PCN Number:	20151103000	PCN Date:	12/16/2015
Title:	Qualification of Mold Compound 4211880 for Select Devices Assembled at TI-Mexico, TI-Malaysia and TI-Taiwan		
Customer Contact:	PCN_ww_admin_team@list.ti.com	Dept:	Quality Services
Proposed 1st Ship Date:	03/16/2016	Estimated Sample Availability:	Date provided at sample 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

PCN Details

Description of Change:

Qualification of Mold Compound 4211880 for select devices assembled at TI-Mexico, TI-Malaysia and TI-Taiwan. Devices will remain in current assembly facility and material differences are shown in the following table:

	Change From:	Change To:
Mold Compound	4205694	4211880

Reason for Change:

Continuity of supply.

Anticipated impact on Fit, Form, 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 website.

Changes to product identification resulting from this PCN:

None.

Product Affected:

ADS7863ADBQ	RC4580IDR-NF	TLC59284DBQ	TPS5405D
ADS7863ADBQR	SN105239ADBR	TLC59482DBQ	TPS5405DR
OPA2316ID	SN1102050DR	TLC59482DBQR	UCC27524AD
OPA2316IDR	SN1106046DR	TPS2062CD	UCC27524ADR
OPA4317ID	SN1206020DR	TPS2066CD	UCC27528D
OPA4317IDR	SN1208021DR	TPS2066CDR	UCC27528DR
PCM1753GDBQ	SN65HVD82D	TPS5402DR	UCC27531D
PCM1753GDBQR	SN65HVD82DR	TPS5403DR	UCC27531DR

Qualification Report

G633C mold compound qualification for SOIC in TAI and MLA

Product Attributes

Attributes	Qual Device: SN65LVCP22DR	Qual Device: SN75976A1DL	Qual Device: TL1454ACDBR	Qual Device: TLC320AD77CDBR	Qual Device: TPA4860DR
Assembly Site	TAI	MLA	MLA	MLA	TAI
Package Family	SOIC	SOIC	SSOP	SOIC	SOIC
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	FFAB	DFAB	SFAB	ANAM, HFAB	DFAB
Wafer Process	RF_BICMOS1	LBC3S	JI1	33A21X3, 33C10X3	LBC3S

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: SN75976A1DL, SN65LVCP22DR, TLC320AD77CDBR, TPA4860DR
- Qual Device TL1454ACDBR is qualified at LEVEL1-260CG
- Device TLC320AD77CDBR contains multiple dies.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: SN65LVCP22DR	Qual Device: SN75976A1DL
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	3/231/0
MQ	Manufacturability	(per mfg Site specification)	Pass	Pass
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	1/12/0	-
MSL	Moisture Sensitivity, JEDEC	Level 2-260C	-	3/36/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0

Type	Test Name / Condition	Duration	Qual Device: TL1454ACDBR	Qual Device: TLC320AD77CDBR	Qual Device: TPA4860DR
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	1/77/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/227/0	3/231/0	-
MQ	Manufacturability	(per mfg Site specification)	Pass	Pass	Pass
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	3/36/0	1/12/0	1/12/0
MSL	Moisture Sensitivity, JEDEC	Level 2-260C	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	1/77/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

G633C mold compound qualification for SOIC in FMX

Product Attributes

Attributes	Qual Device: PCA9557D	Qual Device: TL598CDR	Qual Device: TPS2042BD	Qual Device: TPS2419DR
Assembly Site	FMX	FMX	FMX	FMX
Package Family	SOIC	SOIC	SOIC	SOIC
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	HFAB	SFAB	HIJI	MIHO
Wafer Process	50C2123	JI1	LBC4X	LBC7

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL1-260C: TPS2419DR, PCA9557D, TPS2042BD
- Qual Device TL598CDR is qualified at LEVEL1-260CG

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: PCA9557D	Qual Device: TL598CDR	Qual Device: TPS2042BD	Qual Device: TPS2419DR
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0
DPA	Destructive Physical Analysis Post Temp. Cycle	500 Cycles	-	-	Pass	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0	3/231/0
LI	Lead Pull to Destruction	Leads	-	-	3/66/0	-
MQ	Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass	Pass
MSL	Moisture Sensitivity, JEDEC	Level 1-260C	3/66/0	3/66/0	1/12/0	1/12/0
MSL	Moisture Sensitivity, JEDEC	Level 2-260C	-	-	1/12/0	1/12/0
MSL	Moisture Sensitivity, JEDEC	Level 3-260C	-	-	1/12/0	1/12/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

TPS25921AD and TPS25921LD DMOS5 (LBC7+DCU) - FMX

Product Attributes

Attributes	Qual Device: TPS25921AD	Qual Device: TPS25921LD	QBS Product: TPS2592AADRC	QBS Process: TPS2062CD	QBS Package: PCA9557D	QBS Package: TL598CDR	QBS Package: TPS2042BD	QBS Package: TPS2419DR
Assembly Site	FMX	FMX	CLARK AT	FMX	FMX	FMX	FMX	FMX
Package Family	SOIC	-	WSON	SOIC	SOIC	SOIC	-	-
Flammability Rating	UL 94 V-0	-	UL 94 V-0	UL 94 V-0	-	-	-	-
Wafer Fab Supplier	DMOS5	DMOS5	RFAB	DM0S5	HFAB	SFAB	HIJI	MIHO
Wafer Fab Process	LBC7 DCU	LBC7 DCU	LBC7	LBC7 DCU	50C2123	JI1	LBC4X	LBC7

- QBS: Qual By Similarity
- Qual Device TPS25921AD is qualified at MSL L2

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPS25921AD	Qual Device: TPS25921LD	QBS Product: TPS2592AADRC	QBS Process: TPS2062CD
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	1/77/0	3/231/0
AC	Autoclave 121C	96 Hours	-	-	-	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	-	-	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	1/77/0	-	-	3/231/0
HTOL	Life Test, 125C	1000 Hours	-	-	-	1/77/0
HTOL	Life Test, 150C	300 Hours	-	-	-	3/231/0
HBM	ESD - HBM	1000 V	1/3/0	-	1/3/0	1/3/0
CDM	ESD - CDM	250 V	1/3/0	-	1/3/0	2/6/0
LU	Latch-up	(per JESD78)	1/6/0	-	1/6/0	1/6/0
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	Pass	Pass
LI	Lead Pull to Destruction	Leads	-	-	-	-
	OTP Data Retention, 170C	420 Hours	1/77/0	-	-	-

Type	Test Name / Condition	Duration	QBS Package: PCA9557D	QBS Package: TL598CDR	QBS Package: TPS2042BD	QBS Package: TPS2419DR
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0

UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	3/231/0
HTOL	Life Test, 125C	1000 Hours	-	-	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-
HBM	ESD - HBM	1000 V	-	-	-	-
CDM	ESD - CDM	250 V	-	-	-	-
LU	Latch-up	(per JESD78)	-	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass	-
LI	Lead Pull to Destruction	Leads	-	-	3/66/0	-
	OTP Data Retention, 170C	420 Hours	-	-	-	-

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

0.96mils Cu wire qualification for DBQ package devices in TIM

Product Attributes

Attributes	Qual Device: PCM1754DBQR	Qual Device: TLC59284DBQR	Qual Device: TLC5928DBQR
Assembly Site	MLA	MLA	MLA
Package Family	SSOP	SSOP	SSOP
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Site	UMCF8	DMOS5	HIJI
Wafer Fab Process	0.35um UMC CMOS	LBC7	LBC4

- QBS: Qual By Similarity
- Qual Device qualified at LEVEL1-260CG: PCM1754DBQR
-Qual Devices qualified at LEVEL2-260CG: TLC59284DBQR and TLC5928DBQR

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: PCM1754DBQR	Qual Device: TLC59284DBQR	Qual Device: TLC5928DBQR
AC	Autoclave 121C	96 Hours	3/231/0	3/226/0	3/238/0
TC	Temperature Cycle, -65/+150C	500 Cycles	3/231/0	3/318/0	3/305/0

TC	Temperature Cycle, -65/+150C	1000 Cycles	3/231/0	3/281/0	3/307/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-	-
DPA	Destructive Physical Analysis	Post 500cyc Temp Cycle	3/6/0	3/6/0	-
DPA	Destructive Physical Analysis	Post 1000cyc Temp Cycle	3/6/0	3/6/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
MSL	Moisture Sensitivity Level	Level 1@ 260C	3/66/0	3/66/0	3/66/0
MSL	Moisture Sensitivity Level	Level 2@ 260C	-	3/66/0	3/66/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Qualification Report

G633C+Au wire SOIC/SSOP devices using SuHD leadframe

Product Attributes

Attributes	Qual Device: ADS-7816UC	Qual Device: OPA2365AID	Qual Device: PCA9536D	Qual Device: PLL1708DBQ	Qual Device: TPS5410D
Assembly Supplier	MLA	MLA	MLA	MLA	MLA
Package Family	SOIC	SOIC	SOIC	SSOP	SOIC
Flammability Rating	UL 94 V-0	UL94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	TSMC	DMOS5	DFAB	TSMC	DFAB
Wafer Fab Process	0.60UM-TSMC	50HPA07X3	50C2123	0.35-DPTM	LBC4X

- Qual Devices qualified at LEVEL1-260CG: OPA2365AID, PCA9536D, PLL1708DBQ
- Qual Devices qualified at LEVEL2-260CG: ADS-7816UC, TPS5410D

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: ADS-7816UC	Qual Device: OPA2365AID	Qual Device: PCA9536D	Qual Device: PLL1708DBQ	Qual Device: TPS5410D
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass
XRAY	X-ray	(top side only)	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1khrs, 140C/480hrs, 150C/300hrs, and 155C/240hrs
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1khrs, and 170C/420hrs
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700cyc and -65C/150C/500cyc

Quality and Environmental data is available at TI's external Web site: http://www.ti.com/
Green/Pb-free Status:
Qualified Pb-Free(SMT) and Green

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