

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/existent 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: PCN26009 rev0

Title: SGT40V Wafer-Assy-Test Change

Issue Date: 2026/7/31

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

Change Coordinator

Name : Nonito Cayacap

E-mail : nonito.cayacap@ts.com.tw

Phone : +886-2-8913-1588 Ext. 2212

Change Originator

Name : Janice Aquino

E-mail : janice.aquino@ts.com.tw

Phone : +886 3 9285017 Ext. 319

Reliability Engineer

Name : Erica Roa

E-mail : erica.roa@ts.com.tw

Phone : +886-2-8913-1588 Ext. 223

Change Type: Wafer, Assembly and Test Change

Effectivity:

Expected 1st device shipment date: 2026/10/29 or earlier if approved by customer

Last Order Date: 2027/1/27

Last Delivery Date: 2028/1/22

Product Category (Description):

MOSFET TQM NH04 series products packaged in PDFN56U and PDFN56U Dual at Supplier 3864 located in China and Taiwan Semiconductor located in Taiwan.

Description of Change:

Taiwan Semiconductor Company, headquartered in Taipei, has qualified it's ILAN Facility as additional assembly and test site for MOSFET devices in the PDFN56U and PDFN56U Dual packages. This qualification will enhance supply flexibility.

In addition, as part of ongoing continuous improvement program, Nitride layer passivation will be implemented in NH04 series for device robustness enhancement.

• Wafer Change

Item	Current	New	Remarks	Affected Parts	Affected Sites
Passivation Material	PI	Nitride + PI	Added Nitride layer	NH04 Series in PDFN56U and PDFN56U Dual	• Taiwan Semiconductor, ILAN County, Taiwan • Supplier 3864, China

• Assembly Change (Molding Compound)

Item	Current	New	Remarks	Affected Parts	Affected Site
Molding Compound	RM-17	RM-24	Both remain Halogen free (Same with Supplier 3864)	NH04 Series in PDFN56U	• Taiwan Semiconductor, ILAN County, Taiwan

• Assembly and Test Site Change (Additional Site)

Current	Additional	Affected Parts
Supplier 3864, China	Taiwan Semiconductor, ILAN County, Taiwan	• TQM019NH04 / TQM025NH04 Series in PDFN56U • TQM076NH04 Series in PDFN56U Dual

Qualification and Reliability Result:

A. Taiwan Semiconductor, ILAN County, Taiwan

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	-	609	6	0/3092	Pass
Extrenal Visual	EV	JESD22-B101	per reference standard	-	609	6	0/3092	Pass
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	308	6	0/1848	Pass
Temperature Cycle	TC	JESD22-A104	-55°C to +150°C; 15 mins dwell	1000 cycs	77	6	0/462	Pass
Unbiased HAST	UHAIST	JESD22-A118	130°C/85% RH; unbiased	96 hrs	77	6	0/462	Pass
Highly Accelerated Stress Test	HAST	JESD22-A110	130°C/85% RH; V=80% VR; 42V max	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	RSH	JESD22-A111	SMD (Pb free); 260°C; 10 sec	10 secs	10	6	0/60	Pass
High Temp Reverse Bias	HTRB	MIL-STD-750-1	175°C; V=100% rated V	1000 hrs	77	6	0/462	Pass
High Temp Gate Bias	HTGB	JESD22-A108	175°C; V=100% rated Vgs	1000 hrs	77	6	0/462	Pass
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=125°C; 2.0 min on/off	7500 cycs	77	6	0/462	Pass
Package Assembly Integrity Tests								
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-TC 1000	results	2	6	0/12	Pass
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-HAST 96/264	results	2	6	0/12	Pass
Wire Bond Pull	WBP	MIL-STD-750-2	per assembly spec	results	10	6	0/60	Pass
Wire Bond Shear	WBS	AEC-Q101-003	per assembly spec	results	10	6	0/60	Pass
Solderability	SD	J-STD-002	245°C	results	10	6	0/60	Pass
Physical Dimension	PD	JESD22-B100	per assembly spec	results	30	2	0/60	Pass
Die Shear	DS	MIL-STD-750-2	per assembly spec	results	30	6	0/180	Pass
Electrical Verification Tests								
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	30	4	0/120	Pass
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	10	1 ^a	0/10	Pass ±1KV Class H1B
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	10	3 ^b	0/30	Pass ±500 Class H1A
ESD - Charged Device Model	ESD - CDM	AEC-Q101-005	per product spec	results	10	4	0/40	Pass ±1KV Class C3

Successfully passed Automotive-grade qualification per AEC-Q101.

B. Supplier 3864, China

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	-	522	3	0/1556	Pass	
Extrenal Visual	EV	JESD22-B101	per reference standard	-	522	3	0/1556	Pass	
Preconditioning	PC	J-STD-020	MSL-1 (3x reflow at 260°C)	-	308	3	0/924	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	
High Temp Reverse Bias	HTRB	MIL-STD-750-1	175°C; V=100% rated V	1000 hrs	77	3	0/231	Pass	
High Temp Gate Bias	HTGB	JESD22-A108	175°C; V=100% rated Vgs	1000 hrs	77	3	0/231	Pass	
Intermittent Operating Life	IOL	MIL-STD-750	Ta=25°C; ΔTj=125°C; 2.0 min on/off	7500 cycs	77	3	0/231	Pass	
Package Assembly Integrity Tests									
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-TC 1000	results	2	3	0/6	Pass	
Destructive Physical Analysis	DPA	AEC-Q101-004	Post-HAST 264	results	2	3	0/6	Pass	
Wire Bond Pull	WBP	MIL-STD-750-2	per assembly spec	results	10	3	0/30	Pass	
Wire Bond Shear	WBS	AEC Q101-003	per assembly spec	results	16	3	0/48	Pass	
Solderability	SD	J-STD-002	245°C	results	10	2	0/20	Pass	
Physical Dimension	PD	JESD22-B100	per assembly spec	results	30	2	0/60	Pass	
Die Shear	DS	MIL-STD-750-2	per assembly spec	results	16	3	0/48	Pass	
Electrical Verification Tests									
Parametric Verification	PV	TSC Datasheet	per product datasheet	results	30	3	0/90	Pass	
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	10	1 ^a	0/10	Pass ±1KV Class H1B	
ESD - Human Body Model	ESD - HBM	AEC-Q101-001	per product spec	results	10	2 ^b	0/20	Pass ±500V Class H1A	
ESD - Charged Device Model	ESD - CDM	AEC-Q101-005	per product spec	results	10	3	0/30	Pass ±1KV Class C3	

Successfully passed Automotive-grade qualification per AEC-Q101.

Conclusion:

Full electrical characterization and reliability testing have been completed on representative part numbers, all of which successfully passed AEC-Q101 qualification

Effect of Change:

There is no change to device form, fit and functionality or electrical specifications in the datasheet.

Identification and Traceability:

Product date code

List of Affected Devices:

Package	TSC Part Number	New TSC Ordering Code	Change		
			Wafer Change	Assembly Change (Molding Compound)	Assembly and Test Site Change
PDFN56U	TQM032NH04LCR	TQM032NH04LCR_A	●	●	
PDFN56U	TQM032NH04CR	TQM032NH04CR_A	●	●	
PDFN56U	TQM043NH04LCR	TQM043NH04LCR_A	●	●	
PDFN56U	TQM043NH04CR	TQM043NH04CR_A	●	●	
PDFN56U	TQM056NH04LCR	TQM056NH04LCR_A	●	●	
PDFN56U	TQM056NH04CR	TQM056NH04CR_A	●	●	
PDFN56U	TQM070NH04LCR	TQM070NH04LCR_A	●	●	
PDFN56U	TQM070NH04CR	TQM070NH04CR_A	●	●	
PDFN56U	TQM019NH04LCR	TQM019NH04LCR_A	●		●
PDFN56U	TQM019NH04CR	TQM019NH04CR_A	●		●
PDFN56U	TQM025NH04LCR	TQM025NH04LCR_A	●		●
PDFN56U	TQM025NH04CR	TQM025NH04CR_A	●		●
PDFN56U Dual	TQM076NH04LDCR	TQM076NH04LDCR_A	●		●
PDFN56U Dual	TQM076NH04DCR	TQM076NH04DCR_A	●		●

Appendix:

Appendix A: Update in Ordering Code (Datasheet)

A : Base P/N_X ("X" denotes revision code e.g. A, B, ...)
: Wafer Revision (from PI to Nitride + PI)

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TQM019NH04LCR_A RLG	PDFN56U	2,500pcs / 13" Reel

Notes:

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

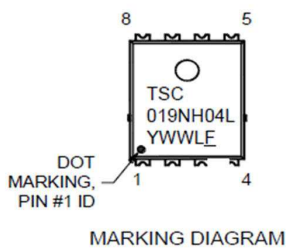
ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TQM076NH04LDCR_A RLG	PDFN56U Dual	2,500pcs / 13" Reel

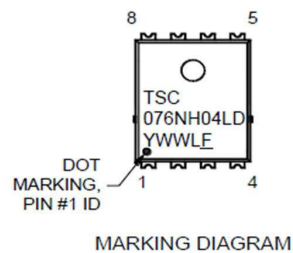
Notes:

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

Appendix B: Product Marking



Y = YEAR CODE
WW = WEEK CODE (01~52)
L = LOT CODE (1~9, A~Z)
F = FACTORY CODE
_ = AEC-Q101 QUALIFIED



Y = YEAR CODE
WW = WEEK CODE (01~52)
L = LOT CODE (1~9, A~Z)
F = FACTORY CODE
_ = AEC-Q101 QUALIFIED

Use Factory Code

Factory Code (F)	Assembly Site and Test Site
A	Taiwan Semiconductor, ILAN County, Taiwan
E	Supplier 3864, China