

PCN Number:	20130327000			PCN Date:	03/28/2013
Title:	Additional Pb Free Lead Finish and expansion of capacity (ASE-Shanghai) for Selected SOIC (D) products.				
Customer Contact:	PCN_ww_admin_team@list.ti.com	Phone:	+1(214)480-6037	Dept:	Quality Services
Proposed 1st Ship Date:	06/28/2013	Estimated Sample Availability:	As stated below		
Change Type:					
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials
<input type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<input type="checkbox"/>	Mechanical Specification
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Process
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials	<input type="checkbox"/>	Wafer Fab Process
PCN Details					
Description of Change:					
<p>Texas Instruments is pleased to announce flexibility of supply with the qualification of Matte Sn finish as an additional Lead Free (Pb Free) Leadframe finish and expansion of capacity by qualifying ASE-Shanghai (China) facility for selected SOIC devices.</p> <p>ASE-Shanghai is a qualified Assembly and Test site for Texas Instruments (PCN# 20100218001)</p> <p>Upon expiry of this PCN TI will combine lead free solutions in a single <u>standard part number</u>, for example; <u>ULN2003ADR</u> – can ship with both Matte Sn and NiPdAu/Ag.</p> <p>Example:</p> <ul style="list-style-type: none"> – Customer order for 7500units of ULN2003APWR with 2500 units SPO (Standard Pack Quantity per Reel). – TI can satisfy the above order in one of the following ways. <ul style="list-style-type: none"> I. 3 Reels of NiPdAu finish. II. 3 Reels of Matte Sn finish III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish. IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish. <p>Note: TI part numbers with "G4" or "G3" suffix are <u>NOT</u> affected by this PCN, for example ULN2003ADRG4 or ULN2003ADRG3.</p>					
Reason for Change:					
<p>Continuity of supply. Improve customer service with supply flexibility and improved lead times.</p>					
Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):					
TI does not anticipate any negative impact from this change.					

Changes to product identification resulting from this PCN:

TI will maintain traceability and identification per JEDEC guidelines.

There is **No Change** in product identification and packing labels. TI will continue to follow the J-STD-609 industry standard to identify Pb Free Leadframe Finish options on packaging label and package symbolization.

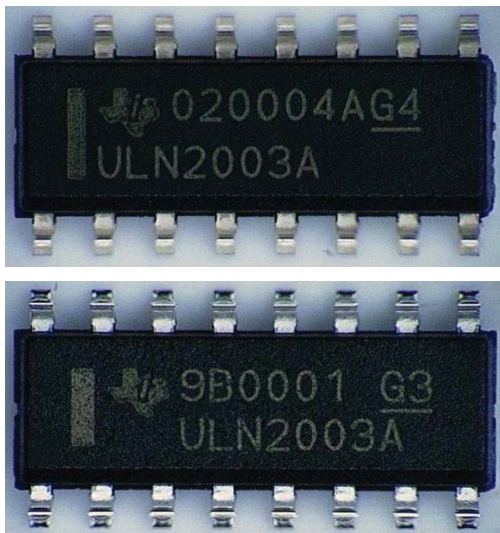
Customers will be able to clearly identify Leadframe finish from the ECAT code on package symbolization and labels.

Package symbolization:

No Change to package level symbolization. Symbolization contains the recommended ECAT symbol in addition to TI Lot Trace Code and device name.

G4 = Green products with NiPdAu/Ag Lead Finish

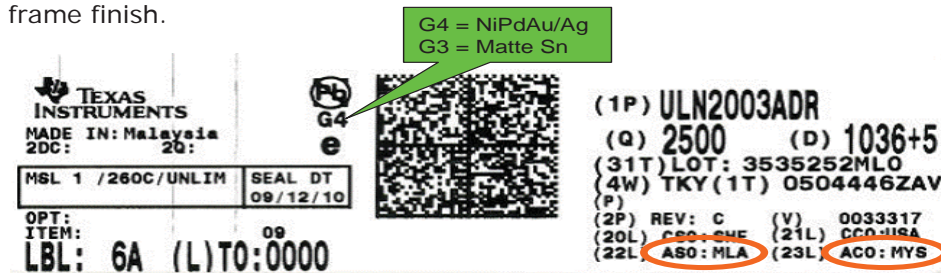
G3 = Green products with Matte Sn lead finish.



Packing/shipping Label

No change to TI Manufacturing Label and Customer Label (if applicable). Each reel, pizza boxes and standard packing boxes includes the correct ECAT symbols based on the appropriate lead frame finish.

G4 = NiPdAu/Ag
G3 = Matte Sn

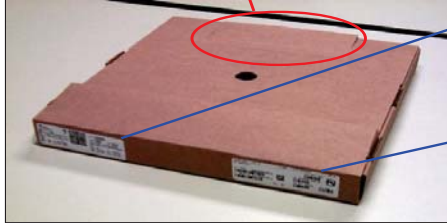


Each "pizza box" and reel will carry the appropriate label clearly identifying lead finish as described above.

• Shipping Label– No Change



Manufacturing Label
 The Manufacturing Label is applied by the Assembly/Test site on the moisture barrier bag or directly to the reel



Customer Label
 The Customer Label is applied by the PDC on the moisture barrier bag or directly to reel above the Manufacturing Label

TI Information – Selective Disclosure

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Note: ASE-Shanghai will have the site code (ASO) and country of origin code (ACO) below.

Assembly site Origin Code (22L)	Assembly country Origin Code (23L)
ASH	CHN

Products Affected:

TL431ACD	TL431ACDR	TL431AID	TL431AIDR
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Qualification Data			
Qual Vehicle 1: ULN2003AD			
Construction Details			
Assembly Site:	ASE Shanghai	Mold Compound:	SID#EN2000509
# Pins-Designator, Family:	16-D, SOIC	Mount Compound:	SID#EY1000063
Leadframe (Finish, Base):	Sn	Bond Wire:	0.8 Mil Dia. Au
Fab Process	JI Bipolar	Wafer Fab	SHE

Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results			
Reliability Test	Conditions	Sample Size (PASS/FAIL)	
		3 Lots	
*Steady State Life Test	300 Hrs	77/0, 77/0, 77/0	
*Thermal Shock	1000 cycles	77/0, 77/0, 77/0	
*Biased Hast	96 Hrs	77/0, 77/0, 77/0	
*High Temp Storage Bake	150C, 1000 Hrs	77/0, 77/0, 77/0	
*Temperature Cycle	-65C/150C, 1000 cycles	77/0, 77/0, 77/0	
*Autoclave	96 Hrs	77/0, 77/0, 77/0	
Salt Atmosphere	-	22/0, 22/0, 22/0	
Flammability	(UL-1694)	5/0, 5/0, 5/0	
Flammability	(UL-94V-0)	5/0, 5/0, 5/0	
Flammability	(IEC 695-2-2)	5/0, 5/0, 5/0	
Moisture Sensitivity	MSL 1 / 260C	12/0, 12/0, 12/0	
Physical Dimensions	Per mechanical drawing	5/0, 5/0, 5/0	
Bond Strength	76 Ball Bonds	76/0, 76/0, 76/0	
Die Shear	-	15/0, 15/0, 15/0	
Lead Fatigue	-	22/0, 22/0, 22/0	
Lead Pull	-	22/0, 22/0, 22/0	
Lead Finish Adhesion	-	15/0, 15/0, 15/0	
Solderability	8 Hrs/Steam Age	22/0, 22/0, 22/0	
X-Ray	Top Side Only	5/0, 5/0, 5/0	
Visual mechanical	Approved by AT Site	Pass	
Electrical Test Manufacturability-TQ	Approved by AT Site & Product Engineer	Pass	
Qual Vehicle 2: HC04DR			
Construction Details			
Assembly Site:	ASE-Shanghai	Mold Compound:	SID#EN2000511
# Pins-Designator, Family:	14-D, SOIC	Mount Compound:	SID#EY1000063
Leadframe (Finish, Base):	Sn	Bond Wire:	Au
Fab Process	HCMOS	Wafer Fab	SHE
Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results			
Reliability Test	Conditions	Sample Size (PASS/FAIL)	
		3 Lots	
*High Temp Storage Bake	150C, 1000 Hrs	77/0, 77/0, 77/0	
*Temperature Cycle	-65C/150C, 1000 cycles	77/0, 77/0, 77/0	
Bond Strength	76 Ball Bonds	76/0, 76/0, 76/0	
Die Shear	-	15/0, 15/0, 15/0	
Visual mechanical	Approved by AT Site	Pass	
X-Ray	Top Side Only	5/0, 5/0, 5/0	
Assembly Manufacturability	Approved by AT Site	Pass	
Electrical Test Manufacturability-TQ	Approved by AT Site & Product Engineer	Pass	

Qual Vehicle 3: LM358AD			
Construction Details			
Assembly Site:	ASE-Shanghai	Mold Compound:	SID#EN2000509
# Pins-Designator, Family:	8-D, SOIC	Mount Compound:	SID#EY1000063
Leadframe (Finish, Base):	Sn	Bond Wire:	Au
Fab Process	JI Bipolar	Wafer Fab	SHE
Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results			
Reliability Test	Conditions	Sample Size (PASS/FAIL)	
		3 Lots	
Bond Strength	76 Ball Bonds	76/0, 76/0, 76/0	
Die Shear	-	15/0, 15/0, 15/0	
Visual mechanical	Approved by AT Site	Pass	
X-Ray	Top Side Only	5/0, 5/0, 5/0	
Assembly Manufacturability	Approved by AT Site	Pass	
Electrical Test Manufacturability-TQ	Approved by AT Site & Product Engineer	Pass	

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
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com