



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN# 20250212005.2

**Qualification of TIEM-PR as an additional wafer probe site and
TIPI as an additional Assembly/Test site for select devices
Change Notification / Sample Request**

Date: February 12, 2025

To: MOUSER PCN

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

Texas Instruments requires acknowledgement of receipt of this notification within 60 days of the date of this notice. Lack of acknowledgement of this notice within 60 days constitutes acceptance and approval of this change. If samples or additional data are required, requests must be received within 60 days of this notification.

The changes discussed within this PCN will not take effect any earlier than the proposed first ship date on Page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the change management team.

For sample requests or sample related questions, contact your local Field Sales Representative.

TI values customer engagement and feedback related to TI changes. Customers should contact TI if there are questions or concerns regarding a change notification.

Sincerely,

Change Management Team
SC Business Services

20250212005.2
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
INA281B1QDBVRQ1	NULL
OPA348AQDBVRQ1	NULL
SN74AHC1G08QDBVRQ1	SN74AHC1G08QDBVRQ1
TLV71318PQDBVRQ1	TLV71318PQDBVRQ1
TLV71333PQDBVRQ1	TLV71333PQDBVRQ1
TLV314QDBVRQ1	NULL
CAHC1G126QDBVRQ1	NULL
CAHCT1G126DBVRQ1	NULL
INA293B4QDBVRQ1	NULL
TL432LIAEDBZRQ1	TL432LIAEDBZRQ1
INA293B3QDBVRQ1	NULL
TLV3501AQDBVRQ1	NULL
TSV911AQDBVRQ1	NULL
INA293B1QDBVRQ1	NULL
TLV70218QDBVRQ1	TLV70218QDBVRQ1
INA193AQDBVRQ1	INA193AQDBVRQ1
TPS70925QDBVRQ1	TPS70925QDBVRQ1
TLV9361QDBVRQ1	NULL
TLV3501AZQDBVRQ1	NULL
TLV1701QDBVRQ1	TLV1701QDBVRQ1
OPA992QDBVRQ1	NULL
TL431LIAEDBZRQ1	NULL
CAHC1G125QDBVRQ1	NULL
TLV316QDBVRQ1	NULL
INA196AQDBVRQ1	INA196AQDBVRQ1
TLV314QDBVTQ1	NULL
TLV316QDBVTQ1	NULL
TPS70936QDBVRQ1	595-TPS70936QDBVRQ1
TPS70936QDBVRQ1	TPS70936QDBVRQ1
SN74AHC1G02DBVRQ1	NULL
SN74AHC1G09QDBVRQ1	NULL
SN74AHC1G86QDBVRQ1	SN74AHC1G86QDBVRQ1
TLV70228QDBVRQ1	TLV70228QDBVRQ1
TPS2513AQDBVRQ1	595-TPS2513AQDBVRQ1
SN74AHC1G14QDBVRQ1	NULL
TLV71325PQDBVRQ1	TLV71325PQDBVRQ1
TPS70950QDBVRQ1	TPS70950QDBVRQ1
ATL431LIAQDBZRQ1	NULL
TPS2514AQDBVRQ1	TPS2514AQDBVRQ1
INA293A5QDBVRQ1	NULL
INA197AQDBVRQ1	INA197AQDBVRQ1
INA293A4QDBVRQ1	NULL
OPA317QDBVRQ1	NULL
TMP235AEDBZRQ1	TMP235AEDBZRQ1
INA293A2QDBVRQ1	NULL
INA293A1QDBVRQ1	NULL
INA293A3QDBVRQ1	NULL
TLV70233QDBVRQ1	TLV70233QDBVRQ1
TPS70933QDBVRQ1	TPS70933QDBVRQ1
LMV321AUQDBVRQ1	NULL
TLV171QDBVRQ1	NULL

TLV70215QDBVRQ1	TLV70215QDBVRQ1
TPD4E001QDBVRQ1	TPD4E001QDBVRQ1
TMP236AQDBZRQ1	TMP236AQDBZRQ1
TPS3838K33QDBVRQ1	NULL
ATL431LIBQDBZRQ1	NULL
SN4599DBVRQ1	NULL
TLV7041QDBVRQ1	NULL
TLV9161QDBVRQ1	NULL
TS5A3159QDBVRQ1	TS5A3159QDBVRQ1
LMV321AQDBVRQ1	NULL
TPS2513AQDBVRQ1	TPS2513AQDBVRQ1
TLV702125QDBVRQ1	TLV702125QDBVRQ1
OPA171AQDBVRQ1	NULL
INA281A4QDBVRQ1	NULL
TL432LIBEDBZRQ1	TL432LIBEDBZRQ1
INA281A1QDBVRQ1	NULL
INA281A2QDBVRQ1	NULL
INA281B2QDBVRQ1	NULL
INA281B3QDBVRQ1	NULL
INA281A3QDBVRQ1	NULL
INA194AQDBVRQ1	INA194AQDBVRQ1
TLV7031QDBVRQ1	NULL
TMP235AQDBZRQ1	TMP235AQDBZRQ1

Technical details of this Product Change follow on the next page(s).

PCN Number:	20250212005.2	PCN Date:	February 12, 2025		
Title:	Qualification of TIEM-PR as an additional wafer probe site and TIPI as an additional Assembly/Test site for select devices				
Customer Contact:	Change Management Team	Dept:	Quality Services		
Proposed 1st Ship Date:	August 11, 2025	Sample requests accepted until:	April 13, 2025*		
*Sample requests received after April 13, 2025 will not be supported.					
Change Type:					
☒ Assembly Site	☐ Design	☐ Wafer Bump Material			
☒ Assembly Process	☐ Data Sheet	☐ Wafer Bump Process			
☒ Assembly Materials	☐ Part number change	☐ Wafer Fab Site			
☐ Mechanical Specification	☒ Test Site	☐ Wafer Fab Material			
☒ Packing/Shipping/Labeling	☐ Test Process	☐ Wafer Fab Process			
PCN Details					
Description of Change:					
Texas Instruments is pleased to announce the qualification of TIEM-PR as additional wafer probe site and TIPI as an additional Assembly/Test site option for the device listed below.					
Construction differences are as follows:					
	Current	New			
Probe Site	CD-PR	TIEM-PR			
Group 1 device:					
	CDAT	TFME	TIPI		
Wire Bond diam/type	0.8mil Cu	1.0mil Au	0.8mil, 1.0mil Cu		
Mount compound	4207123	SID# A-03, SID# A-18	4207123		
Mold compound	4222198	SID#R-13, SID#R-17	4222198		
Lead finish	Matte Sn	Matte Sn	NiPdAu		
Group 2 & Group 3 device:					
	HFTFAT	HNA	LEN	TFME	TIPI
Wire Bond diam/type	0.8mil Au	0.8mil, 1.0mil Au	1.0mil Cu	1.0mil Au	0.8mil, 1.0mil Cu
Mount compound	SID#A-18	SID#400180	SID#0003C 10332	SID# A-03, SID# A-18	4207123
Mold compound	SID#R-34	SID#450042, SID#450179	SID#0011G 60007	SID#R-13, SID#R-17	4222198
Qual details are provided in the Qual Data Section.					
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.					
Reason for Change:					
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
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
HNA	HNT	THA	Ayutthaya
LEN	LIN	TWN	Taichung
HFTF	HFT	CHN	Hefei
TFME	NFM	CHN	Chongchuan
CDAT	CDA	CHN	Chengdu
TIPI	PHI	PHL	Baguio city

Sample product shipping label (not actual product label)


TEXAS INSTRUMENTS
 MADE IN: Malaysia
 2DC: 2Q: 2Q:
 MSL 2 / 260C / 1 YEAR SEAL DT
 MSL 1 / 235C / UNLIM 03/29/04
 OPT:
 ITEM: 39
LBL: 5A (L)T0:1750



(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

Group 1 Product Affected: Assembly/Test site

CAHC1G125QDBVRQ1	SN74AHC1G02DBVRQ1	TLV3501AZQDBVRQ1
CAHC1G126QDBVRQ1	SN74AHC1G09QDBVRQ1	TPS2513AQDBVRQ1
CAHCT1G126DBVRQ1	SN74AHC1G14QDBVRQ1	TPS2514AQDBVRQ1
LMV321AQDBVRQ1	TLV9161QDBVRQ1	TPS2514AQDBVTQ1
LMV321AUQDBVRQ1	TLV9361QDBVRQ1	
OPA992QDBVRQ1	TSV911AQDBVRQ1	

Group 2 Product Affected: Wafer probe site, Assembly/Test site

INA193AQDBVRQ1	INA281A3QDBVRQ1	INA293A3QDBVRQ1
INA193AQDBVRRB	INA281A4QDBVRQ1	INA293A4QDBVRQ1
INA194AQDBVRQ1	INA281A5QDBVRQ1	INA293A5QDBVRQ1
INA195AQDBVRQ1	INA281B1QDBVRQ1	INA293B1QDBVRQ1
INA196AQDBVRCT	INA281B2QDBVRQ1	INA293B2QDBVRQ1
INA196AQDBVRQ1	INA281B3QDBVRQ1	INA293B3QDBVRQ1
INA197AQDBVRQ1	INA281B4QDBVRQ1	INA293B4QDBVRQ1
INA198AQDBVRQ1	INA281B5QDBVRQ1	INA293B5QDBVRQ1
INA281A1QDBVRQ1	INA293A1QDBVRQ1	
INA281A2QDBVRQ1	INA293A2QDBVRQ1	

Group 3 Product Affected: Assembly/Test site

ATL431LIAQDBZRQ1	TLV314QDBVRQ1	TLV71318PQDBVRQ1
ATL431LIBQDBZRQ1	TLV314QDBVTQ1	TLV71325PQDBVRQ1
OPA171AQDBVRQ1	TLV316QDBVRQ1	TLV71333PQDBVRQ1
OPA317QDBVRQ1	TLV316QDBVTQ1	TMP235AEDBZRQ1
OPA348AQDBVRQ1	TLV3501AQDBVRQ1	TMP235AQDBZRQ1
SN4599DBVRQ1	TLV702125QDBVRQ1	TMP236AQDBZRQ1
SN74AHC1G08QDBVRQ1	TLV70212QDBVRQ1	TPD4E001QDBVRQ1
SN74AHC1G86QDBVRQ1	TLV70215QDBVRQ1	TPS3838E18QDBVRCT

TL431LIAEDBZRQ1	TLV70218QDBVRQ1	TPS3838K33QDBVRQ1	
TL431LIBEDBZRQ1	TLV70227QDBVRQ1	TPS70925QDBVRQ1	
TL431LIBQDBZRQ1	TLV70228QDBVRQ1	TPS70928QDBVRQ1	
TL432LIAEDBZRQ1	TLV70233QDBVRQ1	TPS70930QDBVRQ1	
TL432LIAQDBZRQ1H	TLV7031QDBVRQ1	TPS70933QDBVRQ1	
TL432LIBEDBZRQ1	TLV7041QDBVRQ1	TPS70936QDBVRQ1	
TLV1701QDBVRQ1	TLV71310PQDBVRQ1	TPS70950QDBVRQ1	
TLV171QDBVRQ1	TLV71312PQDBVRQ1	TS5A3159QDBVRQ1	

Qualification Report
Automotive Qualification Summary
(As per AEC-Q100 Rev. J and JEDEC Guidelines)
Approve Date 29-January-2025

Product Attributes

Attributes	QBS Process Reference:	QBS Process Reference:	QBS Package Reference:	QBS Package, Process Reference:	QBS Package Reference:	QBS Package, Process Reference:	QBS Package Reference:
	TMP235AEDBZRQ1	TL431LIBEDBZRQ1	TLV2401QDBVRQ1	SN3257QDYYRQ1	TL331BQDBVRQ1 TL391BQDBVRQ1	TPS3820-50QDBVRQ1	TSM24CADBZRQ1
Automotive Grade Level	Grade 0	Grade 0	Grade 1	Grade 1	Grade 1	Grade 1	Grade 0
Operating Temp Range (C)	-40 to 150	-40 to 150	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-55 to 150
Product Function	Signal Chain	Power Management	Signal Chain	Logic,Signal Chain	Signal Chain	Power Management	Interface
Wafer Fab Supplier	RFAB	CFAB	DL-LIN	RFAB	CFAB	DL-LIN	CFAB
Assembly Site	HNA	TFME	PHI	PHI	PHI	PHI	PHI
Package Group	SOT	SOT	SOT	SOT	SOT	SOT	SOT
Package Designator	DBZ	DBZ	DBV	DYY	DBV	DBV	DBZ
Pin Count	3	3	5	16	5	5	3

QBS: Qual By Similarity, also known as Generic Data

Note 1: Affected devices in PCN have justification to use Package QBS references for Group A tests based on AEC-100J Appendix 1 A1.3 assembly site and package attributes were qualified.

Note 2: Affected devices in PCN have justification to use Process QBS references for Group B tests based on AEC-100J Appendix 1 A1.2 silicon wafer fab and die attributes were qualified.

Note 3: Affected devices in PCN have justification to use Package QBS for Group C tests based on AEC-100J Appendix 1 A1.3 package wire, leadframe and package group attributes are qualified.

Note 4: ED cannot use Generic data per AEC-Q100J but there is representation of passing Electrical Distributions with the same assembly site and package attributes

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	QBS Process Reference: TMP235AEDBZRQ1	QBS Process Reference: TL431UBEDDBZRQ1	QBS Package Reference: TLV2401QDBVRQ1	QBS Package, Process Reference: SN3257QDYVRQ1	QBS Package Reference: TL331BQDBVRQ1	QBS Package, Process Reference: TL391BQDBVRQ1	QBS Package, Process Reference: TPS3820: 5A0QDBVRQ1	QBS Package Reference: TSM24CADBZRQ1
Test Group A - Accelerated Environment Stress Tests															
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	-	-	3/Pass	3/Pass	3/Pass	3/Pass	3/Pass	3/Pass
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
ACU/HAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	3/231/0	3/231/0	-	3/231/0	-	-
ACU/HAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	3/231/0	-	3/231/0	3/231/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-55C/150C	1500 Cycles	-	-	-	-	-	-	-	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	3/231/0	3/231/0	3/231/0	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	-	-	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0	3/135/0	-	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	175C	500 Hours	-	-	3/135/0	-	-	3/135/0	-	-
Test Group B - Accelerated Lifetime Simulation Tests															
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	125C	1000 Hours	-	-	-	-	3/231/0	3/231/0	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	1000 Hours	3/231/0	3/231/0	-	-	-	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	300 Hours	-	-	-	3/231/0	-	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	408 Hours	-	-	3/231/0	-	-	-	-	-
HTRB	B1.1	MIL-STD-750-1	3	77	High Temperature Reverse Bias	150C	1000 Hours	-	-	-	-	-	-	-	1/77/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	125C	48 Hours	-	-	-	-	-	3/2400/0	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	150C	24 Hours	-	-	-	3/2400/0	-	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate	150C	48 Hours	3/2400/0	3/2400/0	-	-	-	-	-	-
EDR	B3	AEC Q100-005	1	77	NVM Endurance, Data Retention, and Op Life	Per QSS-009-018	1 Step	1/77/0	-	-	-	-	-	-	-
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	-	-	3/15/0	3/90/0	1/30/0	3/90/0	1/30/0	1/30/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	-	3/15/0	3/90/0	1/30/0	3/90/0	1/30/0	1/30/0
RSH	C8	JESD22-B107	-	30	Solder Heat	260C, 10 seconds	1 Step	-	-	-	-	-	-	1/30/0	1/30/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	-	1/15/0	1/15/0	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	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	1/10/0	3/30/0	1/30/0	1/30/0
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	Completed Per Process Technology Requirements	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	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	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	Completed Per Process Technology Requirements	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	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	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	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
Test Group E - Electrical Verification Tests															
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	3/90/0	3/90/0	3/90/0	3/90/0	1/25/0	1/25/0

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 and JEDEC Guidelines)** **Q006 SOT at PHI**

Approve Date 30-January-2025

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	QBS Reference: TLV2401QDBVRQ1	QBS Reference: SN3257QDYRQ1	QBS Reference: TL331BQDBVRQ1 TL391BQDBVRQ1	QBS Reference: TPS3820-50QDBVRQ1
Test Group A - Accelerated Environment Stress Tests											
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	3/Pass	3/Pass	3/Pass	3/Pass
PC	A1.1	-	3	22	SAM Precon Pre	Review for delamination	-	3/66/0	3/66/0	3/66/0	3/66/0
PC	A1.2	-	3	22	SAM Precon Post	Review for delamination	-	3/66/0	3/66/0	3/66/0	3/66/0
HAST	A2.1	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0
HAST	A2.1.2	-	3	1	Cross Section, post bHAST, 1X	Post stress cross section	Completed	Note 1	Note 1	Note 1	Note 1
HAST	A2.1.3	-	3	3	Wire Bond Shear, post bHAST, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
HAST	A2.1.4	-	3	3	Bond Pull over Stitch, post bHAST, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
HAST	A2.1.5	-	3	3	Bond Pull over Ball, post bHAST, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
HAST	A2.2	JEDEC JESD22-A110	3	70	Biased HAST	130C/85%RH	192 Hours	3/210/0	3/210/0	3/210/0	3/210/0

HAST	A2.2.1	-	3	22	SAM Analysis, post bHAST 2X	Review for delamination	Completed	3/66/0	3/66/0	3/66/0	3/66/0
HAST	A2.2.2	-	3	1	Cross Section, post bHAST, 2X	Post stress cross section	Completed	3/3/0	3/3/0	3/3/0	3/3/0
HAST	A2.2.3	-	3	3	Wire Bond Shear, post bHAST, 2X	Post stress	-	3/9/0	3/9/0	3/9/0	3/9/0
HAST	A2.2.4	-	3	3	Bond Pull over Stitch, post bHAST, 2X	Post stress	-	3/9/0	3/9/0	3/9/0	3/9/0
HAST	A2.2.5	-	3	3	Bond Pull over Ball, post bHAST, 2X	Post stress	-	3/9/0	3/9/0	3/9/0	3/9/0
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	70	Temperature Cycle	-65C/150C	1000 Cycles	3/210/0	3/210/0	3/210/0	3/210/0
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0
TC	A4.1.1	-	3	22	SAM Analysis, post TC 1X	Review for delamination	Completed	3/66/0	3/66/0	3/66/0	3/66/0
TC	A4.1.2	-	3	1	Cross Section, post TC, 1X	Post stress cross section	Completed	Note 1	Note 1	Note 1	Note 1
TC	A4.1.3	-	3	3	Wire Bond Shear, post TC, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
TC	A4.1.4	-	3	3	Bond Pull over Stitch, post TC, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
TC	A4.1.5	-	3	3	Bond Pull over Ball, post TC, 1X	Post stress	-	Note 1	3/9/0	Note 1	Note 1
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	3/66/0	3/66/0	3/66/0	3/66/0
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	3/3/0	3/3/0	3/3/0	3/3/0
TC	A4.2.3	-	3	3	Wire Bond Shear, post TC, 2X	Post stress	-	3/9/0	3/9/0	1/3/0	3/9/0
TC	A4.2.4	-	3	3	Bond Pull over Stitch, post TC, 2X	Post stress	-	3/9/0	3/9/0	1/3/0	3/9/0
TC	A4.2.5	-	3	3	Bond Pull over Ball, post TC, 2X	Post stress	-	3/9/0	3/9/0	1/3/0	3/9/0
HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	150C	1000 Hours	-	3/135/0	3/135/0	-
HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	175C	500 Hours	3/135/0	-	-	3/135/0
HTSL	A6.1.1	-	3	1	Cross Section, post HTSL, 1X	Post stress cross section	Completed	3/3/0	3/3/0	3/3/0	3/3/0
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	150C	2000 Hours	-	3/132/0	3/132/0	-
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	175C	1000 Hours	3/132/0	-	-	3/132/0
HTSL	A6.2.1	-	3	1	Cross Section, post HTSL, 2X	Post stress cross section	Completed	3/3/0	3/3/0	3/3/0	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	3/90/0	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	3/90/0	3/90/0

This report represents AEC-Q006 7.1 Family Data Usage using technology driver and lead products that are most representative of the technology family.

Note 1: As per Q006 Table 3a: Note 7, 1X HAST and TC samples were set aside and no issues were found at 2X. 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/>

ZVEI ID: SEM-PA-18 SEM-PA-05 SEM-PA-08 SEM-PA-07 SEM-PA-11, SEM-TF-01, SEM-PS-04

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