

PCN Number:	20161010001		PCN Date:	Oct 12, 2016																
Title:	Qualification of ASEN as Additional Assembly and Test Site for Select USON Package Devices																			
Customer Contact:	PCN Manager	Dept:	Quality Services																	
Proposed 1st Ship Date:	Jan 12, 2017	Estimated Sample Availability:	Date Provided at Sample request																	
Change Type:																				
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>																
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>																
<input type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>																
<input type="checkbox"/>	Mechanical Specification	<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>																
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Bump Process	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Fab Materials	<input type="checkbox"/>																
		<input type="checkbox"/>	Wafer Fab Process	<input type="checkbox"/>																
PCN Details																				
Description of Change:																				
Texas Instruments Incorporated is announcing the qualification of ASEN as Additional Assembly and Test Site for select devices listed in the "Product Affected" Section. Current assembly sites and Material differences are as follows.																				
<table border="1"> <thead> <tr> <th>Assembly Site</th> <th>Assembly Site Origin</th> <th>Assembly Country Code</th> <th>Assembly Site City</th> </tr> </thead> <tbody> <tr> <td>Carsem</td> <td>CRS</td> <td>MY</td> <td>Jelapang</td> </tr> <tr> <td>UTAC Thailand</td> <td>NSE</td> <td>TH</td> <td>Bangkok</td> </tr> <tr> <td>ASEN</td> <td>ASN</td> <td>CN</td> <td>Suzhou</td> </tr> </tbody> </table>					Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	Carsem	CRS	MY	Jelapang	UTAC Thailand	NSE	TH	Bangkok	ASEN	ASN	CN	Suzhou
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City																	
Carsem	CRS	MY	Jelapang																	
UTAC Thailand	NSE	TH	Bangkok																	
ASEN	ASN	CN	Suzhou																	
Material Differences:																				
Group 1 Device:																				
	NSE	ASEN																		
Mount Compound	PZ0039	1400238112																		
Mold compound	CZ0140	1801512111																		
Group 2 Device:																				
	Carsem	ASEN																		
Wire type	1.3mil Au	1.0mil Cu																		
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																				
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																				
Anticipated impact on Material Declaration																				
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained at the site link below http://www.ti.com/quality/docs/materialcontentsearch.tsp																	

Changes to product identification resulting from this PCN:

Assembly Site		
Carsem	Assembly Site Origin (22L)	ASO: CRS
UTAC Thailand	Assembly Site Origin (22L)	ASO: NSE
ASEN	Assembly Site Origin (22L)	ASO: ASN

Sample product shipping label (not actual product label)

 <p>MADE IN: Malaysia 2DC: 2d:</p> <table border="1"> <tr> <td>MSL '2 /260C/1 YEAR</td> <td>SEAL DT</td> </tr> <tr> <td>MSL 1 /235C/UNLIM</td> <td>03/29/04</td> </tr> </table> <p>OPT: ITEM: 39 LBL: 5A (L)TO:1750</p>	MSL '2 /260C/1 YEAR	SEAL DT	MSL 1 /235C/UNLIM	03/29/04			<p>(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</p>
MSL '2 /260C/1 YEAR	SEAL DT						
MSL 1 /235C/UNLIM	03/29/04						

Group 1 Product Affected:

TPD2E001DRYR	TPD4S012DRYR
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Group 2 Product Affected:

DRV10863DSNR

Group 1: Qualification Report

Qualifying TPD4S012DRYR and TPD2E001DRYR at ASEN

Approve Date 14-Sep-2016

Product Attributes

Attributes	Qual Device: TPD2E001DRYR	Qual Device: TPD4S012DRYR	QBS Package Reference: SN74AVC4T245RSVR
Assembly Site	ASEN	ASEN	ASEN
Package Family	SON	SON	-
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	FFAB	FFAB	FFAB
Wafer Process	A3C10TPI	A3C10TPI	ASLC10

- QBS: Qual By Similarity

- Qual Devices qualified at LEVEL1-260C: TPD2E001DRYR, TPD4S012DRYR

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Name / Condition	Duration	Qual Device: TPD2E001DRYR	Qual Device: TPD4S012DRYR	QBS Package Reference: SN74AVC4T245RSVR
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass
FLAM	Flammability (IEC 695-2-2)	--	3/15/0	-	3/15/0
FLAM	Flammability (UL 94V-0)	--	3/15/0	-	3/15/0
FLAM	Flammability (UL-1694)	--	3/15/0	-	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	1/77/0	-	3/231/0

HTOL	Life Test, 150C	300 Hours	1/77/0	-	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	3/231/0	3/231/0
PD	Physical Dimensions	--	3/15/0	-	3/15/0
SD	Solderability	Pb-Free	3/66/0	-	3/66/0
SD	Solderability	Pb	3/66/0	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0
WBP	Bond Pull	Wires	3/228/0	3/228/0	-
WBP	Bond Strength	Wires	-	-	3/228/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	-

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

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Group 2: Qualification Report

Qualify Second Source Assembly Site for DRV10863DSNR - ASEN

Approve Date 05-Oct-2016

Product Attributes

Attributes	Qual Device: DRV10863DSNR	QBS Product Reference: DRV10863BA	QBS Product Reference: DRV10863BB	QBS Process Reference: TPS62110RSA	QBS Package Reference: SN74HC595BRWN	QBS Package Reference: SN74HC595PWR.
Assembly Site	ASEN	CRS-CARSEM	CRS-CARSEM	CAR	ASEN	MLA (TIM)
Package Family	SON, 3 x 3 MM	SON	SON	QFN	X1QFN	TSSOP
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	-
Wafer Fab Supplier	MIHO 8	MH8	MH8	MIHO8	FFAB	FFAB
Wafer Process	LBC7	LBC7	LBC7	LBC7	ASLC10/P9742	ASLC10/P9742

- QBS: Qual By Similarity
- Qual Device DRV10863DSNR is qualified at LEVEL2-260C

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Name / Condition	Duration	Qual Device: DRV10863DSNR	QBS Product Reference: DRV10863BA	QBS Product Reference: DRV10863BB
AC	Autoclave 121C	96 Hours	3/231/0	1/77/0	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	-	Pass
ELFR	Early Life Failure Rate, 140C	48 Hours	-	-	-
FLAM	Flammability (IEC 695-2-2)	--	1/7/0	-	-
FLAM	Flammability (UL 94V-0)	--	1/7/0	-	-
FLAM	Flammability (UL-1694)	--	1/7/0	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-

HBM	ESD - HBM	2500 V	-	1/9/0	-
CDM	ESD - CDM	1000 V	-	1/3/0	1/3/0
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	-
HTOL	Life Test, 140C	480 Hours	-	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	-	-
LU	Latch-up	(per JESD78)	-	2/12/0	2/12/0
PD	Physical Dimensions	--	3/15/0	-	-
SD	Surface Mount Solderability	Pb	2/48/0	-	-
SD	Surface Mount Solderability	Pb-Free	2/48/0	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	1/77/0	-
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-
WBP	Bond Pull	Wires	-	-	-
WBS	Ball Bond Shear	Wires	-	-	-

Type	Test Name / Condition	Duration	QBS Process Reference: TPS62110RSA	QBS Package Reference: SN74HC595BRWN	QBS Package Reference: SN74HC595PWR.
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	-
ED	Electrical Characterization	Per Datasheet Parameters	-	Pass	Pass
ELFR	Early Life Failure Rate, 140C	48 Hours	3/1881/0	-	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-
FLAM	Flammability (UL 94V-0)	--	-	-	-
FLAM	Flammability (UL-1694)	--	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0	3/231/0	-
HBM	ESD - HBM	2500 V	-	-	-
CDM	ESD - CDM	1000 V	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-
HTOL	Life Test, 140C	480 Hours	3/231/0	-	-
HTOL	Life Test, 150C	300 Hours	-	6/462/0	1/77/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	2/231/0	-
LU	Latch-up	(per JESD78)	3/15/0	-	1/6/0
PD	Physical Dimensions	--	-	3/15/0	-
SD	Surface Mount Solderability	Pb	-	3/66/0	-
SD	Surface Mount Solderability	Pb-Free	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	6/462/0	-
TS	Thermal Shock, -65/150C	500 Cycles	3/231/0	-	-
WBP	Bond Pull	Wires	-	3/228/0	-
WBS	Ball Bond Shear	Wires	-	3/228/0	-

- 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

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

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

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
USA	PCNAmericasContact@list.ti.com
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Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com