



PCN Number:	20240411005.2	PCN Date:	April 11, 2024																		
Title:	Qualification of RFAB using qualified Process Technology, Die Revision, Datasheet, and additional Assembly BOM options for select devices																				
Customer Contact:	Change Management Team	Dept:	Quality Services																		
Proposed 1st Ship Date:	October 08, 2024	Sample requests accepted until:	May 11, 2024*																		
*Sample requests received after May 11, 2024 will not be supported.																					
Change Type:																					
<input type="checkbox"/> Assembly Site	<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Material																			
<input checked="" type="checkbox"/> Assembly Process	<input checked="" type="checkbox"/> Data Sheet	<input type="checkbox"/> Wafer Bump Process																			
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input checked="" type="checkbox"/> Wafer Fab Site																			
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input checked="" type="checkbox"/> Wafer Fab Material																			
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input checked="" type="checkbox"/> Wafer Fab Process																			
PCN Details																					
Description of Change:																					
Texas Instruments is pleased to announce the qualification of its RFAB fabrication facility as an additional Wafer Fab option in addition to Assembly BOM options for the devices listed below.																					
<table border="1"> <thead> <tr> <th colspan="3">Current Fab Site</th> <th colspan="3">Additional Fab Site</th> </tr> <tr> <th>Current Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> <th>Additional Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> </tr> </thead> <tbody> <tr> <td>SFAB</td> <td>74HC</td> <td>150 mm</td> <td>RFAB</td> <td>LBC9</td> <td>300 mm</td> </tr> </tbody> </table>			Current Fab Site			Additional Fab Site			Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter	SFAB	74HC	150 mm	RFAB	LBC9	300 mm	
Current Fab Site			Additional Fab Site																		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter																
SFAB	74HC	150 mm	RFAB	LBC9	300 mm																
The die was also changed as a result of the process change.																					
Construction differences are as follows:																					
Group 1 Device:																					
	Current	Proposed																			
Wire diam, type	1.0mil Cu	0.80mil Cu																			
The datasheets will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The links to the revised datasheets are available in the table below.																					
		CD74HCT4051-Q1 <small>SCLS569C – JANUARY 2004 – REVISED APRIL 2024</small>																			
Changes from Revision B (April 2008) to Revision C (April 2024)			Page																		
• Changed HCT ICC at 25°C single/dual supply.....			5																		
• Changed t _{en} ADDRESS SEL or E to OUT.....			5																		
• Changed t _{dis} ADDRESS SEL or E to OUT.....			5																		
		CD74HC4051-Q1 <small>SCLS552B – DECEMBER 2003 – REVISED APRIL 2024</small>																			

Changes from Revision A (April 2008) to Revision B (April 2024)
Page

- Updated the numbering format for tables, figures, and cross-references throughout the document..... 1
- Changed M (SOIC, 16) to D (SOIC, 16) to accurately reflect the package drawing..... 1
- Changed the package thermal impedance for the D package from: 73°C/W to: 91.6°C/W 3
- Changed the package thermal impedance for the PW package from: 108°C/W to: 116.5°C/W 3
- Changed I_{CC} MAX from: 8µA to: 12µA when V_{IS} = V_{EE}, V_{OS} = V_{CC} at a TA = 25°C 4
- Changed I_{CC} MAX from: 16µA to: 32µA when V_{IS} = V_{CC}, V_{OS} = V_{EE} at a TA = 25°C 4
- Changed t_{en} MAX from: 225ns to: 325ns when C_L = 50pF at a TA = 25°C and from: 340ns to: 490ns when C_L = 50pF at a TA = -40°C to 125°C..... 5
- Changed t_{dis} TYP from: 19ns to: 27ns when C_L = 15pF at a TA = 25°C..... 5
- Changed t_{dis} MAX from: 225ns to: 250ns when C_L = 50pF, V_{EE} = 0V, and V_{CC} = 2V at a TA = 25°C, and from: 340ns to: 400ns at a TA = -40°C to 125°C..... 5
- Changed t_{dis} MAX from: 45ns to: 50ns when C_L = 50pF, V_{EE} = 0V, and V_{CC} = 4.5V at a TA = 25°C..... 5
- Changed t_{dis} MAX from: 38ns to: 44ns when C_L = 50pF, V_{EE} = 0V, and V_{CC} = 6V at a TA = 25°C..... 5
- Changed t_{dis} MAX from: 32ns to: 44ns when C_L = 50pF, V_{EE} = -4.5V, and V_{CC} = 4.5V at a TA = 25°C, and from: 48ns to: 55ns at a TA = -40°C to 125°C..... 5
- Removed the TBD \bar{E} or ADDRESS SEL to switch feed-through noise parameter..... 5

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
CD74HCT4051-Q1	SCLS569B	SCLS569C	http://www.ti.com/product/CD74HCT4051-Q1
CD74HC4051-Q1	SCLS552A	SCLS552B	http://www.ti.com/product/CD74HC4051-Q1

Qual details are provided in the Qual Data Section.

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
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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
RFAB	RFB	USA	Richardson

Die Rev:

Current

New

Die Rev [2P]	Die Rev [2P]
-	A

Sample product shipping label (not actual product label):



Group 1 Product Affected: Wafer fab, Design, BOM update

CD74HC4051QPWRQ1

Group 2 Product Affected: Wafer fab, Design only

CD74HC4051QM96Q1 CD74HCT4051QM96Q1

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

TI Information
Selective Disclosure

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

CD74HC(T)4051 PW/D Automotive Devices
Approve Date 22-March-2024

Product Attributes

Attributes	Qual Device: CD74HC4051QM96Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QM96Q1	QBS Process Reference: SM3570D1YRQ1	QBS Package, Process, Product Reference: TMBUX4051PWRQ1	QBS Package Reference: ULQ2003A00R01_STDLF	QBS Package, Process, Product Reference: TMBUX4051PWRQ1	QBS Package Reference: TFS78425600R01	QBS Package Reference: SN36A001QPWRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-55 to 125	-55 to 125	-55 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Interface	Interface	Interface	Logic	Signal Chain	Power Management	Signal Chain	Power Management	Interface
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	SH-BIP-1	RFAB	RFAB	AIZU
Assembly Site	FMX	MLA	FMX	PHI	MLA	FMX	MLA	FMX	TAI
Package Group	SOIC	TSSOP	SOIC	SOT	TSSOP	SOIC	TSSOP	SOIC	TSSOP
Package Designator	D	PW	D	DYY	PW	D	PW	D	PW
Pin Count	16	16	16	16	16	16	16	8	16

- QBS: Qual By Similarity
- Qual Device CD74HC4051QM96Q1 is qualified at MSL1 260C
- Qual Device CD74HC4051QPWRQ1 is qualified at MSL1 260C
- Qual Device CD74HCT4051QM96Q1 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: CD74HC4651OM96Q1	Qual Device: CD74HC4651QPWRQ1	Qual Device: CD74HCT4651OM96Q1	QBS Process Reference: SN325700YYRQ1	QBS Package, Process, Product Reference: TMUX4651PWRQ1	QBS Package Reference: ULQ2003A0DRQ1_STDLF	QBS Package Reference: TMUX4651PWRQ1	QBS Package Reference: TPS7B4256QDRQ1	QBS Package Reference: SN36A0801GFWRQ1
Test Group A - Accelerated Environment Stress Tests																
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	-	-	-	-	Passed	Passed	-	Passed	Passed
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	2/154/0	3/231/0	-	3/240/0	-
ACIUHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Autoclave	121C/15psig	96 Hours	-	-	-	-	-	3/231/0	-	-	3/231/0
Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CD74HC4651OM96Q1	Qual Device: CD74HC4651QPWRQ1	Qual Device: CD74HCT4651OM96Q1	QBS Process Reference: SN325700YYRQ1	QBS Package, Process, Product Reference: TMUX4651PWRQ1	QBS Package Reference: ULQ2003A0DRQ1_STDLF	QBS Package Reference: TMUX4651PWRQ1	QBS Package Reference: TPS7B4256QDRQ1	QBS Package Reference: SN36A0801GFWRQ1
ACIUHAST	A3	JEDEC JESD22-A102/JEDEC JESD22-A118	3	77	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	-	2/154/0	-	-	3/240/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	2/154/0	3/231/0	-	3/240/0	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	5	Post Temp Cycle Bond Pull	-	-	-	-	-	-	1/5/0	-	-	-	1/5/0
PTC	A5	JEDEC JESD22-A102	1	45	PTC	-40/125C	1000 Cycles	-	-	-	-	-	-	-	1/50/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	2/90/0	-	-	3/150/0	-
Test Group B - Accelerated Lifetime Simulation Tests																
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test	150C	300 Hours	-	-	-	3/231/0	-	-	1/77/0	-	-
ELFR	B2	AEC Q100-009	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	-	1/30/0	1/30/0	-	2/60/0	-	-	1/30/0	3/90/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	1/30/0	1/30/0	-	2/60/0	-	-	1/30/0	3/90/0
SD	C3	JEDEC J-STD-002	1	15	PB Solderability	>95% Lead Coverage	-	-	-	-	-	-	1/15/0	-	1/30/0	-
SD	C3	JEDEC J-STD-002	1	15	PB-Free Solderability	>95% Lead Coverage	-	-	-	-	-	-	1/15/0	-	1/30/0	3/45/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	-	-	1/10/0	1/10/0	-	2/20/0	-	-	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	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
TDOB	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	Completed Per Process Technology Requirements
HCI	D3	JESD40 & 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	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	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	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	-	-	-	-	-	-
ESD	E3	AEC Q100-011	1	3	ESD CDM	-	500 Volts	-	1/3/0	1/3/0	-	-	-	1/3/0	-	-
Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CD74HC4651OM96Q1	Qual Device: CD74HC4651QPWRQ1	Qual Device: CD74HCT4651OM96Q1	QBS Process Reference: SN325700YYRQ1	QBS Package, Process, Product Reference: TMUX4651PWRQ1	QBS Package Reference: ULQ2003A0DRQ1_STDLF	QBS Package Reference: TMUX4651PWRQ1	QBS Package Reference: TPS7B4256QDRQ1	QBS Package Reference: SN36A0801GFWRQ1
LU	E4	AEC Q100-004	1	6	Latch-Up	Per AEC Q100-004	-	-	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	1/30/0	1/30/0	-	-	-	1/30/0	-	-
Additional Tests																

- 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/>

TI Qualification ID: R-CHG-2308-017

TI Information
Selective Disclosure

Automotive Qualification Summary (As per AEC and JEDEC Guidelines)

Q006 TSSOP-PW / SOIC-D at FMX
Approve Date 22-MARCH -2024

Attributes	Qual Device: CD74HC4051QM96Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QM96Q1	QBS Package Reference: SN3237QPWRQ1	QBS Package Reference: MC33063AQDRQ1	QBS Package, Process, Product Reference: TMUX4051PWRQ1	QBS Package Reference: TPS7B4256QDRQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range (C)	-55 to 125	-55 to 125	-55 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Product Function	Interface	Interface	Interface	Logic	Power Management	Signal Chain	Power Management
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB
Assembly Site	FMX	MLA	FMX	MLA	FMX	MLA	FMX
Package Group	SOIC	TSSOP	SOIC	-	SOIC	TSSOP	SOIC
Package Designator	D	PW	D	PW	D	PW	D
Pin Count	16	16	16	16	8	16	8

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: CD74HC4051QM96Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QM96Q1	QBS Package Reference: SN3237QPWRQ1	QBS Package, Process, Product Reference: TMUX4051PWRQ1	QBS Package Reference: MC33063AQDRQ1	QBS Package Reference: TPS7B4256QDRQ1
Test Group A - Accelerated Environment Stress Tests														
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	MSL1 260C	-	-	-	-	Passed	-	Passed	Passed
PC	A11	-	3	22	SAM Precon Pre	Review for delamination	-	-	-	-	-	-	3/6/0	1/25/0
PC	A12	-	3	22	SAM Precon Post	Review for delamination	-	-	-	-	-	-	3/6/0	1/25/0
HAST	A21	JEDEC JESD22-A110	3	77	Biased HAST	130C	96 Hours	-	-	-	3/231/0	-	-	-

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CD74HC4051QM36Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QM96Q1	QBS Package Reference: SN3257QPWRQ1	QBS Package, Process, Product Reference: TMUX4051PWRQ1	QBS Package Reference: MC33063AQDRQ1	QBS Package Reference: TPS7B4256QDRQ1
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	-	-	-	-	-	3/0/0	-
HAST	A2.1.3	-	3	3	Wire Bond Shear, post bHAST, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	-
HAST	A2.1.4	-	3	3	Bond Pull over Stitch, post bHAST, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	-
HAST	A2.1.5	-	3	3	Bond Pull over Ball, post bHAST, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	-
HAST	A2.2	JEDEC JESD22-A110	3	70	Biased HAST	130C	192 Hours	-	-	-	3/210/0	-	-	-
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	-	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	-
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	-	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	-55/150C	1000 Cycles	-	-	-	3/231/0	-	-	-
TC	A4.1	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	-	3/231/0	3/240/0
TC	A4.1.1	-	3	22	SAM Analysis, post TC, 1X	Review for delamination	Completed	-	-	-	3/66/0	-	3/66/0	1/25/0
TC	A4.1.2	-	3	1	Cross Section, post TC, 1X	Post stress cross section	Completed	-	-	-	-	-	3/0/0	1/1/0
TC	A4.1.3	-	3	3	Wire Bond Shear, post TC, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	1/3/0

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CD74HC4051QM36Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QM96Q1	QBS Package Reference: SN3257QPWRQ1	QBS Package, Process, Product Reference: TMUX4051PWRQ1	QBS Package Reference: MC33063AQDRQ1	QBS Package Reference: TPS7B4256QDRQ1
TC	A4.1.4	-	3	3	Bond Pull over Stitch, post TC, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	1/3/0
TC	A4.1.5	-	3	3	Bond Pull over Ball, post TC, 1X	Post stress	-	-	-	-	3/9/0	-	3/0/0	1/3/0
TC	A4.2	JEDEC JESD22-A104 and Appendix 3	3	70	Temperature Cycle	-55/150C	2000 Cycles	-	-	-	3/210/0	-	-	-
TC	A4.2	JEDEC JESD22-A104 and Appendix 3	3	70	Temperature Cycle	-65C/150C	1000 Cycles	-	-	-	-	-	3/231/0	3/240/0
TC	A4.2.1	-	3	22	SAM Analysis, post TC, 2X	Review for delamination	Completed	-	-	-	3/66/0	-	3/66/0	1/25/0
TC	A4.2.2	-	3	1	Cross Section, post TC, 2X	Post stress cross section	Completed	-	-	-	3/3/0	-	3/3/0	1/1/0
TC	A4.2.3	-	3	3	Wire Bond Shear, post TC, 2X	Post stress	-	-	-	-	3/9/0	-	3/9/0	1/3/0
TC	A4.2.4	-	3	3	Bond Pull over Stitch, post TC, 2X	Post stress	-	-	-	-	3/9/0	-	3/9/0	1/3/0
TC	A4.2.5	-	3	3	Bond Pull over Ball, post TC, 2X	Post stress	-	-	-	-	3/9/0	-	3/9/0	1/3/0
HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	3/135/0	-
HTSL	A6.1	JEDEC JESD22-A103	3	45	High Temperature Storage Life	175C	500 Hours	-	-	-	3/135/0	-	-	-
HTSL	A6.1.1	-	3	1	Cross Section, post HTSL, 1X	Post stress cross section	Completed	-	-	-	3/3/0	-	3/0/0	-
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	150C	1000 Hours	-	-	-	-	-	-	-
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	150C	2000 Hours	-	-	-	-	-	3/135/0	-
HTSL	A6.2	JEDEC JESD22-A103	3	44	High Temperature Storage Life	175C	1000 Hours	-	-	-	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	-

Test Group C - Package Assembly Integrity Tests

Type	#	Test Spec	Min Lot Qty	SS / Lot	Test Name	Condition	Duration	Qual Device: CD74HC4051QMS6Q1	Qual Device: CD74HC4051QPWRQ1	Qual Device: CD74HCT4051QMS6Q1	QBS Package Reference: SN3257QPWRQ1	QBS Package, Process, Product Reference: JMLUX4051PWRQ1	QBS Package Reference: MC33063AQDRQ1	QBS Package Reference: TPS7B4256QDRQ1
WBS	C1	AEC Q100-001	1	30	Wire Bond Shear	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	1/30/0	1/30/0	3/90/0	2/60/0	3/90/0	1/30/0
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull	Minimum of 5 devices, 30 wires Cpk>1.67	Wires	-	1/30/0	1/30/0	3/90/0	2/60/0	3/90/0	1/30/0

- QBS: Qual By Similarity
- Qual Device CD74HC4051QMS6Q1 is qualified at MSL1 260C
- Qual Device CD74HC4051QPWRQ1 is qualified at MSL1 260C
- Qual Device CD74HCT4051QMS6Q1 is qualified at MSL1 260C

- 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 JE5D47 : -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 J) : -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/HAFT

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

TI Qualification ID: R-CHG-2308-017

ZVEI ID's: SEM-DE-01, SEM-DE-02, SEM-DE-03, SEM-PW-02, SEM-PW-13, SEM-PW-09, SEM-PA-08, SEM-PS-04

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