

# Product / Process Change Notification



N° 2015-029-A

Dear Customer,

Please find attached our INFINEON Technologies PCN:

## Package Standardization for Infineon PG-TS(S)LP-2 Products

Important information for your attention:

- Please respond to this PCN by indicating your decision on the approval form, sign it and return to your sales partner before **08. May 2015**.
- Infineon aligns with the widely-recognized JEDEC STANDARD "JESD46", which stipulates: "Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change."

Your prompt reply will help Infineon Technologies to assure a smooth and well executed transition. If Infineon does not hear from your side by the due date, we will assume your full acceptance to this proposed change and its implementation.

Your attention and response to this matter is greatly appreciated.

Disclaimer:

If we do not receive any response by the date in the PCN above we consider this as the acceptance of the PCN. After the last order date as stated herein, purchase orders related to the unchanged product(s) cannot be accepted.

In case the customer rejects this PCN this PCN shall be considered a product discontinuation notice (PD).

# Product / Process Change Notification



N° 2015-029-A

**SUBJECT OF CHANGE:** Package Standardization for Infineon PG-TS(S)LP-2 Products

PRODUCTS AFFECTED:	Type	SP n°	OPN	Package
	BAT 15-02LRH	SP000055124	BAT1502LRHE6327XTSA1	PG-TSLP-2
	BAT 24-02LS	SP000304927	BAT2402LSE6327XTSA1	PG-TSSLP-2
	ESD5V3L1U-02LRH	SP000781844	ESD5V3L1U02LRHE6327XTSA1	PG-TSLP-2

**REASON OF CHANGE:** This is part of the package standardization roadmap for Infineon PG-TS(S)LP-2 products.

DESCRIPTION OF CHANGE:	OLD	NEW
Refer to 3_cip15029a		
<ul style="list-style-type: none"> <li>■ Leadframe</li> <li>■ Wire bonding</li> <li>■ Mold compound</li> <li>■ Pre-mold plasma cleaning process</li> <li>■ Second source leadframe</li> </ul>	NiAg / NiAu Au KMC2210 With pre-mold plasma cleaning -	NiPdAu Cu (for single chip only) KMC3210 Eliminate process Introduce second source

**PRODUCT IDENTIFICATION:** Internal traceability ensured via baunumber, lotnumber and date code.  
External traceability by

A) Change in marking on device:  
 New marking on device as per attachment 3\_cip15029\_a.

B) Barcode Product Label:  
 New sales name as per attachment 3\_cip15029\_a.

**TIME SCHEDULE:**


■ Final qualification report:	Available
■ First samples available:	Available (Note that second source leadframe samples upon request)
■ Start of delivery:	01-July-2015
■ Last order date of unchanged product:	30-September-2015
■ Last delivery date of unchanged product:	31-March-2016

**ASSESSMENT:**

- No change in applied datasheet parameters and product performance
- Products are fully compatible on board assembly process at customers
- No impact on parameters and reliability product qualification

<b>DOCUMENTATION:</b>	1_cip15029_a	Description of affected products
	2_cip15029_a	Final Qualification Report
	3_cip15029_a	Customer Information Package



				Qualification Report										Date: 2015-09-10		
				PCN-2015-029		Qualified according to Jeduc				BAT15 in PG-TS(S)LP-2						
<b>Purpose of Qualification:</b> Release of BAT15 and BAT24 in PG-TS(S)LP-2 packages. <b>Reason for choosing following test vehicle:</b> Please refer to PCN 2014-103 A. Qualification of 7 Products (ESD112-B1-02EL, ESD204-B1-02EL, ESD207-B1-02EL, BAR64-02EL, & BAR90-02EL) to covering the TSLP-2 and TSSLP-2 package qualification. BAT15, ESD CDM test, HTS @175°C and TC Test. <b>Assessment of Q-Results:</b> All qualification tests passed with positive results.																
Reference Products				BAT 15-02EL	BAT 15-02ELS	ESD112-B1-02EL	ESD112-B1-02EL	ESD204-B1-02EL	BAR64-02EL	BAR90-02EL	ESD204-B1-02ELS (Qual results reference to ESD204-B1-02EL, ESD205-B1-02ELS & ESD102-U1-02ELS products)	ESD207-B1-02EL (Qual results reference to ESD207-B1-02EL, BAR64-02EL & BAR90-02EL products)	ESD207-B1-02ELS (Qual results reference to ESD207-B1-02EL & ESD102-U1-02ELS products)	Test Location	Remarks	
<b>Package type</b>				PG-TSLP-2	PG-TSSLP-2	PG-TSLP-2	PG-TSLP-2	PG-TSLP-2	PG-TSLP-2	PG-TSLP-2	PG-TSSLP-2	PG-TSLP-2	TSSLP-2			
<b>Wire material</b>				22 µm Cu	22 µm Cu	22 µm Au	22 µm Au	22 µm Cu	22 µm Cu	22 µm Cu	22 µm Cu	22 µm Cu	22 µm Cu			
<b>Test description</b>				<b>Result: Lot 1</b>	<b>Result: Lot 1</b>	<b>Result: Lot 1</b>	<b>Result: Lot 2</b>	<b>Result: 1 lot</b>	<b>Result: 1 lot</b>	<b>Result: 1 lot</b>	<b>Result: 4 reference lots</b>	<b>Result: 6 reference lots</b>	<b>Result: 6 reference lots</b>			
<b>Pre- and Post-Stress Electrical Test</b>				All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	Mat/Rbg/MUC		
<b>Pre-conditioning</b> J-STD-033 A-113				PC	Moisture soak - T= 85°C 85% RH, 168h soaking, before & 240°C	-	Level 1 / 260°C 0 / 1.60	Level 1 / 260°C 0 / 1.60	Level 1 / 260°C 0 / 3.60	Level 1 / 260°C 0 / 3.60	Level 1 / 260°C 0 / 4.60	Level 1 / 260°C 0 / 4.60	Level 1 / 260°C 0 / 3.60	Level 1 / 260°C 0 / 3.60	Rbg	
<b>External Visual</b> JESD22 B-101				EV	-	-	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	All Passed	Mat/Rbg/MUC		
<b>Parametric Verification</b>				PV	Ta = -55/+25/+150°C	-	0 / 60	0 / 60	0 / 60	0 / 60	0 / 60	0 / 60	0 / 60	Rbg (RPT)		
<b>Electrostatic Discharge Human Body Model</b> ANSI/ESD/JEDEC JS-001				ESD-HBM	-	-	refer to Q0931: BAT15-04R, D1432B ESD class 0 Withstand Voltage 100V *	refer to Q0931: BAT15-04R, D1432B ESD class 0 Withstand Voltage 100V *	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	Rbg/MUC	
<b>Electrostatic Discharge Machine Model</b> JESD22-A115B				ESD-MM	-	-	refer to Q0931: BAT15-04R, D1432B ESD class A Withstand Voltage 25V *	refer to Q0931: BAT15-04R, D1432B ESD class A Withstand Voltage 25V *	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	Rbg/MUC	
<b>Electrostatic Discharge Charged Device Model</b> JESD22-C101E				ESD-CDM	-	-	0 / 10 ESD class IV Withstand Voltage 1500V	0 / 10 ESD class IV Withstand Voltage 1500V	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	NA for package project	Rbg/MUC	
<b>High Temperature Reverse Bias</b> JESD22-A108				HTRB	Ta = 150°C, VR=VRmax, t=1000h	0/h 168 h 500 h 1000 h	refer to technology qualification D25 (Schottky Diodes)	refer to technology qualification D25 (Schottky Diodes)	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 90 0 / 90 0 / 90 0 / 90	0 / 90 0 / 90 0 / 90 0 / 90	Rbg (RPT)
<b>High Temperature Storage</b>				HTS	Ta=175°C, t=1000h	0/h 168 h 500 h 1000 h	refer to BAT 15-02EL result	refer to BAT 15-02EL result	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	Rbg (RPT)
<b>Temperature Cycling</b> JESD22 A-104				TC	Precond Ta=50°C to 150°C, 1000 cycles 50 per cycle	0/h 168 h 500 h 1000 h	refer to BAT 15-02EL result	refer to BAT 15-02EL result	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	Rbg (RPT)
<b>Autoclave</b> JESD22 A-102				AC	Precond Ta=121°C / t/h=100% / p=2, 168 h	0/h 168 h	refer to package qualification	refer to package qualification	0 / 60 0 / 60	0 / 60 0 / 60	0 / 60 0 / 60	0 / 60 0 / 60	0 / 180 0 / 180	0 / 180 0 / 180	0 / 180 0 / 180	Rbg (RPT)
<b>High Humidity High Temp. Bias</b> JESD22 A-101				HSTRB	Precond Ta=85°C, t/h=85%, VR=VRmax t=1000h	0/h 168 h 500 h 1000 h	refer to package qualification and technology qualification D25 (Schottky Diodes)	refer to package qualification and technology qualification D25 (Schottky Diodes)	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 60 0 / 60 0 / 60 0 / 60	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	0 / 180 0 / 180 0 / 180 0 / 180	Rbg (RPT)
<b>Intermittent Operating Life</b> ML-STD-750 Method 1037 (Only for BAR90-02EL & BAR64-02EL)				IOL	Precond Cycle time 2 min Tjmax	0/h 168 h 500 h 1000 h	NA	NA	NA	NA	NA	NA	NA	NA	NA	Rbg (RPT)
<b>Physical Dimension</b> JESD22-B100B				PD	-	-	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSSLP-2 package qual results	Mat	
<b>Solderability</b> J-STD-020B				SD	-	-	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSSLP-2 package qual results	Mat	
<b>Wire Bond Strength</b> ML-STD-750 Method 2037				WBS	-	-	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSSLP-2 package qual results	Mat	
<b>Wire Bond Shear</b> AEC-Q101-003				BS	-	-	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSSLP-2 package qual results	Mat	
<b>Die shear</b> ML-STD-750 Method 2017				DS	-	-	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSLP-2 package qual results	Reference to TSSLP-2 package qual results	Reference to TSSLP-2 package qual results	Mat	
Author: Elmar Braun (IFAG PMM QM RPD)														Version 1		

# Customer Information Package 3\_cip15029\_a

PCN 2015-029-A

Package standardization for Infineon PG-TS(S)LP-2  
products



## I. Reasons of Change

- To achieve bill of material (BOM) standardization
- To introduce second source leadframe
- To eliminate pre-mold plasma cleaning process step

# PCN 2015-029-A

Package standardization for Infineon PG-TS(S)LP-2 products



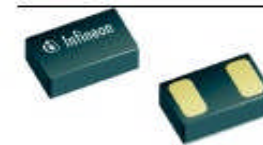
## II. Package Standardization Roadmap

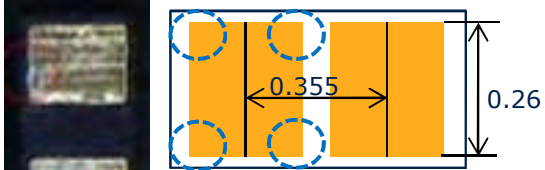
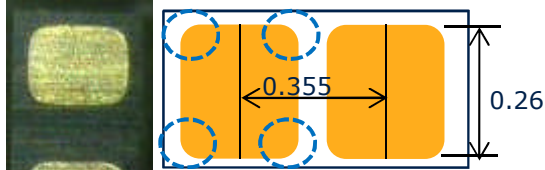
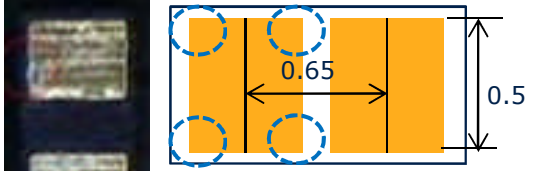
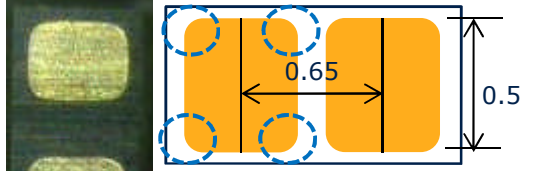
Package	Target PCN timeline
PG-TSSLP-2	PCN 2012-141-A (Released)
PG-TSLP-2	PCN 2013-071-A (Released)
PG-TSSLP-2 (phase 2) PG-TSLP-2 (phase 2)	PCN 2014-103-A (Released) <b>PCN 2015-029-A</b>

### III. What Will Be Changed

#### 1. Component Footprint

Package Outline (3D-View)



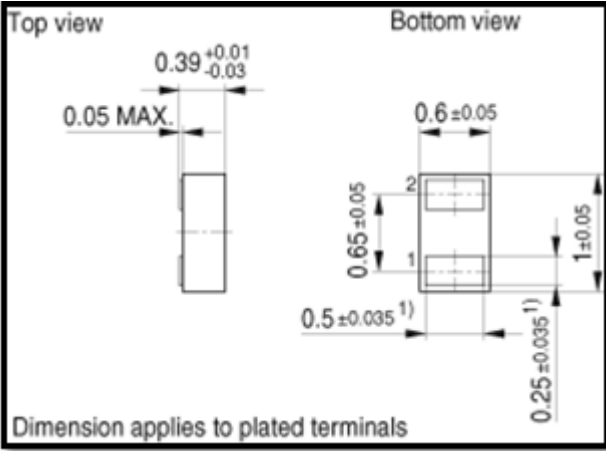
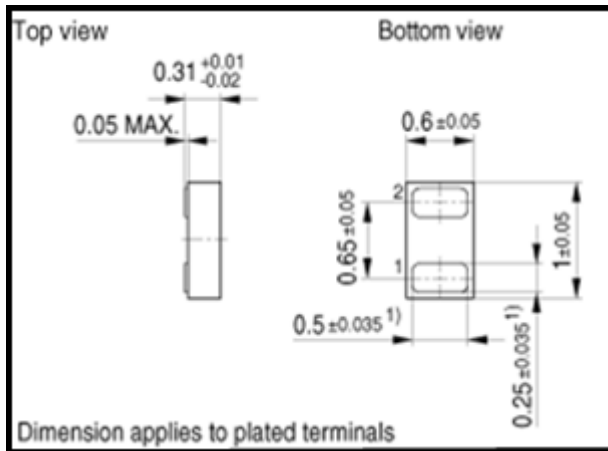
Package	Existing	New
PG-TSSLP-2	 <p>Zoom in image for bottom view</p>	 <p>Zoom in image for bottom view</p>
PG-TSLP-2	 <p>Zoom in image for bottom view</p>	 <p>Zoom in image for bottom view</p>

- The **new pad shape** is due to the **new leadframe design**
- The Reflow Soldering and Package dimension remain **UNCHANGED**.
- The lead pitching remain **UNCHANGED**



### III. What Will Be Changed

- Package Thickness (PG-TSLP-2) – Changed from 0.39mm to 0.31mm

Existing	New
 <p>Dimension applies to plated terminals</p>	 <p>Dimension applies to plated terminals</p>

# PCN 2015-029-A

Package standardization for Infineon PG-TS(S)LP-2 products



## III. What Will Be Changed

### 3. Component Marking

Current Sales Name	New Sales Name	Current Marking	New Marking
BAT 15-02LRH	BAT 15-02EL	NP	NN
BAT 24-02LS	BAT 24-02ELS	S	<u>S</u>
ESD5V3L1U-02LRH	ESD114-U1-02EL	E8	K

# PCN 2015-029-A

Package standardization for Infineon PG-TS(S)LP-2 products





## III. What Will Be Changed

### 4. Bill of Material

Current Device	Current Package	Current Lead frame	Current Wire	Current Mold Compound	New Device	New Package	New Lead frame	New Wire	New Mold Compound
BAT 15-02LRH	PG-TSLP-2	NiAu	Au	KMC2210	BAT 15-02EL	PG-TSLP-2	NiPdAu	Cu	KMC3210
BAT 24-02LS	PG-TSSLP-2	NiAg	Au	KMC2210	BAT 24-02ELS	PG-TSSLP-2	NiPdAu	Cu	KMC3210
ESD5V3L1U-02LRH	PG-TSLP-2	NiAg	Au	KMC2210	ESD114-U1-02EL	PG-TSLP-2	NiPdAu	Cu	KMC3210

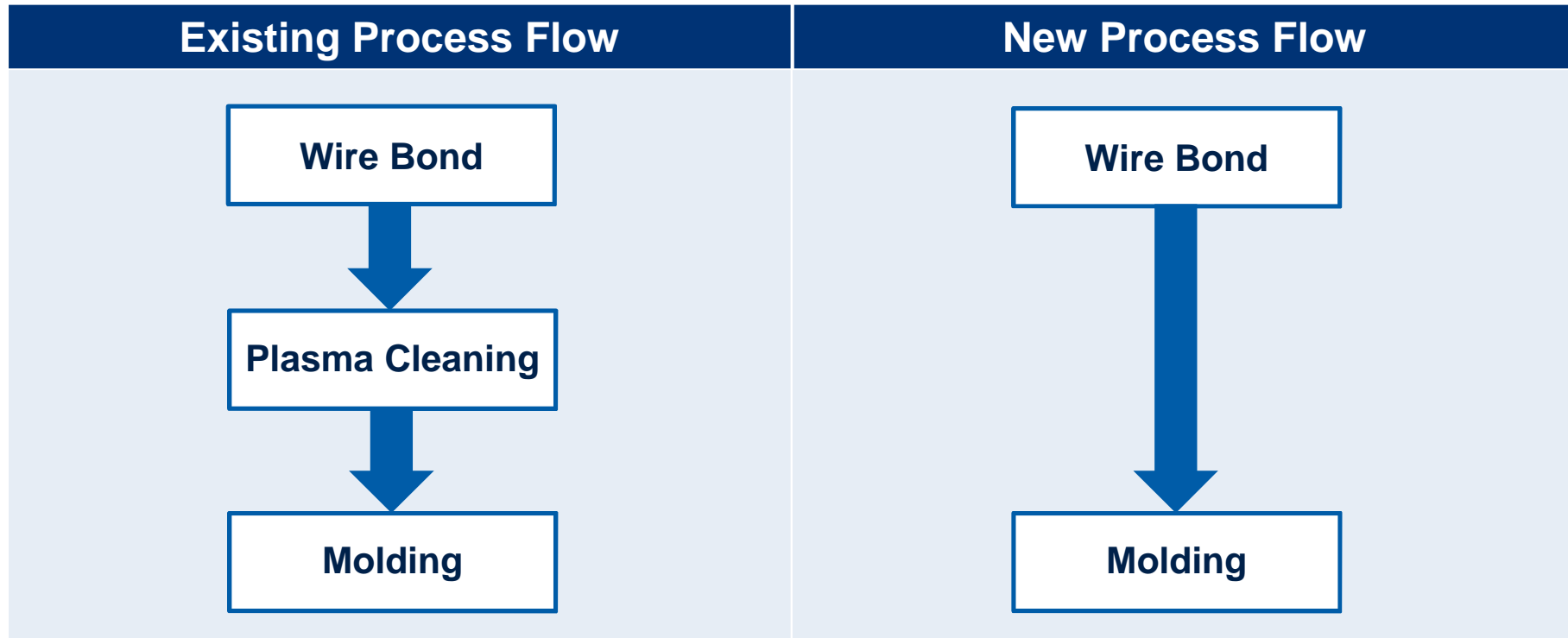
### III. What Will Be Changed

5. 2<sup>nd</sup> source leadframe supplier with mini-mushroom design

	Tapered Leadframe	Mini-Mushroom Leadframe
Bump Material	NiPdAu	NiPdAu
Bump Shape		

### III. What Will Be Changed

- 6. To eliminate pre-mold plasma cleaning process due to new leadframe design (tapered & mini-mushroom)





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