

PCN Number:	20230425002.2		PCN Date:	April 25, 2023													
Title:	Qualify SCSAT as an additional Assembly site for select devices																
Customer Contact:	PCN Manager		Dept:	Quality Services													
Proposed 1st Ship Date:	Oct 26, 2023		Sample requests accepted until:	May 26, 2023*													
*Sample requests received after May 26, 2023 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 Materials												
☒	Packing/Shipping/Labeling	☐	Test Process	☐	Wafer Fab Process												
PCN Details																	
Description of Change:																	
Texas Instruments is pleased to announce the qualification of SCSAT as an additional Assembly site for the list of devices shown below. Material differences between sites as follows.																	
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly City</th> </tr> </thead> <tbody> <tr> <td>ASEK</td> <td>ASF</td> <td>TWN</td> <td>Kaohsiung</td> </tr> <tr> <td>SCSAT</td> <td>STS</td> <td>SGP</td> <td>Singapore</td> </tr> </tbody> </table>						Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City	ASEK	ASF	TWN	Kaohsiung	SCSAT	STS	SGP	Singapore
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City														
ASEK	ASF	TWN	Kaohsiung														
SCSAT	STS	SGP	Singapore														
Material differences:																	
<table border="1"> <tbody> <tr> <td></td> <td>ASEK</td> <td>SCSAT</td> </tr> <tr> <td>Lead finish</td> <td>NiPdAu</td> <td>NiPdAuAg</td> </tr> </tbody> </table>							ASEK	SCSAT	Lead finish	NiPdAu	NiPdAuAg						
	ASEK	SCSAT															
Lead finish	NiPdAu	NiPdAuAg															
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. <table border="1"> <thead> <tr> <th>RoHS</th> <th>REACH</th> <th>Green Status</th> <th>IEC 62474</th> </tr> </thead> <tbody> <tr> <td>☒ No Change</td> <td>☒ No Change</td> <td>☒ No Change</td> <td>☒ No Change</td> </tr> </tbody> </table>						RoHS	REACH	Green Status	IEC 62474	☒ No Change	☒ No Change	☒ No Change	☒ No Change				
RoHS	REACH	Green Status	IEC 62474														
☒ No Change	☒ No Change	☒ No Change	☒ No Change														
Changes to product identification resulting from this PCN:																	
<table border="1"> <tbody> <tr> <td colspan="3">Assembly Site</td> </tr> <tr> <td>ASEK</td> <td>Assembly Site Origin (22L)</td> <td>ASO: ASF</td> </tr> <tr> <td>SCSAT</td> <td>Assembly Site Origin (22L)</td> <td>ASO: STS</td> </tr> </tbody> </table>						Assembly Site			ASEK	Assembly Site Origin (22L)	ASO: ASF	SCSAT	Assembly Site Origin (22L)	ASO: STS			
Assembly Site																	
ASEK	Assembly Site Origin (22L)	ASO: ASF															
SCSAT	Assembly Site Origin (22L)	ASO: STS															
Sample product shipping label (not actual product label)																	

 TEXAS INSTRUMENTS MADE IN: Malaysia 2DC: 20: 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) CS0: SHE (21L) CC0: USA (22L) AS0: MLA (23L) AC0: MYS	
Product Affected			
TPS65941120RWERQ1	TPS6594141BRWERQ1	TPS65941515RWERQ1	TPS6594C420RWERQ1
TPS65941319RWERQ1	TPS65941421RWERQ1	TPS6594741ERWERQ1	

Qualification Report

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

Approval Date: 13-April-2023

Product Attributes

Attributes	Qual device: TPS65941120RWERQ1 TPS65941319RWERQ1 TPS6594141BRWERQ1 TPS65941421RWERQ1 TPS65941515RWERQ1 TPS6594741ERWERQ1 TPS6594C420RWERQ1	QBS Product Reference: <u>PO94QRWERQ1-</u> <u>B0</u>	QBS Product Reference: <u>PO94QRWERQ1-</u> <u>A0</u>	QBS Product Reference: <u>TPS65941212RWERQ1-</u> <u>B0</u>	QBS Process Reference: <u>TPS61378QWRTERQ1</u> <u>(A0)</u>
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Power Management	Power Management	Power Management	Power Management	Power Management
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB
Assembly Site	SCSAT	ASEK	SCSAT	SCSAT	CDAT
Package Type	QFN	QFN	QFN	QFN	QFN
Package Designator	RWE	RWE	RWE	RWE	RTE
Ball/Lead Count	56	56	56	56	16

- QBS: Qual By Similarity
- Qual Devices are qualified at LEVEL3-260C.
- Qual Devices are memory spins of QBS product references and fully qualified by similarity to the QBS product references.

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 Product Reference: <u>PO94QRWE</u> <u>RQ1-B0</u>	QBS Product Reference: <u>PO94QRWE</u> <u>RQ1-A0</u>	QBS Product Reference: <u>TPS65941212R</u> <u>WERQ1-B0</u>	QBS Process Reference: <u>TPS61378QWR</u> <u>TERQ1 (A0)</u>
Test Group A – Accelerated Environment Stress Tests										
-			-	-	Precon Level 3	L3 / 260C	No Fails	No Fails	No Fails	-
HAST	A 2	JEDEC JESD 22-A110	3	77	Biased HAST, 130C/85% RH	96 Hours	3/231/0	3/231/0	-	-
AC	A 3	JEDEC JESD 22-A102	3	77	Autoclave 121C	96 hours	3/231/0	3/231/0	1/77/0	-
TC	A 4	JEDEC JESD 22-A104 and Appendix 3	3	77	Temperature Cycle, - 65/150C	500 cycles	3/231/0	3/231/0	1/77/0	-
PTC	A 5	JEDEC JESD 22-A105	1	45	Power Temperature Cycle, - 40/125C	1000 cycles	1/45/0	1/45/0	-	-
HTSL	A 6	JEDEC JESD 22-A103	1	45	High Temp Storage Bake 175C	500 hours	3/135/0	3/135/0	-	-
Test Group B – Accelerated Lifetime Simulation Tests										
HTOL	B 1	JEDEC JESD 22-A108	3	77	Life Test, 125C	1000 hours	-	2/154/0	1/77/0	-
ELFR	B 2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	1/800/0	-	-	3/2400/0
EDR	B 3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	N/A	N/A	-
Test Group C – Package Assembly Integrity Tests										
WBS	C 1	AEC Q100-001	1	30	Wire Bond Shear (Cpk>1.67)	-	3/90/0	-	3/90/0	-
WBP	C 2	MIL-STD883	1	30	Wire Bond Pull (Cpk>1.67)	-	3/90/0	-	3/90/0	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	QBS Product Reference: <u>PO94QRWERQ1-B0</u>	QBS Product Reference: <u>PO94QRWERQ1-A0</u>	QBS Product Reference: <u>TPS65941212RWERQ1-B0</u>	QBS Process Reference: <u>TPS61378QWRTERQ1 (A0)</u>
			Method 2011								
	SD	C3	JEDEC JESD 22-B102	1	15	Pb Free Surface Mount Solderability	Pb Free Solder	1/15/0	1/15/0	-	-
	SD	C3	JEDEC JESD 22-B102	1	15	Pb Surface Mount Solderability	Pb Solder	1/15/0	1/15/0	-	-
	PD	C4	JEDEC JESD 22-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	JESD 61	-	-	Electromigration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-
	TDDB	D2	JESD 35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	-
	HCI	D3	JESD 60 & 28	-	-	Hot Injection Carrier	-	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	-
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	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	-	1/3/0	-
	CDM	E3	AEC Q100-011	1	3	ESD - CDM	1000 V	1/3/0	-	1/3/0	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	QBS Product Reference: <u>PO94QRWE RQ1-B0</u>	QBS Product Reference: <u>PO94QRWE RQ1-A0</u>	QBS Product Reference: <u>TPS65941212R WERQ1-B0</u>	QBS Process Reference: <u>TPS61378QWR TERQ1 (A0)</u>
	LU	E 4	AEC Q100-004	1	6	Latch-up	(Per AEC-Q100-004)	1/6/0	1/6/0	1/6/0	-
	ED	E 5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	-	-	3/Pass	-

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

ZVEI ID reference: SEM-PA-18, SEM-PA-05

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

Location	E-Mail
WW PCN Team	PCN_ww_admin_team@list.ti.com

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