAJ30A
1SMA160Z	P4SMA130	RS1A	SMAJ30C
1SMA180Z	P4SMA130A	RS1B	SMAJ30CA
1SMA200Z	P4SMA130C	RS1D	SMAJ33
1SMA4737	P4SMA130CA	RS1G	SMAJ33A
1SMA4738	P4SMA13A	RS1J	SMAJ33C
1SMA4739	P4SMA13C	RS1K	SMAJ33CA
1SMA4740	P4SMA13CA	RS1M	SMAJ36
1SMA4741	P4SMA15	S1A	SMAJ36A
1SMA4742	P4SMA150	S1B	SMAJ36C
1SMA4743	P4SMA150A	S1D	SMAJ36CA
1SMA4744	P4SMA150C	S1G	SMAJ40
1SMA4745	P4SMA150CA	S1J	SMAJ40A
1SMA4746	P4SMA15A	S1K	SMAJ40C
1SMA4747	P4SMA15C	S1M	SMAJ40CA
1SMA4748	P4SMA15CA	SK210A	SMAJ43
1SMA4749	P4SMA16	SK215A	SMAJ43A

1SMA4750	P4SMA160	SK22A	SMAJ43C
1SMA4751	P4SMA160A	SK23A	SMAJ43CA
1SMA4752	P4SMA160C	SK24A	SMAJ45
1SMA4753	P4SMA160CA	SK25A	SMAJ45A
1SMA4754	P4SMA16A	SK26A	SMAJ45C
1SMA4755	P4SMA16C	SK29A	SMAJ45CA
1SMA4756	P4SMA16CA	SK310A	SMAJ48
1SMA4757	P4SMA170	SK315A	SMAJ48A
1SMA4758	P4SMA170A	SK320A	SMAJ48C
1SMA4759	P4SMA170C	SK32A	SMAJ48CA
1SMA4760	P4SMA170CA	SK33A	SMAJ5.0
1SMA4761	P4SMA18	SK34A	SMAJ5.0
1SMA4762	P4SMA180	SK35A	SMAJ5.0A
1SMA4763	P4SMA180A	SK36A	SMAJ5.0C
1SMA4764	P4SMA180C	SK39A	SMAJ5.0CA
1SMA5926	P4SMA180CA	SMAJ10	SMAJ51
1SMA5927	P4SMA18A	SMAJ100	SMAJ51A
1SMA5928	P4SMA18C	SMAJ100A	SMAJ51C
1SMA5929	P4SMA18CA	SMAJ100C	SMAJ51CA
1SMA5930	P4SMA20	SMAJ100CA	SMAJ54
1SMA5931	P4SMA200	SMAJ10A	SMAJ54A
1SMA5932	P4SMA200A	SMAJ10C	SMAJ54C
1SMA5933	P4SMA200C	SMAJ10CA	SMAJ54CA
1SMA5934	P4SMA200CA	SMAJ11	SMAJ58
1SMA5935	P4SMA20A	SMAJ110	SMAJ58A
1SMA5936	P4SMA20C	SMAJ110A	SMAJ58C
1SMA5937	P4SMA20CA	SMAJ110C	SMAJ58CA
1SMA5938	P4SMA22	SMAJ110CA	SMAJ6.0
1SMA5939	P4SMA22A	SMAJ11A	SMAJ6.0A
1SMA5940	P4SMA22C	SMAJ11C	SMAJ6.0C
1SMA5941	P4SMA22CA	SMAJ11CA	SMAJ6.0CA
1SMA5942	P4SMA24	SMAJ12	SMAJ6.5
1SMA5943	P4SMA24A	SMAJ12	SMAJ6.5A
1SMA5944	P4SMA24C	SMAJ120	SMAJ6.5C
1SMA5945	P4SMA24CA	SMAJ120	SMAJ6.5CA
1SMA5946	P4SMA27	SMAJ120A	SMAJ60
1SMA5947	P4SMA27A	SMAJ120A	SMAJ60A
1SMA5948	P4SMA27C	SMAJ120C	SMAJ60C
1SMA5949	P4SMA27CA	SMAJ120CA	SMAJ60CA
1SMA5950	P4SMA30	SMAJ12A	SMAJ64
1SMA5951	P4SMA30A	SMAJ12C	SMAJ64A

1SMA5952	P4SMA30C	SMAJ12CA	SMAJ64C
1SMA5953	P4SMA30CA	SMAJ13	SMAJ64CA
1SMA5954	P4SMA33	SMAJ130	SMAJ7.0
1SMA5955	P4SMA33A	SMAJ130A	SMAJ7.0A
1SMA5956	P4SMA33C	SMAJ130C	SMAJ7.0C
BYG23M	P4SMA33CA	SMAJ130CA	SMAJ7.0CA
ES1A	P4SMA36	SMAJ13A	SMAJ7.5
ES1B	P4SMA36A	SMAJ13C	SMAJ7.5A
ES1C	P4SMA36C	SMAJ13CA	SMAJ7.5C
ES1D	P4SMA36CA	SMAJ14	SMAJ7.5CA
ES1F	P4SMA39	SMAJ14A	SMAJ70
ES1G	P4SMA39	SMAJ14C	SMAJ70A
ES1H	P4SMA39A	SMAJ14CA	SMAJ70C
ES1J	P4SMA39C	SMAJ15	SMAJ70CA
ES1LD	P4SMA39CA	SMAJ150	SMAJ75
ES1LG	P4SMA43	SMAJ150A	SMAJ75A
ES1LJ	P4SMA43A	SMAJ150C	SMAJ75C
ES2AA	P4SMA43C	SMAJ150CA	SMAJ75CA
ES2BA	P4SMA43CA	SMAJ15A	SMAJ78
ES2CA	P4SMA47	SMAJ15C	SMAJ78A
ES2DA	P4SMA47A	SMAJ15CA	SMAJ78C
ES2FA	P4SMA47C	SMAJ16	SMAJ78CA
ES2GA	P4SMA47CA	SMAJ160	SMAJ8.0
ES2HA	P4SMA51	SMAJ160A	SMAJ8.0A
ES2JA	P4SMA51A	SMAJ160C	SMAJ8.0C
HS1A	P4SMA51C	SMAJ160CA	SMAJ8.0CA
HS1B	P4SMA51CA	SMAJ16A	SMAJ8.5
HS1D	P4SMA56	SMAJ16C	SMAJ8.5A
HS1F	P4SMA56A	SMAJ16CA	SMAJ8.5C
HS1G	P4SMA56C	SMAJ17	SMAJ8.5CA
HS1J	P4SMA56CA	SMAJ170	SMAJ85
HS1K	P4SMA6.8	SMAJ170A	SMAJ85A
HS1M	P4SMA6.8A	SMAJ170C	SMAJ85C
HS2AA	P4SMA6.8C	SMAJ170CA	SMAJ85CA
HS2BA	P4SMA6.8CA	SMAJ17A	SMAJ9.0
HS2DA	P4SMA62	SMAJ17C	SMAJ9.0A
HS2DA	P4SMA62A	SMAJ17CA	SMAJ9.0C
HS2FA	P4SMA62C	SMAJ18	SMAJ9.0CA
HS2GA	P4SMA62CA	SMAJ188	SMAJ90
HS2JA	P4SMA68	SMAJ188A	SMAJ90A
HS2KA	P4SMA68A	SMAJ188C	SMAJ90C

HS2MA	P4SMA68C	SMAJ188CA	SMAJ90CA
P4SMA10	P4SMA68CA	SMAJ18A	SS110
P4SMA100	P4SMA7.5	SMAJ18C	SS115
P4SMA100A	P4SMA7.5A	SMAJ18CA	SS12
P4SMA100C	P4SMA7.5C	SMAJ20	SS13
P4SMA100CA	P4SMA7.5CA	SMAJ20A	SS14
P4SMA10A	P4SMA75	SMAJ20C	SS15
P4SMA10C	P4SMA75A	SMAJ20CA	SS16
P4SMA10CA	P4SMA75C	SMAJ22	SS19
P4SMA11	P4SMA75CA	SMAJ22A	US1A
P4SMA110	P4SMA8.2	SMAJ22C	US1B
P4SMA110A	P4SMA8.2A	SMAJ22CA	US1D
P4SMA110C	P4SMA8.2C	SMAJ24	US1G
P4SMA110CA	P4SMA8.2CA	SMAJ24A	US1J
P4SMA11A	P4SMA82	SMAJ24C	US1K
P4SMA11C	P4SMA82A	SMAJ24CA	US1M
P4SMA11CA	P4SMA82C	SMAJ26	TSSA3U45
P4SMA12	P4SMA82CA	SMAJ26A	TSSA3U60
P4SMA120	P4SMA9.1	SMAJ26C	TSSA5U50
P4SMA120A	P4SMA9.1A	SMAJ26CA	TSSA5U60
P4SMA120C	P4SMA9.1C	SMAJ28	
P4SMA120CA	P4SMA9.1CA	SMAJ28A	