

<b>PCN Number:</b>	20210125002.2		<b>PCN Date:</b>	Jan 27 2021					
<b>Title:</b>	Bond wire diameter reduction for the TL4242TDRJRQ1								
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services						
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jul 26 2021	<b>Estimated Sample Availability:</b>	Date provided at sample request						
<b>Change Type:</b>									
<input 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 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				
<b>PCN Details</b>									
<b>Description of Change:</b>									
This PCN is to inform of a bond wire diameter reduction for the TL4242TDRJRQ1 as follows:									
<table border="1"> <thead> <tr> <th style="background-color: #d9e1f2;">Current Bond wire, Diameter</th> <th style="background-color: #d9e1f2;">New Bond wire, diameter</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><b>Au, 2.0 mils</b></td> <td style="text-align: center;"><b>Au, 1.3 mils</b></td> </tr> </tbody> </table>						Current Bond wire, Diameter	New Bond wire, diameter	<b>Au, 2.0 mils</b>	<b>Au, 1.3 mils</b>
Current Bond wire, Diameter	New Bond wire, diameter								
<b>Au, 2.0 mils</b>	<b>Au, 1.3 mils</b>								
<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 at the site link below <a href="http://www.ti.com/quality/docs/materialcontentsearch.tsp">http://www.ti.com/quality/docs/materialcontentsearch.tsp</a>						
<b>Changes to product identification resulting from this PCN:</b>									
None									
<b>Product Affected:</b>									
TL4242TDRJRQ1									

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

**TL4242TDRJRQ1 2.0mil Au wire to 1.3mil Au wire conversion  
Approved 7-Dec-2020**

**Product Attributes**

Attributes	Qual Device: <u>TL4242TDRJRQ1</u>	QBS Product Reference: <u>TL4242QDRJRQ1</u>	QBS Product Reference: <u>TL4242TDRJRQ1</u>
Automotive Grade Level	Grade 2	Grade 1	Grade 2
Operating Temp Range	-40C to +105C	-40C to +125C	-40C to +105C
Product Function	Power Management	Power Management	Power Management
Wafer Fab Supplier	SFAB	SFAB	SFAB
Die Revision	C	C	C
Assembly Site	MLA	MLA	MLA
Package Type	QFN/SON	QFN/SON	QFN/SON
Package Designator	DRJ	DRJ	DRJ
Ball/Lead Count	8	8	8

- QBS: Qual By Similarity
- Qual Device TL4242TDRJRQ1 is qualified at LEVEL3-260CG

### 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	Qual Device: <u>TL4242TDRJRQ1</u>	QBS Product Reference: <u>TL4242QDRJRQ1</u>	QBS Product Reference: <u>TL4242TDRJRQ1</u>
<b>Test Group A – Accelerated Environment Stress Tests</b>									
PC	A1	JEDEC J-STD-020; JESD22-A113	3	77	Preconditioning	Level 3-260C	1/ All/0	-	3/All/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave, 121C	96 Hours	-	-	3/231/0
TC	A4	JEDEC JESD22-A104	3	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	-	3/231/0
TC-BP	A4	MIL-STD883 Method 2011	1	30	Post Temp Cycle Bond Pull	Wires	1/5/0	-	1/5/0
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle, -40/125C	1000 Cycles	1/45/0	-	1/45/0
HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 150C	1000 Hours	-	-	1/45/0
<b>Test Group B – Accelerated Lifetime Simulation Tests</b>									
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 Hours	-	-	3/231/0
ELFR	B2	AEC Q100-008	1	800	Early Life Failure Rate, 125C	48 Hours	-	-	-
EDR	B3	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	C1	AEC Q100-001	1	30	Wire Bond Shear, Cpk>1.67	Wires	1/30/0	-	-
WBP	C2	MIL-STD883 Method 2011	1	30	Wire Bond Pull, Cpk>1.67	Wires	1/30/0	-	-
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb Free	-	-	1/15/0
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb	-	-	1/15/0
PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions Cpk>1.67	--	-	-	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	-	-	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Pull	Leads	-	-	-
Test Group D – Die Fabrication Reliability Tests									
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
TDDB	D2	JESD35	-	-	Time Dependent Dielectric Breakdown	-	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements	Completed Per Process Technology Requirements
HCI	D3	JESD60 & 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 - Q100	2000 V	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM - Q100	1000 V	-	1/3/0	-
LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC-Q100-004)	-	1/6/0	1/6/0
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, Hot, and Cold	-	1/30/0	-

- 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

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