

PCN Number:	20220915000.1		PCN Date:	September 15, 2022								
Title:	Qualify New Assembly Material set for Selected Device(s)											
Customer Contact:	PCN Manager	Dept:	Quality Services									
Proposed 1st Ship Date:	Dec 15, 2022	Sample requests accepted until:	Oct 15, 2022*									
*Sample requests received after (Oct 15 th , 2022) will not be supported.												
Change Type:												
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Site							
<input checked="" 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 type="checkbox"/>	Test Site	<input type="checkbox"/>	Wafer Fab Site							
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input type="checkbox"/>	Wafer Fab Materials							
				<input type="checkbox"/>	Wafer Fab Process							
PCN Details												
Description of Change:												
Texas Instruments is pleased to announce the qualification of new assembly material for devices listed in "Product affected" section below. Devices will remain in current assembly facility and piece part changes as follows:												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Material</th> <th style="width: 33%;">Current</th> <th style="width: 33%;">Proposed</th> </tr> </thead> <tbody> <tr> <td>Wire type</td> <td>0.96 mil Au</td> <td>1.0 mil Cu</td> </tr> </tbody> </table>					Material	Current	Proposed	Wire type	0.96 mil Au	1.0 mil Cu		
Material	Current	Proposed										
Wire type	0.96 mil Au	1.0 mil Cu										
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 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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">RoHS</th> <th style="width: 25%;">REACH</th> <th style="width: 25%;">Green Status</th> <th style="width: 25%;">IEC 62474</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> <td><input checked="" type="checkbox"/> No Change</td> </tr> </tbody> </table>					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
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									
Changes to product identification resulting from this PCN:												
None.												
Product Affected:												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 33%;">PCM1681PWP</td> <td style="width: 33%;">PCM1690DCA</td> <td style="width: 33%;">PCM1789PW</td> </tr> <tr> <td>PCM1681PWPR</td> <td>PCM1690DCAR</td> <td>PCM1789PWR</td> </tr> </tbody> </table>					PCM1681PWP	PCM1690DCA	PCM1789PW	PCM1681PWPR	PCM1690DCAR	PCM1789PWR		
PCM1681PWP	PCM1690DCA	PCM1789PW										
PCM1681PWPR	PCM1690DCAR	PCM1789PWR										

Qualification Report

Approve Date 17-AUGUST -2022

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: <u>PCM1690DCAR</u>	QBS Reference: <u>PCM3168ATPAPRQ1</u>	QBS Reference: <u>PCM1753TDBQRQ1</u>	QBS Reference: <u>TPS653853QDCARQ1</u>
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	1/77	-	-	-
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	2/154/0	3/225/0 ¹	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	1/77	-	-	-
HTSL	A6	High Temperature Storage Life	150C	500 Hours	-	-	1/45/0	-
HTOL	B1	Life Test	105C	1000 Hours	-	3/230/1 ²	-	-
HTOL	B1	Life Test	105C	480 Hours	-	-	3/231/0	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0
ELFR	B2	Early Life Failure Rate	125C	24 Hours	-	3/2400/2 ³	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	-	3/2400/0
ESD	E2	ESD CDM	-	250 Volts	-	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	3/9/0	3/9/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	1/3/0
ESD	E2	ESD HBM	-	2500 Volts	-	3/9/0	3/9/0	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	1/30	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	3/90/0	3/90/0

QBS: Qual By Similarity
 Qual Device PCM1690DCAR is qualified at MSL3 260C
 Qual Device PCM1690DCA is qualified at MSL3 260C
 Qual Device PCM1681PWP is qualified at MSL3 260C
 Qual Device PCM1681PWPR is qualified at MSL3 260C
 Qual Device PCM1789PW is qualified at MSL2 260C
 Qual Device PCM1789PWR is qualified at MSL2 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 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:

Note: This qualification memo also covers the PCM1681PWPRG4 and PCM1789PWRG4 devices.

Qualified Pb-Free (SMT) and Green

[1]-Short 5 units due to mechanical damage.

[2]-The fail mode seen in the F/A is the same one that is seen in ELFR on this device. No Corrective action. Automotive devices will continue performing burn-in in production.

[3]-(QTS380501-1) Ti particle found in unit 1. Corrective actions implemented. Unit 2 - fail mechanism not found

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

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

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