12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN 20190403000
Selective Roughened to Single-side Roughened Leadframe
Change Notification / Sample Request

Date: September 18, 2019

Dear TI Customer:

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

The customer should acknowledge receipt of this notification by email within **30** days of the date of receipt. Lack of acknowledgement of this notice within 30 days constitutes customer acceptance of the change.

Samples or additional data to support customer evaluation must be requested within 30 days of receipt of this notification. If samples are requested for evaluation the customer must provide evaluation results within the sample evaluation period indicated on page 3 of this notification. The Sample Evaluation Period begins on the date the customer receives samples from TI.

If the customer approved the change, TI can proceed with implementation of the change. The proposed first ship date is shown on page 3.

If the customer does not approve the PCN or the approval response is not provided within the Sample Evaluation Period, TI can implement the change, but the customer may elect to place an order for unchanged product by the Last Time Buy Date for delivery by the Last Time Ship Date. TI cannot guarantee that shipments to the customer after any last time order is delivered will not include the changed material. If the customer places an order with delivery after the Last Time Shipment Date, the order may be fulfilled with changed material or any material processed to TI specifications at that future time.

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

20190403000
Change Notification / Sample Request
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
TAS5414CTPHDRQ1	39080223

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

PCN Number:	20190403000	**PCN Date:**	Sept. 18, 2019
Title:	Selective Roughened to Single-side Roughened Leadframe		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Mar. 18, 2020	**Sample Eval Period:**	90 days
Last Time Buy Date:	Feb. 15, 2020	**Last Time Ship Date:**	May 15, 2020

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 Incorporated is announcing the qualification of Single-side Roughened Leadframe to replace Selective Roughened Leadframe on select devices.

Description	**From**	**To**
Leadframe	Selective Roughened	Single-side Roughened
Supplier	No change	No change
Plating	No change	No change

Reason for Change:

Improve leadframe supplier delivery.

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

None.

Anticipated impact on Material Declaration

☒	No Impact to the Material Declaration	☐	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the TI Eco-Info website. There is no impact to the material meeting current regulatory compliance requirements with this PCN change.

Changes to product identification resulting from this PCN:

None.

Product Affected:

See page 2.

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

Product Attributes

Attributes	Qual Device: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPR	QBS Package Reference: SN0302035DWRG4
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	ASIC	Signal Chain	Interface	Power Management	ASIC	Signal Chain
Wafer Fab Supplier	RFAB	DFAB	DMO5S	MAINE	DMOS5	DFAB
Die Revision	A5	C	A1	A	A0	C
Assembly Site	TAI	TAI	TAI	TITL	TITL	TAI
Package Type	HLQFP	SOIC	HTQFP	HLQFP	HLQFP	SOIC
Package Designator	PNP	DW	PHP	VFP	PLP	DW
Ball/Lead Count	128	20	48	32	128	20

- QBS: Qual By Similarity
- Qual Device and SN0302035DWRG4and S1105082F4PLPR are qualified at LEVEL3-260C
- Qual Device SN0508068PHPR is qualified at LEVEL4-260CG

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: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPRP1105082F1PLPR / P1105082F3PLP	QBS Package Reference: SN0302035DWRG4
Test Group A – Accelerated Environment Stress Tests												
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Auto Preconditioning	Level 3-260C	-	-	-	-	No Fails	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 2-260C	-	-	-	No Fails	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 3-260C	-	-	-	-	-	No Fails
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	-	-	-	1/77/0	3/231/0	3/231/0
TC	A4	JEDEC	3	77	Tempera	1000	-	-	-	-	-	3/228/0

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPRP1105082F1PLPR / P1105082F3PLP	QBS Package Reference: SN0302035DWRG4
		JESD22-A104 and Appendix 3			ture Cycle, -55/150C	Cycles						
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	-	-	-	3/231/0	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	1000 Cycles	-	-	-	3/231/0	3/229/0	-
TC-WBP	A4	MIL-STD883 Method 2011	3	30	Bond Pull over Ball Post T/C 1000 Cycles	Wires	-	-	-	3/90/0		3/90/0
TC-WBP	A4	MIL-STD883 Method 2011	3	30	Bond Pull over Ball Post T/C 500 Cycles	Wires	3/90/0	-	3/90/0	3/90/0	-	-
TC-WBP	A4	MIL-STD883 Method 2011	3	30	Bond Pull over Stitch Post T/C 1000 Cycles	Wires	-	-	-	3/90/0	-	-
TC-WBP	A4	MIL-STD883 Method 2011	3	30	Bond Pull over Stitch Post T/C 500 Cycles	Wires	3/90/0	-	3/90/0	1/30/0	-	-
TC-WBS	A4	MIL-STD883 Method 2011	3	30	Wire Bond Shear, Post T/C 500 Cycles	Wires	3/90/0	-	3/90/0	3/90/0	-	-
TC-WBS	A4		3	30	Wire Bond Shear, Post T/C 1000 Cycles	Wires	-	-	-	3/90/0	-	-
PT	A5	JEDEC	1	45	Power	1000	N/A	N/A	N/A	N/A	1/45/0	N/A

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPRP1105082F1PLPR / P1105082F3PLP	QBS Package Reference: SN0302035DWRG4
C		JESD22-A105			Temperature Cycle, -40/125C	Cycles						
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	-	-	-	-	1/45/0	3/135/0
Test Group B – Accelerated Lifetime Simulation Tests												
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1073 Hrs	-	-	-	-	3/231/0	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	72 Hr	-	-	-	-	3/2400/0	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	N/A	N/A	N/A
Test Group C – Package Assembly Integrity Tests												
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	Wires	3/90/0	3/90/0	3/90/0	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	3/90/0	3/90/0	3/90/0
SD	C3	JEDEC JESD22-B102	1	15	Solderability	Pb-Free	3/45/0	3/45/0	3/45/0	3/45/0	-	3/45/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	1/30/0	1/30/0	1/30/0	1/30/0	3/30/0	-	3/30/0
SBS	C5	AEC Q100-010	3	50	Solder Ball Shear (Cpk>1.67)	Solder Balls	N/A	N/A	N/A	N/A	N/A	N/A
LI	C6	JEDEC	1	50	Lead	-	3/135/0	3/135/0	3/135/	-	-	-

Type	#	Test Spec	Min Lot Qty	SS /Lot	Test Name / Condition	Duration	Qual Device: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPRP1105082F1PLPR / P1105082F3PLP	QBS Package Reference: SN0302035DWRG4
		JESD22-B105			Integrity				0			
LI	C6	JEDEC JESD22-B105	1	50	Lead Pull	Leads	-	-	-	-	-	1/60/0
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 Requir	-	-	-

Type	#	Test Spec	Min Lot Qty	SS /Lot	Test Name / Condition	Duration	Qual Device: S1105082F4PLPR	Qual Device: SN0302035DWRG4	Qual Device: SN0508068PHPR	QBS Package Reference: LP8860AQVFPRQ1	QBS Package Reference: P1105082F1PLPRP1105082F1PLPR / P1105082F3PLP	QBS Package Reference: SN0302035DWRG4
									ements			
Test Group E – Electrical Verification Tests												
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	2000 V	-	-	-	-	1/3/0	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	750 V	-	-	-	-	1/3/0	-
LU	E4	AEC Q100-004	1	6	Latch-up	Latchup	-	-	-	-	1/6/0	-
ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	-	-	-	-	1/90/0	-
Additional Tests												
MSL			-	-	Moisture Sensitivity, JEDEC	Level 3-260C	-	3/36/0	-	-	-	3/36/0
MSL			-	-	Thermal Integrity Sequence	Level 3-260C	3/36/0	-	-	-	3/36/0	-
MSL			-	-	Thermal Integrity Sequence	Level 4-260C	-	-	3/36/0	-	-	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

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(SMT) 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

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