PCN Number:	20140117001	PCN Date:	01/28/2014
Title:	TLC6C598QDRQ1 leadframe - CMS C1309141		

Customer Contact:	PCN_ww_admin_team@list.ti.com	Phone:	+1(214)480-6037	Dept:	Quality Services

Proposed 1st Ship Date:	07/28/2014	Estimated Sample Availability:	Upon request

Change Type:

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

PCN Details

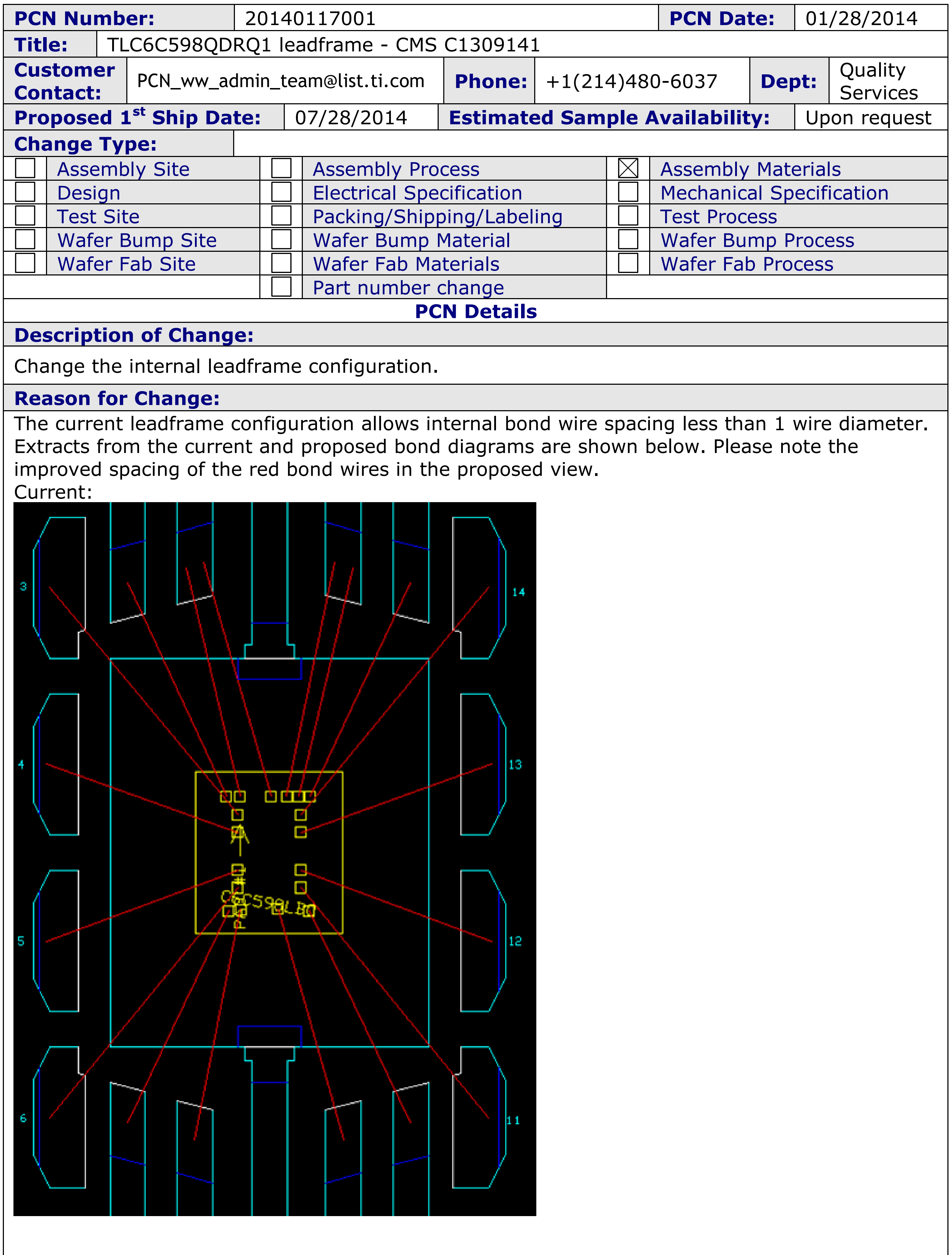
Description of Change:

Change the internal leadframe configuration.

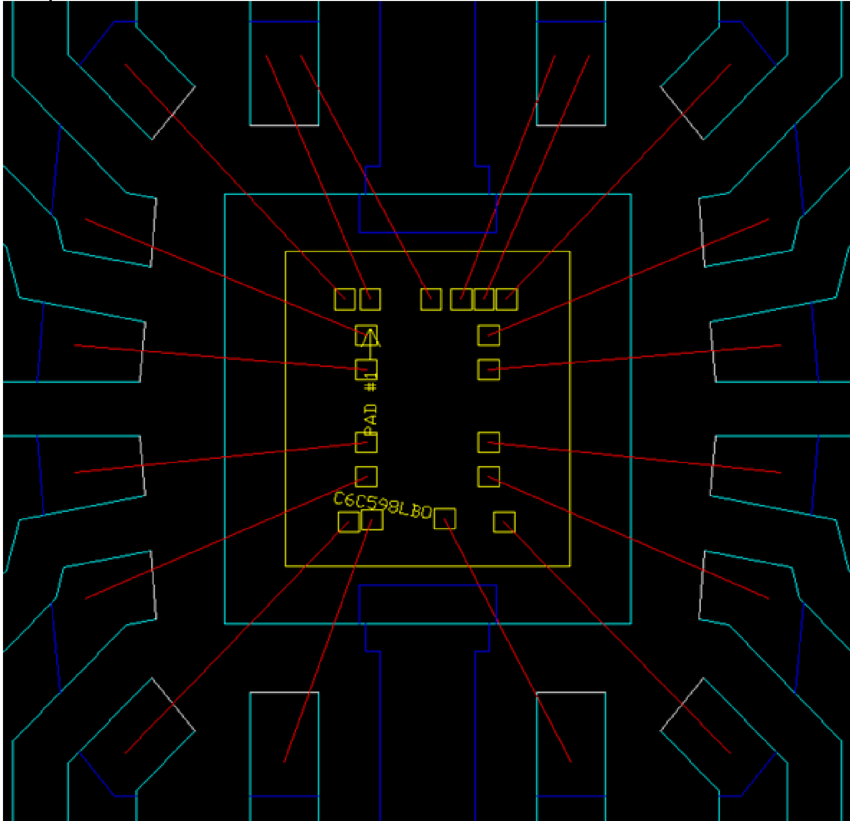
Reason for Change:

The current leadframe configuration allows internal bond wire spacing less than 1 wire diameter. Extracts from the current and proposed bond diagrams are shown below. Please note the improved spacing of the red bond wires in the proposed view.

Current:



Proposed:



Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):
Positive impact. The improved spacing reduces the possibilities of shorted wires.
Changes to product identification resulting from this PCN:
None
Product Affected:
TLC6C598QDRQ1

Qualification Data:

Automotive New Product Qualification Plan/Summary

(As per AEC-Q100 and JEDEC Guidelines)

Supplier Name:	Texas Instruments Inc.	**Supplier Wafer Fabrication Site:**	TI Dallas - DMOS5
Supplier Code:		**Supplier Die Rev.**	B
Supplier Part Number:	TLC6C598QDRQ1	**Supplier Assembly/Test Site:**	TI Malaysia
Customer Name:		**Supplier Package/Pin:**	D/16
Customer Part Number:		**Pb-Free Lead Frame (Y/N):**	Y
Device Description:		**"Green" Mold Compound (Y/N):**	Y
MSL Rating:	Level3-260C	**Operating Temp Range:**	-40 to +125C
Peak Solder Reflow Temp:	260C	**Automotive Grade Level (1):**	1
Prepared by:	Larry Ting	**Date:**	01/16/2014
Supplier Name:	Texas Instruments Inc.	**Supplier Wafer Fabrication Site:**	TI Dallas - DMOS5

Test	#	Reference	Test Conditions	Min Lots (2)	SS / lot (2)	Min Total (2)	Results Lot/pass /fail	Comments: (N/A =Not Applicable)	Exceptions to AEC - Q100
TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS (3)									
PC	A1	JESD22-113 J-STD-020	Preconditioning: SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, HTSL, and HTOL	Performed on ALL SMD devices prior to THB/HAST, AC/UHST, TC and PTC					
THB or HAST	A2	JESD22-A101 JESD22-A110	Temperature Humidity Bias: 85°C/85%/1000 hours Highly Accelerated Stress Test: 130°C/85%/96 hours or 110°C/85%/264 hours	3	77	231	Pass	QBS to current leadframe	
AC or UHST	A3	JESD22-A102 JESD22-A118	Autoclave: 121°C/15 psig/96 hours Unbiased Highly Accelerated Stress Test: 130°C/85%/96 hours or 110°C/85%/264 hours	3	77	231	Pass	QBS to current leadframe	
TC	A4	JESD22-A104	Temperature Cycle: -65°C/+150°C/500 cycles	3	77	231	Pass	QBS to current leadframe	
PTC	A5	JESD22-A105	Power Temperature Cycling: -40°C/+125°C/1000 cycles	1	45	45	Pass	N/A	
HTSL	A6	JESD22-A103	High Temperature Storage Life: 150°C/1000 hours or 175°C/500 hours	1	45	45	Pass	QBS to current leadframe	
TEST GROUP B – ACCELERATED LIFETIME SIMULATION TESTS (3)									
HTOL	B1	JESD22-A108	High Temp Operating Life: 125°C/1000 hours 150°C/408 hours	3	77	231	Pass	QBS to current leadframe	
ELFR	B2	AEC-Q100-008	Early Life Failure Rate:	3	800	2400	Pass	QBS to current leadframe	
TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS (3)									
WBS	C1	AEC-Q100-001	Wire Bond Shear Test: (Cpk > 1.67)	30 bonds	5 parts min.	30 bonds	Pass		
WBP	C2	Mil-Std-883 Method 2011	Wire Bond Pull: Each bonder used (Cpk > 1.67)	30 bonds	5 parts min.	30 bonds	Pass		
SD	C3	JESD22-B102	Solderability: (>95% coverage) 8 hr steam age (1 hour for Au-plated leads)	1	15	15		N/A	
PD	C4	JESD22-B100 JESD22-B108	Physical Dimensions: (Cpk > 1.67)	1	10	10	Pass		
SBS	C5	AEC-Q100-010	Solder Ball Shear: (Cpk > 1.67)	5 balls	10 parts min.	50	Pass		
LI	C6	JESD22-B105	Lead Integrity:	10 leads	5 parts min.	50		N/A	

TEST GROUP E- ELECTRICAL VERIFICATION

TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test:	All	All	All			
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model: (2kV - H2 or better)	1				N/A	
MM	E2	AEC-Q100-003	Electrostatic Discharge, Machine Model: (200V – M3 or better)	1				N/A	
CDM	E3	AEC-Q100-101	Electrostatic Discharge, Charged Device Model: (750V corner leads, 500V for all other pins)	1				N/A	
LU	E4	AEC-Q100-004	Latch-Up:	1	6	6		N/A	
ED	E5	AEC-Q100-009	Electrical Distributions: (Cpk > 1.67)	1	30	30	1/30/0		

(1) Grade 0 (or A): -40°C to +150°C ambient operating temperature range
Grade 1 (or Q): -40°C to +125°C ambient operating temperature range
Grade 2 (or T): -40°C to +105°C ambient operating temperature range
Grade 3 (or I): -40°C to +85°C ambient operating temperature range
Grade 4 (or C): -0°C to +150°C ambient operating temperature range
(2) These are recommended minimum lot/sample sizes. Lot/sample size may be reduced depending on available data.
(3) Generic data may be used.

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Reliability data shows characteristic failure mechanisms of the specific environmental stress as documented in the industry standards for each stress condition.

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

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