


PCN Number:	20240320001.2			PCN Date:	March 21, 2024												
Title:	Qualification of TI CDAT as an additional Assembly & Test site for select devices																
Customer Contact:	Change Management team		Dept:	Quality Services													
Proposed 1st Ship Date:	September 17, 2024		Sample requests accepted until:	April 20, 2024*													
*Sample requests received after April 20, 2024 will not be supported.																	
Change Type:																	
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material												
<input checked="" type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Process												
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Fab Site												
<input type="checkbox"/>	Mechanical Specification	<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Material												
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Process												
PCN Details																	
Description of Change:																	
Texas Instruments is pleased to announce the qualification of TI CDAT as an additional Assembly & test site for the devices listed below.																	
Construction differences are as follows:																	
<table border="1"> <thead> <tr> <th></th> <th>UTAC</th> <th>TI CDAT</th> </tr> </thead> <tbody> <tr> <td>Wire diam/type</td> <td>1.0mil Au</td> <td>0.96mil Cu</td> </tr> <tr> <td>Mount compound</td> <td>PZ0068</td> <td>4229877</td> </tr> <tr> <td>Mold compound</td> <td>CZ0096</td> <td>4222198</td> </tr> </tbody> </table>							UTAC	TI CDAT	Wire diam/type	1.0mil Au	0.96mil Cu	Mount compound	PZ0068	4229877	Mold compound	CZ0096	4222198
	UTAC	TI CDAT															
Wire diam/type	1.0mil Au	0.96mil Cu															
Mount compound	PZ0068	4229877															
Mold compound	CZ0096	4222198															
Qual details are provided in the Qual Data Section.																	
Reason for Change:																	
Continuity of Supply																	
1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties 2) Maximize flexibility within our Assembly/Test production sites. 3) Cu is easier to obtain and stock																	
Anticipated impact on Form, Fit, 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.																	
<table border="1"> <thead> <tr> <th>RoHS</th> <th>REACH</th> <th>Green Status</th> <th>IEC 62474</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> </tr> </tbody> </table>						RoHS	REACH	Green Status	IEC 62474	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change				
RoHS	REACH	Green Status	IEC 62474														
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change														
Changes to product identification resulting from this PCN:																	
Assembly Site																	
UTAC		Assembly Site Origin (22L)		ASO: NSE													
TI CDAT		Assembly Site Origin (22L)		ASO: CDA													
Sample product shipping label (not actual product label)																	

TEXAS
INSTRUMENTS

MADE IN: Malaysia
2DC: 2Q:

MSL 2 /260C/1 YEAR


SEAL DT


MSL 1 /235C/UNLIM

03/29/04

OPT:
ITEM: 39

LBL: 5A (L)T0:1750

G4



(1P) SN74LS07NSR

(Q) 2000 (D) 0336

(31T) LOT: 3959047MLA

(4W) TKY (1T) 7523483SI2

(P)

(2P) REV: (V) 0033317

(20L) CS0: SHE (21L) CC0:USA

(22L) AS0: MLA (23L) AC0: MYS

Product Affected:

LM74700QDBVRQ1

LM74700QDBVTQ1

Qualification Report

Automotive Qualification Summary

(As per AEC-Q100 Rev. H and JEDEC Guidelines)

Approve Date 05-March-2024

Product Attributes

Attributes	Qual Device: LM74700QDBVRQ1	QBS Process, Product Reference: LM74700QDBVRQ1
Automotive Grade Level	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125
Product Function	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB
Assembly Site	CDAT	UTL2
Package Group	SOT	SOT
Package Designator	DBV	DBV
Pin Count	6	6

QBS: Qual By Similarity
Qual Device LM74700QDBVRQ1 is qualified at MSL2 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: <u>LM74700QDBVRQ1</u>	QBS Process, Product Reference: <u>LM74700QDBVRQ1</u>
Test Group A - Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	-	0 Fails	0 Fails
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	3/231/0	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	3/231/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	1/5/0	1/5/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	3/135/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	1/45/0
Test Group B - Accelerated Lifetime Simulation Tests									
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	300 Hours	1/77/0	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	150C	24 Hours	-	3/2400/0
Test Group C - Package Assembly Integrity Tests									
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	1/15/0	1/15/0
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	1/15/0	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	3/30/0	3/30/0
Test Group D - Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDDb	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 28	-	-	Hot Carrier Injection	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
BTI	D4	-	-	-	Bias Temperature Instability	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
SM	D5	-	-	-	Stress Migration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E - Electrical Verification Tests									
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	1/3/0
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	-	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	3/90/0

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

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40C to +150C
Grade 1 (or Q): -40C to +125C
Grade 2 (or T): -40C to +105C
Grade 3 (or I) : -40C to +85C

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

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

Qualification Report
Automotive Qualification Summary
(As per AEC-Q006 and JEDEC Guidelines)
Approve Date 05-March-2024

Product Attributes

Attributes	Qual Device:
	<u>LM74700QDBVRQ1</u>
Automotive Grade Level	Grade 1
Operating Temp Range (C)	-40 to 125
Product Function	Power Management
Wafer Fab Supplier	RFAB
Assembly Site	CDAT
Package Group	SOT
Package Designator	DBV
Pin Count	6

QBS: Qual By Similarity
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Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: LM74700QDBVRQ1
Test Group A - Accelerated Environment Stress Tests								
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	-	3/639/0
PC	A1.1	-	3	22	SAM Precon Pre	Review for delamination	-	3/66/0
PC	A1.2	-	3	22	SAM Precon Post	Review for delamination	-	3/66/0
HAST	A2.1	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	3/231/0
HAST	A2.1.2	-	3	1	Cross Section, post bHAST, 1X	Post stress cross section	Completed	3/3/0
HAST	A2.1.3	-	3	3	Wire Bond Shear, post bHAST, 1X	Post stress	-	3/9/0
HAST	A2.1.4	-	3	3	Bond Pull over Stitch, post bHAST, 1X	Post stress	-	3/9/0
HAST	A2.1.5	-	3	3	Bond Pull over Ball, post bHAST, 1X	Post stress	-	3/9/0
HAST	A2.2	JEDEC JESD22-A110	3	70	Biased HAST	130C/85%RH	192 Hours	3/231/0
HAST	A2.2.1	-	3	22	SAM Analysis, post bHAST 2X	Review for delamination	Completed	3/66/0
HAST	A2.2.2	-	3	1	Cross Section, post bHAST, 2X	Post stress cross section	Completed	3/3/0
HAST	A2.2.3	-	3	3	Wire Bond Shear, post bHAST, 2X	Post stress	-	3/9/0
HAST	A2.2.4	-	3	3	Bond Pull over Stitch, post bHAST, 2X	Post stress	-	3/9/0
HAST	A2.2.5	-	3	3	Bond Pull over Ball, post bHAST, 2X	Post stress	-	3/9/0
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	3/231/0
TC	A4.1.1	-	3	22	SAM Analysis, post TC 1X	Review for delamination	Completed	3/66/0
TC	A4.1.2	-	3	1	Cross Section, post TC, 1X	Post stress cross section	Completed	3/3/0
TC	A4.1.3	-	3	3	Wire Bond Shear, post TC, 1X	Post stress	-	3/9/0
TC	A4.1.4	-	3	3	Bond Pull over Stitch, post TC, 1X	Post stress	-	3/9/0
TC	A4.1.5	-	3	3	Bond Pull over Ball, post TC, 1X	Post stress	-	3/9/0
TC	A4.2	JEDEC JESD22-A104 and Appendix 3	3	70	Temperature Cycle	-65C/150C	1000 Cycles	3/231/0
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	3/66/0
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	3/3/0
TC	A4.2.3	-	3	3	Wire Bond Shear, post TC, 2X	Post stress	-	3/9/0
TC	A4.2.4	-	3	3	Bond Pull over Stitch, post TC, 2X	Post stress	-	3/9/0
TC	A4.2.5	-	3	3	Bond Pull over Ball, post TC, 2X	Post stress	-	3/9/0
HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	150C	1000 Hours	3/135/0
HTSL	A6.1.1	-	3	1	Cross Section, post HTSL, 1X	Post stress cross section	Completed	3/3/0
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	150C	2000 Hours	3/135/0
HTSL	A6.2.1	-	3	1	Cross Section, post HTSL, 2X	Post stress cross section	Completed	3/3/0
Test Group C - Package Assembly Integrity Tests								
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	3/90/0

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ZVEI ID reference: SEM-PA-11, SEM-PA-07, SEM-PA-08, SEM-PA-18, SEM-TF-01

For questions regarding this notice, e-mails can be sent to Change Management team or your local Field Sales Representative.

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