

<b>PCN Number:</b>	20221216004.2	<b>PCN Date:</b>	December 21, 2022
<b>Title:</b>	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly/Probe Site & BOM options for select devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jun 19, 2023	<b>Sample requests accepted until:</b>	Jan 21, 2023*

**\*Sample requests received after Jan 21, 2023 will not be supported.**

**Change Type:**

<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification
<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>	Wafer Fab Site	<input checked="" type="checkbox"/>	Wafer Fab Materials	<input checked="" type="checkbox"/>	Wafer Fab Process
		<input type="checkbox"/>	Part number change		

**PCN Details**

**Description of Change:**

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, LBC9) and Assembly/Probe Site & BOM option for selected devices as listed below in the product affected section. Construction differences are noted below:

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
SFAB	HCMOS	150 mm	RFAB	LBC9	300 mm

The die was also changed as a result of the process change.

Additionally, there will be a BOM options introduced for these devices:

	Current	Additional
Bond wire composition, diameter	Au, 0.96 mil	Cu, 0.8mil
Mount Compound	40425000	4147858
Mold Compound	4206193	4211471
Probe Site	SFAB	CD-PR

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ

**Reason for Change:**

These changes are part of our multiyear plan to transition products from our 150- millimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

**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.

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:**

**Fab Site Information:**

Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
SH-BIP-1	SHE	USA	Sherman
<b>RFAB</b>	<b>RFB</b>	<b>USA</b>	<b>Richardson</b>

**Die Rev:**

**Current**

**New**

Die Rev [2P]	Die Rev [2P]
H, I, M	<b>A</b>

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:**

SN74LV86ATPWRG4Q1

For alternate parts with similar or improved performance, please visit the product page on [TI.com](http://TI.com)

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

**BD5\_LVA\_14PW\_4Q\_MLA\_Q1  
Approve Date 16-NOVEMBER -2022**

Product Attributes

Attributes	Qual Device: <a href="#">SN74LV86ATPWRG4Q1</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">PSN74LV4T125QPWRQ1</a>	QBS Reference: <a href="#">SN74LV14ATPWRQ1</a>	QBS Reference: <a href="#">ADS131B04QPWRQ1</a>
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Logic	Logic	Logic	Logic	Signal Chain
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	DMOS6
Assembly Site	MLA	MLA	MLA	MLA	MLA
Package Group	TSSOP	TSSOP	TSSOP	TSSOP	TSSOP
Package Designator	PW	PW	PW	PW	PW
Pin Count	14	14	14	14	20

- QBS: Qual By Similarity
- Qual Device SN74LV86ATPWRG4Q1 is qualified at MSL1 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: <a href="#">SN74LV86ATPWRG4Q1</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">PSN74LV4T125QPWRQ1</a>	QBS Reference: <a href="#">SN74LV14ATPWRQ1</a>	QBS Reference: <a href="#">ADS131B04QPWRQ1</a>
<b>Test Group A - Accelerated Environment Stress Tests</b>												
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	1 Step	-	3/0/0	-	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	1 Step	-	-	1/0/0	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	1 Step	-	-	-	-	1/0/0
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	1 Step	-	-	-	-	3/0/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-	1/77/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	2/154/0
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	1/77/0	-	-
AC/UHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	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	-	-	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	2/154/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	1/77/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	-	-	1/45/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	-	1/45/0	-	-
<b>Test Group B - Accelerated Lifetime Simulation Tests</b>												

HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	125C	1000 Hours	-	3/231/0	-	-	-
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	300 Hours	-	-	1/77/0	1/77/0	-
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	408 Hours	-	-	-	-	3/231/0
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-	-	2/1600/0
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	150C	48 Hours	-	-	-	-	1/800/2 <sup>1</sup>

**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
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	1/30/0	-	-
WBP	C2	ML-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	3/90/0	-	-	3/90/0
WBP	C2	ML-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	1/30/0	-	-
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	1/15/0	-	-	-
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	1/15/0	-	-	-
PD	C4	JEDEC JESD22-B100 and B108	1	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDD	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	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	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 Requirements	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	1/3/0	1/3/0	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	1/3/0	1/3/0	1/3/0	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	-	1/6/0	1/6/0	1/6/0	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	3/90/0	1/30/0	3/90/0

**Additional Tests**

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device	QBS Reference	QBS Reference	QBS Reference	QBS Reference
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- 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 : ACuHAST

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

TI Qualification ID: R-NPD-2211-094

**Automotive New Product Qualification Summary  
(As per AEC-Q100, AEC-Q006, and JEDEC Guidelines)**

**BD5\_LVA\_14PW\_4Q\_MLA\_Q1  
Approve Date 16-NOVEMBER -2022**

Product Attributes

Attributes	Qual Device: <a href="#">SN74LV86ATPWRG4Q1</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">PSN74LV4T125QPWRQ1</a>	QBS Reference: <a href="#">SN74LV14ATPWRQ1</a>	QBS Reference: <a href="#">ADS131B04QPWRQ1</a>
<b>Die Attributes</b>					
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	DMOS6
Wafer Process	LBC9	LBC9	LBC9	LBC9	LBC8LV
Die Size (L,W) (um)	530 x 575	460 x 510	530 x 575	530 x 575	1720 x 2095
<b>Package Attributes</b>					
Assembly Site	MLA	MLA	MLA	MLA	MLA
Package Group	TSSOP	TSSOP	TSSOP	TSSOP	TSSOP
Package Designator	PW	PW	PW	PW	PW

- QBS: Qual By Similarity
- Qual Device [SN74LV86ATPWRG4Q1](#) is qualified at MSL1 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: <a href="#">SN74LV86ATPWRG4Q1</a>	QBS Reference: <a href="#">SN74HCS74QPWRQ1</a>	QBS Reference: <a href="#">PSN74LV4T125QPWRQ1</a>	QBS Reference: <a href="#">SN74LV14ATPWRQ1</a>	QBS Reference: <a href="#">ADS131B04QPWRQ1</a>
<b>Test Group A - Accelerated Environment Stress Tests</b>												
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	1 Step	-	3/0/0	-	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL2 260C	1 Step	-	-	-	-	1/0/0
PC	A1.1	-	3	22	SAM Precon Pre	Review for delamination	1 Step	-	3/66/0	-	-	1/22/0
PC	A1.2	-	3	22	SAM Precon Post	Review for delamination	1 Step	-	3/66/0	-	-	1/22/0
HAST	A2.1	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	-	1/77/0
HAST	A2.1.2	-	3	1	Cross Section, post bHAST, 1X	Post stress cross section	Completed	-	3/3/0	-	-	1/0/0
HAST	A2.1.3	-	3	30	Wire Bond Shear, post bHAST, 1X	Post stress	Wires	-	3/9/0	-	-	1/0/0
HAST	A2.1.4	-	3	30	Bond Pull over Sitch, post bHAST, 1X	Post stress	Wires	-	3/9/0	-	-	1/0/0
HAST	A2.1.5	-	3	30	Bond Pull over Ball, post bHAST, 1X	Post stress	Wires	-	3/9/0	-	-	1/0/0
HAST	A2.2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	192 Hours	-	3/231/0	-	-	1/70/0
HAST	A2.2.1	-	3	22	SAM Analysis, post bHAST 2X	Review for delamination	Completed	-	3/66/0	-	-	1/22/0

HAST	A2.2.2	-	3	1	Cross Section, post bHAST, 2X	Post stress cross section	Completed	-	3/3/0	-	-	1/1/0
HAST	A2.2.3	-	3	30	Wire Bond Shear, post bHAST, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0
HAST	A2.2.4	-	3	30	Bond Pull over Sitch, post bHAST, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0
HAST	A2.2.5	-	3	30	Bond Pull over Ball, post bHAST, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	-	-	1/77/0
TC	A4.1.1	-	3	22	SAM Analysis, post TC 1X	Review for delamination	Completed	-	3/66/0	-	-	8/176/0
TC	A4.1.2	-	3	1	Cross Section, post TC, 1X	Post stress cross section	Completed	-	24/24/0	-	-	8/0/0
TC	A4.1.3	-	3	30	Wire Bond Shear, post TC, 1X	Post stress	Wires	-	3/9/0	-	-	8/24/0
TC	A4.1.4	-	3	30	Bond Pull over Sitch, post TC, 1X	Post stress	Wires	-	24/72/0	-	-	8/24/0
TC	A4.1.5	-	3	30	Bond Pull over Ball, post TC, 1X	Post stress	Wires	-	3/9/0	-	-	8/24/0
TC	A4.2	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	1000 Cycles	-	3/231/0	-	-	1/70/0
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	-	3/66/0	-	-	1/22/0
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	-	3/3/0	-	-	1/1/0
TC	A4.2.3	-	3	30	Wire Bond Shear, post TC, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0
TC	A4.2.4	-	3	30	Bond Pull over Sitch, post TC, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0
TC	A4.2.5	-	3	30	Bond Pull over Ball, post TC, 2X	Post stress	Wires	-	3/9/0	-	-	1/3/0

HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	-	-	1/45/0
HTSL	A6.1.1	-	3	1	Cross Section, post HTSL, 1X	Post stress cross section	Completed	-	24/24/0	-	-	8/8/0
HTSL	A6.2	JEDEC JESD22-A103	3	45	High Temperature Storage Life	150C	2000 Hours	-	3/135/0	-	-	1/44/0
HTSL	A6.2.1	-	3	1	Cross Section, post HTSL, 2X	Post stress cross section	Completed	-	3/3/0	-	-	1/1/0
<b>Test Group B - Accelerated Lifetime Simulation Tests</b>												
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	125C	1000 Hours	-	3/231/0	-	-	-
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	300 Hours	-	-	1/77/0	1/77/0	-
HTOL	B1	JEDEC JESD22-A108	1	77	Life Test	150C	408 Hours	-	-	-	-	3/231/0
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-	-	2/1600/0
ELFR	B2	AEC Q100-008	1	77	Early Life Failure Rate	150C	48 Hours	-	-	-	-	1/800/2 <sup>1</sup>
<b>Test Group C - Package Assembly Integrity Tests</b>												
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	3/9/0	-	-	3/9/0
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	1/30/0	-	-
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	3/9/0	-	-	3/9/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	1/30/0	-	-
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	1/15/0	-	-	-

SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	1/15/0	-	-	-
PD	C4	JEDEC JESD22-B100 and B108	1	10	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	-	-
<b>Test Group D - Die Fabrication Reliability Tests</b>												
EM	D1	JESD61	-	-	Electromigration	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDD	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	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	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 Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
<b>Test Group E - Electrical Verification Tests</b>												
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	2000 Volts	-	1/3/0	1/3/0	1/3/0	-
ESD	E2	AEC Q100-002	1	3	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	1/3/0	1/3/0	1/3/0	-
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	-	1/6/0	1/6/0	1/6/0	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	3/90/0	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 : ACU/HAST

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

TI Qualification ID: R-NPD-2211-094

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

<b>Location</b>	<b>E-Mail</b>
WW Change Management Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

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