

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:																			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Site														
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Material														
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Bump Process														
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site														
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials														
		<input type="checkbox"/>		<input type="checkbox"/>	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:																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Material</th> <th style="width: 33%;">Current</th> <th style="width: 33%;">New Material</th> </tr> </thead> <tbody> <tr> <td>Leadframe</td> <td>Non-Roughened</td> <td>Single Sided Roughened</td> </tr> <tr> <td>Wire</td> <td>Au</td> <td>No change</td> </tr> <tr> <td>Mount compound</td> <td>4042500</td> <td>4147858</td> </tr> <tr> <td>Mold compound</td> <td>4042503</td> <td>4211880</td> </tr> </tbody> </table>					Material	Current	New Material	Leadframe	Non-Roughened	Single Sided Roughened	Wire	Au	No change	Mount compound	4042500	4147858	Mold compound	4042503	4211880
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: <u>SE555P</u>	Qual Device: <u>SN104571P</u>	Qual Device: <u>TPIC6A596NE</u>
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
TDDDB	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(Through-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
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