

PCN Number:	20211107001.1		PCN Date:	November 19, 2021									
Title:	Add Cu as Alternative Wire Base Metal for Selected Device(s)												
Customer Contact:	PCN Manager	Dept:	Quality Services										
Proposed 1st Ship Date:	Feb 19, 2022	Estimated Sample Availability:	Date provided at sample request										
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:													
<p>Texas Instruments is pleased to announce the qualification of new assembly material set to add Cu as an additional bond wire option for devices listed in "Product affected" section below. Devices will remain in current assembly facility and piece part changes as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Material</th> <th>Current</th> <th>Proposed</th> </tr> </thead> <tbody> <tr> <td>Wire type</td> <td>0.96mil Au</td> <td>0.8mils Cu</td> </tr> </tbody> </table>						Material	Current	Proposed	Wire type	0.96mil Au	0.8mils Cu		
Material	Current	Proposed											
Wire type	0.96mil Au	0.8mils Cu											
Reason for Change:													
<p>Continuity of supply.</p> <ol style="list-style-type: none"> 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 													
Impact on Environmental Ratings													
<p>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 or to the associated device component Test Reports.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>RoHS</th> <th>REACH</th> <th>Green Status</th> <th>IEC 62474</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> No Change</td> </tr> </tbody> </table>						RoHS	REACH	Green Status	IEC 62474	<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										
Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):													
None.													
Changes to product identification resulting from this PCN:													
None.													
Product Affected:													
CC430F5133IRGZ	CC430F5135IRGZ	CC430F5137IRGZ											
CC430F5133IRGZR	CC430F5135IRGZR	CC430F5137IRGZR											
CC430F5133IRGZT	CC430F5135IRGZT	CC430F5137IRGZT											

Qualification Report

Approve Date 02-Sep-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>CC430F513XIRGZ- MLA</u>	QBS Package Reference: <u>CC430F5147IRGZR</u>	QBS Package Reference: <u>CC430F6137IRGC PCC</u>	QBS Package Reference: <u>MSP430F5342IRGZ PCC WIRE</u>	QBS Package Reference: <u>MSP430F5528IRGC PCC WIRE</u>
AC	Autoclave 121C (control)	96 Hours	QBS	-	-	-	1/80/0
HTSL	High Temp Storage Life 170C	420 Hours	QBS	-	-	3/240/0	3/240/0
TC	Temperature Cycle - 55C/125C	700 Cycles	QBS	3/231/0	-	-	-
AC	Autoclave 121C	96 Hours	QBS	3/231/0	-	3/240/0	3/240/0
HAST	Biased HAST, 130C/85%RH	96 Hr/130C/85%RH	QBS	-	3/240/0	-	-
TC	Temp Cycle - 65/150	500 Cycles	QBS	-	-	3/240/0	4/240/0

- QBS: Qual By Similarity

- Qual Device CC430F5135IRGZ-MLA is qualified at LEVEL3-260C

- Qual Device CC430F5137IRGZ-MLA is qualified at LEVEL3-260C

- Qual Device CC430F5133IRGZ-MLA is qualified at LEVEL3-260C

- 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:

Qualified Pb-Free(SMT) and Green

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