PCN Number:	20220125001.2	PCN Date:	Mar. 9, 2022
Title:	Qualification of Carsem Suzhou as an additional Assy/Test Site for DAC7551x devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Sept. 9, 2022	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 Incorporated is announcing the qualification of Assembly and Test site Carsem Suzhou as an alternate source for DAC7551TDRNRQ1 and DAC7551ZTDRNRQ1.

Description	Current Fab	Alternate Fab
Assembly/Test site	Amkor Philippines	Carsem Suzhou
Die Attach	443156	SID#101319028
Mold Compound	SID#444567	SID#101321149

Reason for Change:

Continuity of Supply

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

None

Impact on Environmental Ratings

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
Amkor Philippines	AP3	PHL	Angeles City, Pampanga
Carsem Suzhou	**CSZ**	**CHN**	**Suzhou**

Sample Product Shipping Label (not actual product label)

(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T)LOT: 3959047MLA
(4W) TKY(1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO:SHE (21L) CCO:USA
(22L) ASO:MLA (23L) ACO:MYS

Product Affected:
DAC7551TDRNRQ1 DAC7551ZTDRNRQ1

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

Approved 22-Jun-2020

Product Attributes

Attributes	Qual Device: DAC7551ZTDRNRQ1	QBS Process Reference: DAC7551TDRNRQ1	QBS Process Reference: REF5025AQDRQ1/ REF5020AQDRQ1	QBS Process Reference: REF5030AQDRQ1/ REF5050AQDRQ1
Automotive Grade Level	Grade 2	Grade 2	Grade 1	Grade 1
Operating Temp Range	-40 to +105 C	-40 to +105 C	-40 to +125 C	-40 to +125 C
Product Function	Signal Chain	Signal Chain	Power Management	Power Management
Wafer Fab Supplier	DMOS5	DMOS5	DMOS5	DMOS5
Die Revision	B	B	C	C
Assembly Site	CARZ	AP3	MLA	MLA
Package Type	USON	USON	SOIC	SOIC
Package Designator	DRN	DRN	D	D
Ball/Lead Count	12	12	8	8

- QBS: Qual By Similarity
- Qual Device DAC7551ZTDRNRQ1 is qualified at LEVEL2-260C

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: DAC7551ZTDRNRQ1	QBS Process Reference: DAC7551TDRNRQ1	QBS Process Reference: REF5025AQDRQ1/ REF5020AQDRQ1	QBS Process Reference: REF5030AQDRQ1/ REF5050AQDRQ1
Test Group A – Accelerated Environment Stress Tests											
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	-	Preconditioning	Level 2-260C	4 Fails (1)	-	-	-
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 110C/85%RH	264 Hours	3/231/0	-	-	-
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0	-	-	-

	Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: DAC7551ZTDRNRQ1	QBS Process Reference: DAC7551TDRNRQ1	QBS Process Reference: REF5025AQDRQ1/ REF5020AQDRQ1	QBS Process Reference: REF5030AQDRQ1/ REF5050AQDRQ1
	TC	A 4	JEDEC JESD22 -A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	-	-
	TC-BP	A 4	MIL-STD883 Method 2011	1	50	Post Temp Cycle Bond Pull	Wires	1/50/0	-	-	-
	PTC	A 5	JEDEC JESD22 -A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	-	-	-
	HTSL	A 6	JEDEC JESD22 -A103	1	45	High Temp Storage Bake 150C	1000 Hours	1/77/0	-	-	-
Test Group B – Accelerated Lifetime Simulation Tests											
	HTOL	B1	JEDEC JESD22 -A108	3	77	Life Test, 125C	408 Hours	3/231/0	-	-	-
	HTOL	B1	JEDEC JESD22 -A108	3	77	Life Test, 125C	1000 Hours	-	-	1/77/0	-
	HTOL	B1	JEDEC JESD22 -A108	3	77	Life Test, 150C	300 Hours	-	1/77/0	-	1/77/0
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	1/800/0	2/1600/1 (2)	-
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	24 Hours	-	-	-	1/800/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	-	-	-
Test Group C – Package Assembly Integrity Tests											
	WBS	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk	Wires	1/30/0	-	-	-

	Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: DAC7551ZTDRNRQ1	QBS Process Reference: DAC7551TDRNRQ1	QBS Process Reference: REF5025AQDRQ1/ REF5020AQDRQ1	QBS Process Reference: REF5030AQDRQ1/ REF5050AQDRQ1
						>1.67					
	WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull, Cpk >1.67	Wires	1/30/0	-	-	-
	SD	C3	JEDEC JESD22 -B102	1	15	Surface Mount Solderability	Pb Free Solder	1/15/0	-	-	-
	SD	C3	JEDEC JESD22 -B102	1	15	Surface Mount Solderability	Pb Solder	1/15/0	-	-	-
	PD	C4	JEDEC JESD22 -B100 and B108	3	10	Physical Dimensions	Cpk >1.67	3/30/0	-	-	-
Test Group D – Die Fabrication Reliability Tests											
	EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-	-
	TDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-	-
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-	-	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-	-	-

	Type	#	Test Spec	Min Lot Qty	SS/ Lot	Test Name / Condition	Duration	Qual Device: DAC7551ZTDRNRQ1	QBS Process Reference: DAC7551TDRNRQ1	QBS Process Reference: REF5025AQDRQ1/ REF5020AQDRQ1	QBS Process Reference: REF5030AQDRQ1/ REF5050AQDRQ1
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-	-	-
Test Group E – Electrical Verification Tests											
	HBM	E2	AEC Q100-002	1	3	ESD - HBM	4000 V	1/3/0	-	-	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	1500 V	1/3/0	-	-	-
	LU	E4	AEC Q100-004	1	6	Latch-up	Per AEC-Q100-004	1/6/0	1/6/0	-	-
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk >1.67	3/90/0	-	-	-

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

Notes/ Comments:
(1)Damaged die due to Handling. Discounted. QEM-EVAL-2001-00270
(2)EOS. QTS 262177-1. Discount

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