12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN 20190625000
Qualify New Assembly Material for Automotive PDIP devices
Final Change Notification

Date: July 01, 2019
To: TOKYO ELECTRON DEVICE (DSTR) PCN

Dear Customer:

This is an announcement of change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments requires acknowledgement of receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. The proposed first ship date is indicated on page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

If samples or additional data are required, requests must be received within 30 days of acknowledgement as samples are not built ahead of the change. You may contact the PCN Manager or your local Field Sales Representative to acknowledge this PCN and request samples or additional data.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Team (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services

20190625000
Final Change Notification
Attachments

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
TPIC6A596NE	null
TPIC6C596N	null
ULQ2004AN	null
TPIC6273N	null
TPIC6595N	null
TPIC6B595N	null
TPIC6A595NE	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20190625000	**PCN Date:**	July 1, 2019
Title:	Qualify New Assembly Material for Automotive PDIP devices		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jan. 1, 2020	**Estimated Sample Availability:**	Date provided at sample request

Change Type:

☐	Assembly Site	☐	Design	☐	Wafer Bump Site
☐	Assembly Process	☐	Data Sheet	☐	Wafer Bump Material
☒	Assembly Materials	☐	Part number change	☐	Wafer Bump Process
☐	Mechanical Specification	☐	Test Site	☐	Wafer Fab Site
☐	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Materials
				☐	Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of new assembly material set for devices listed in "Product affected" section below. Devices will remain in current assembly facility and piece part changes as follows:

Material	Current	New Material
Leadframe	Non-Roughened	Single Sided Roughened
Wire	Au	No change
Mount compound	4042500	4147858
Mold compound	4042503	4211880

Reason for Change:

To align with universal BOM (UBOM) material strategy.

Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):

None.

Changes to product identification resulting from this PCN:

None.

Product Affected:

SE555P	TPIC6273N	TPIC6B273N
SN103442N	TPIC6595N	TPIC6B595N
SN104599N	TPIC6596N	TPIC6B596N
TLC2274MN	TPIC6A259NE	TPIC6C595N
TLC339MN	TPIC6A595NE	TPIC6C596N
TLC372MP	TPIC6A596NE	ULQ2003AN
TPIC6259N	TPIC6B259N	ULQ2004AN

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)

Approved 26-Mar-2019

Product Attributes Attributes	Qual Device: SE555P	Qual Device: SN104571P	Qual Device: TPIC6A596NE
Automotive Grade Level	Grade 1	Grade 1	Grade 1
Operating Temp Range	-55 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Signal Chain	Power Management	Power Management
Wafer Fab Supplier	SFAB	SFAB	DFAB
Die Revision	B	E	A
Assembly Site	FMX	FMX	MLA
Package Type	PDIP	PDIP	PDIP
Package Designator	P	P	NE
Ball/Lead Count	8	8	20

- Qual Devices SE555P, SN104571P and TPIC6A596NE are qualified at NC-P

Qualification Results
Data Displayed as: Number of lots / Total sample size / Total failed

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: SE555P	Qual Device: SN104571P	Qual Device: TPIC6A596NE
Test Group A – Accelerated Environment Stress Tests										
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
	TC-BP	A4	MIL-STD883 Method 2011	1	60	Post TC Bond Pull	Wires	3/90/0	3/90/0	3/90/0
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	N/A
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	3/135/0	3/135/0	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests										
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	3/231/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A
Test Group C – Package Assembly Integrity Tests										

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: SE555P	Qual Device: SN104571P	Qual Device: TPIC6A596NE
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0
	SD	C3	JEDEC JESD22-B102	1	15	Solderability	Pb Free Solder	3/45/0	3/45/0	3/45/0
	SD	C3	JEDEC JESD22-B102	1	15	Solderability	Pb Solder	3/45/0	3/45/0	3/45/0
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	-	3/30/0	3/30/0	3/30/0
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	1/50/0	1/50/0	1/50/0
Test Group D – Die Fabrication Reliability Tests										
	EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	TDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E – Electrical Verification Tests										
	ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	Pass	-	Pass

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I) : -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):
Room/Hot/Cold : HTOL, ED
Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room : AC/uHAST

Green/Pb-free Status:
Qualified Pb-Free(Throuh-hole) and Green

For questions regarding this notice, e-mails can be sent to the contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
WW PCN Team	PCN_ww_admin_team@list.ti.com