

<b>PCN Number:</b>	20170815000A		<b>PCN Date:</b>	Sept. 6, 2017																
<b>Title:</b>	Qualification of CIRTEK as an additional Assembly & Test site 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>	Nov. 30, 2017	<b>Estimated Sample Availability:</b>	Date Provided at Sample request																	
<b>Change Type:</b>																				
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Site															
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Material															
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input type="checkbox"/>	Wafer Bump Process															
<input type="checkbox"/>	Mechanical Specification	<input checked="" type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site															
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials															
				<input type="checkbox"/>	Wafer Fab Process															
<b>PCN Details</b>																				
<b>Description of Change:</b>																				
Revision A is to announce the <b>addition</b> of new devices that were not included on the original PCN notification. These new devices are highlighted and <b>bolded</b> under Group 2 in the device list below. The expected first shipment date for these new devices will be 90 days from this notice for these newly added devices only.																				
Texas Instruments Incorporated is announcing the qualification CIRTEK as an 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>ASEN</td> <td>ASN</td> <td>CHN</td> <td>Suzhou</td> </tr> <tr> <td>JCET</td> <td>JCE</td> <td>CHN</td> <td>Jiangyin</td> </tr> <tr> <td><b>CIRTEK</b></td> <td><b>CTK</b></td> <td><b>PHL</b></td> <td><b>Biñan</b></td> </tr> </tbody> </table>					Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City	ASEN	ASN	CHN	Suzhou	JCET	JCE	CHN	Jiangyin	<b>CIRTEK</b>	<b>CTK</b>	<b>PHL</b>	<b>Biñan</b>
Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City																	
ASEN	ASN	CHN	Suzhou																	
JCET	JCE	CHN	Jiangyin																	
<b>CIRTEK</b>	<b>CTK</b>	<b>PHL</b>	<b>Biñan</b>																	
<b>Group 1: Material Differences:</b>																				
	<b>ASEN</b>	<b>JCET</b>	<b>CIRTEK</b>																	
Mount compound	1400238112	120402001600	<a href="#">HNK6NSNC10</a>																	
Mold compound	1800819111	120903003009	<a href="#">B8240AB16A</a>																	
<b>Group 2: Material Differences</b>																				
	<b>ASEN</b>	<b>JCET</b>	<b>CIRTEK</b>																	
Mount compound	1400230112	120402002600	<a href="#">NMS607CO10</a>																	
Mold compound	1800819111	120903003009	<a href="#">B8240AB16A</a>																	
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																				
<b>Reason for Change:</b>																				
Continuity of supply.																				
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>																				
None																				
<b>Anticipated impact on Material Declaration</b>																				
<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 from the <a href="#">TI Eco-Info website</a> . There is no impact to the material meeting current regulatory compliance requirements with this PCN change.																	

## Changes to product identification resulting from this PCN:

Assembly Site		
ASEN	Assembly Site Origin (22L)	ASO: ASN
JCET	Assembly Site Origin (22L)	ASO: JCE
<b>CIRTEK</b>	Assembly Site Origin (22L)	<b>ASO: CTK</b>

Sample product shipping label (not actual product label)

**TEXAS INSTRUMENTS**  
 MADE IN: Malaysia  
 2DC: 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

ASSEMBLY SITE CODES: ASEN= J, JCET= F, **CIRTEK=W**

### Product Affected: Group 1

TPD4E02B04DQAR	TPD4E05U06DQAR	TPD4EUSB30DQAR	TPD4S010DQAR
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### Product Affected: Group 2

<b>TPD1E04U04DPYR</b>	<b>TPD1E05U06DPYR</b>	<b>TPD1E10B06DPYR</b>	<b>TPD1E10B09DPYR</b>
<b>TPD1E04U04DPYT</b>	<b>TPD1E05U06DPYT</b>	<b>TPD1E10B06DPYT</b>	<b>TPD1E10B09DPYT</b>

## Group 1 Qualification Report

New Pkg/A-T site: **CIRTEK** Subcon qual of 10-pin DQA package, several devices

Approve Date 09-Aug-2017

### Product Attributes

Attributes	Qual Device: TPD4E02B04DQAR	Qual Device: TPD4E05U06DQAR	Qual Device: TPD4EUSB30DQAR	Qual Device: TPD4S010DQAR
Assembly Site	CIRTEK	CIRTEK	CIRTEK	CIRTEK
Package Family	SON	SON	SON	SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	CFAB	CFAB	FFAB	FFAB
Wafer Process	VDIODE ULC	VDIODE ULC	50B10.13_BOPO/D9789	50B10.13_BOPO/D9789

- Qual Devices qualified at LEVEL1-260C: TPD4E02B04DQAR, TPD4S010DQAR, TPD4E05U06DQAR, TPD4EUSB30DQAR

- Devices contain multiple dies: TPD4E05U06DQAR, TPD4EUSB30DQAR, TPD4S010DQAR, TPD4E02B04DQAR

### Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPD4E02B04DQAR	Qual Device: TPD4E05U06DQAR	Qual Device: TPD4EUSB30DQAR	Qual Device: TPD4S010DQAR
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	-

CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	3/15/0	-
FLAM	Flammability (UL 94V-0)	--	-	-	3/15/0	-
FLAM	Flammability (UL-1694)	--	-	-	3/15/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	3/231/0	-
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/231/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	3/231/0	-
PD	Physical Dimensions	--	-	-	3/15/0	-
SD	Surface Mount Solderability	Pb Free	-	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	-
WBP	Bond Pull	Wires	-	1/76/0	3/228/0	1/76/0
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

## Group 2 Qualification Report

**New Pkg/A-T site: CIRTEK Subcon qual of 2-pin DPY package, several devices**

Approve Date 30-Aug-2017

### Product Attributes

Attributes	Qual Device: TPD1E04U04DPYR	QBS Package Reference: TPD1E05U06DPYR	QBS Package Reference: TPD1E10B06DPYR	QBS Package Reference: TPD1E10B09DPYR
Assembly Site	CIRTEK	CIRTEK	CIRTEK	CIRTEK
Package Family	SON	SON	SON	SON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

<b>Wafer Fab Supplier</b>	CFAB	C FAB	C FAB	CFAB
<b>Wafer Process</b>	VDIODE ULC	VDIODE ULC	VDIODE ULC	VDIODE ULC

Attributes	QBS Package Reference: TPD4E02B04DQAR	QBS Package Reference: TPD4E05U06DQAR	QBS Package Reference: TPD4EUSB30DQAR	QBS Package Reference: TPD4S010DQAR
<b>Assembly Site</b>	CIRTEK	CIRTEK	CIRTEK	CIRTEK
<b>Package Family</b>	SON	SON	SON	SON
<b>Flammability Rating</b>	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
<b>Wafer Fab Supplier</b>	CFAB	CFAB	FFAB	FFAB
<b>Wafer Process</b>	VDIODE ULC	VDIODE ULC	50B10.13_BOPO/D9789	50B10.13_BOPO/D9789

- QBS: Qual By Similarity

- Qual Device TPD1E04U04DPYR is qualified at LEVEL1-260C

- Device TPD1E04U04DPYR contains multiple dies.

## Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPD1E04U04DPYR	QBS Package Reference: TPD1E05U06DPYR	QBS Package Reference: TPD1E10B06DPYR	QBS Package Reference: TPD1E10B09DPYR
AC	Autoclave 121C	96 Hours	-	-	3/231/0	-
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	1/3/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-	-
FLAM	Flammability (UL 94V-0)	--	-	-	-	-
FLAM	Flammability (UL-1694)	--	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	1/77/0	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-
HTOL	Life Test, 125C	500 Hours	-	-	1/77/0	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	3/231/0	-
PD	Physical Dimensions	--	-	-	3/15/0	-
SD	Surface Mount Solderability	Pb-Free	-	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	-
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	-

Type	Test Name / Condition	Duration	QBS Package Reference: TPD4E02B04DQAR	QBS Package Reference: TPD4E05U06DQAR	QBS Package Reference: TPD4EUSB30DQAR	QBS Package Reference: TPD4S010DQAR
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	-
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	1/3/0	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	Pass	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	3/15/0	-
FLAM	Flammability (UL 94V-0)	--	-	-	3/15/0	-
FLAM	Flammability (UL-1694)	--	-	-	3/15/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	3/231/0	-
HTOL	Life Test, 125C	1000 Hours	-	1/77/0	3/231/0	-
HTOL	Life Test, 125C	500 Hours	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	3/231/0	-
PD	Physical Dimensions	--	-	-	3/15/0	-
SD	Surface Mount Solderability	Pb-Free	-	-	3/66/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	-
TS	Thermal Shock - 65/150C	500 Cycles	-	-	-	-
WBP	Bond Pull	Wires	-	1/76/0	3/228/0	1/76/0
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	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>