

## PRODUCT / PROCESS CHANGE NOTIFICATION

### 1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.		ADG/19/11849
1.3 Title of PCN		PowerSO-20: New Lead Frame Introduction
1.4 Product Category		see list
1.5 Issue date		2019-11-19

### 2. PCN Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Giovanni FOLETTI,Lorenzo MOIOLI,Maurizio GALLINARI
2.1.2 Marketing Manager	Valeria SCARCELLI,Alberto DA DALTA
2.1.3 Quality Manager	Marcello Donato MENCHISE

### 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	New direct material part number (same supplier, different supplier or new supplier), Lead frame base material	ST Muar (Malaysia)

### 4. Description of change

	Old	New
4.1 Description	Lead Frame Supplier Possehl to Mitsui Lead Frame Etched	Lead Frame Supplier Mitsui Lead Frame Stamped
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No impact	

### 5. Reason / motivation for change

5.1 Motivation	Manufacturing Flexibility
5.2 Customer Benefit	MANUFACTURING FLEXIBILITY

### 6. Marking of parts / traceability of change

6.1 Description	New Dedicated Finished Good codes
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### 7. Timing / schedule

7.1 Date of qualification results	2019-11-11
7.2 Intended start of delivery	2020-01-01
7.3 Qualification sample available?	Upon Request

### 8. Qualification / Validation

8.1 Description	11849 Validation.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2019-11-19

### 9. Attachments (additional documentations)

11849 Public product.pdf  
11849 Validation.pdf  
11849 Details.pdf

10. Affected parts		
10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	E-TDA7391PDTR	
	L5956PDTR	
	L5957PDTR	
	L9651	
	L9651-TR	
	L9822EPD	
	L9822EPD013TR	
	L9958	
	L9958TR	
	TDA7391LVPDTR	

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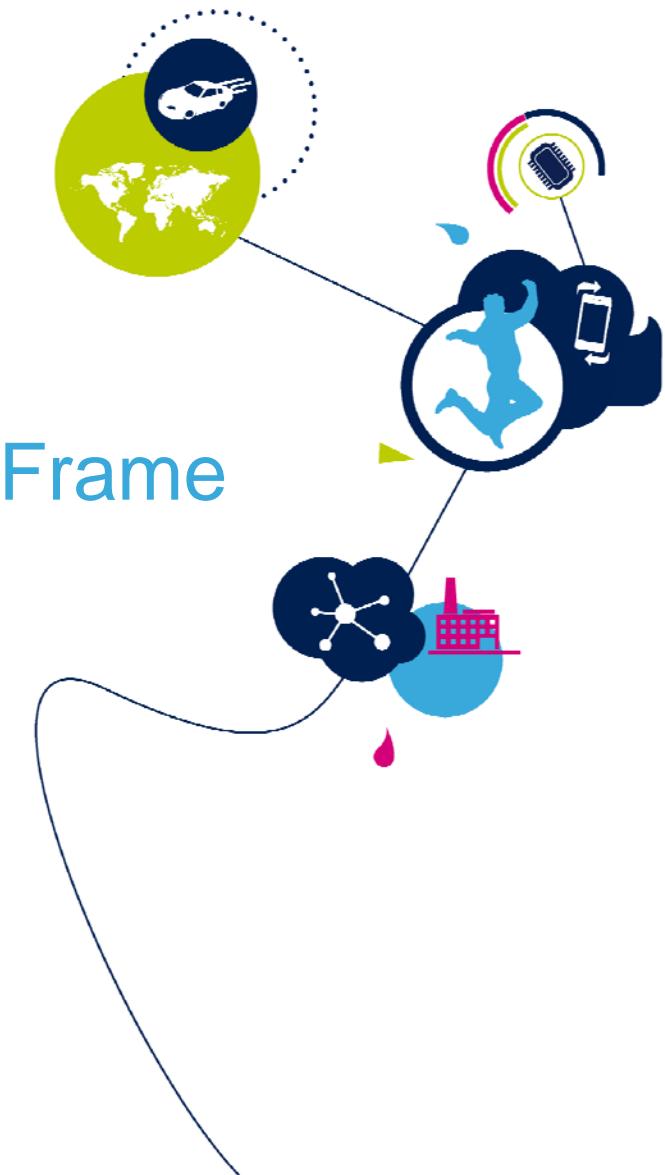
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# PSO20L

## Possehl Etched to Mitsui Stamped Frame Conversion



# Change description

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- PSO20L Package Lead Frame Change
- WHAT CHANGES
  - Lead Frame Supplier from Possehl to Mitsui
  - From Etched to Stamped Frame
  - Lead Frame Part Number
- WHAT DOES NOT CHANGE
  - Lead Frame Drawing, Package Outline, Raw Material, Lead Forming, Lead Frame Plating/Finishing
  - Molding Compound, Bonding Wire, Die Attach Material
- Selected ZVEI ID
  - SEM-PA-14
  - SEM-PA-16

# Impacted Products List

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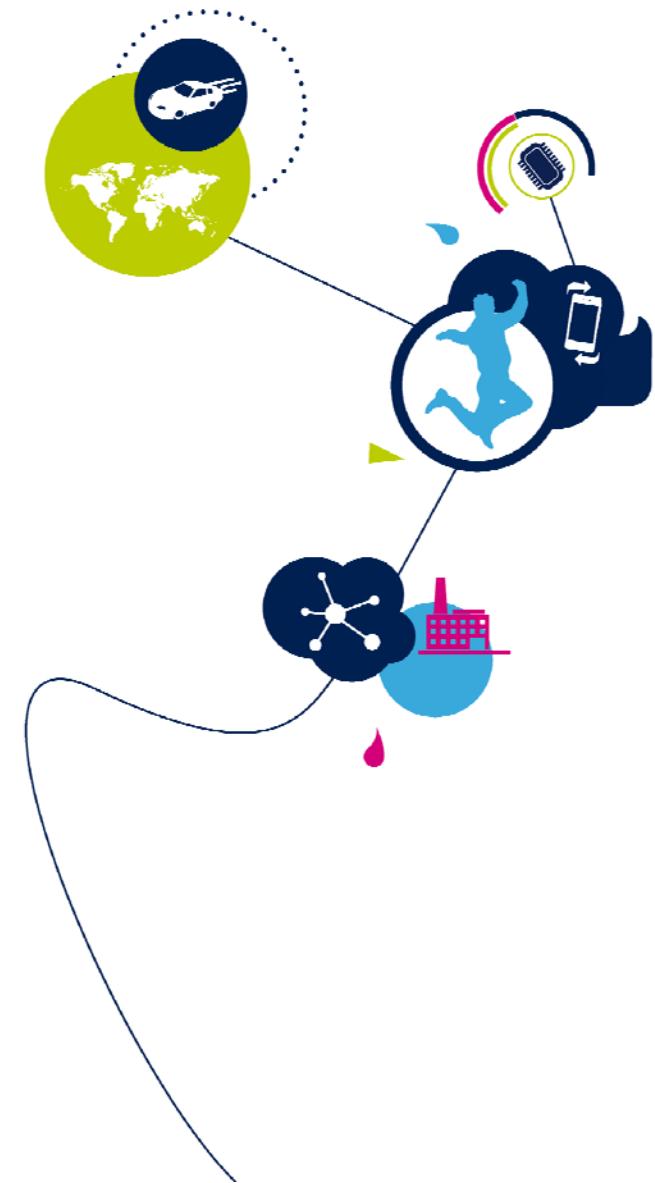
ST Line	Commercial Product
CJ4203	CJ420-ASSY-CU
L00903	E-TDA7391PDTR
L00903	TDA7391LVPDTR
U52203	L9822EPD
U52203	L9822EPD013TR
U70503	E-U705013TR
UAI103	ATIC211SMPBEDTR
UAI103	A2C00689410TR
UAI103	ATIC211SMPBE-TR
UB5103	L9651
UB5103	L9651-TR
UH2703	L5956PD
UH2703	L5956PDTR
UH3703	L5957PD
UH3703	L5957PDTR
UM3103	ATIC111-CG-77
UM3103	ATIC111TRCG77
UN2903	L9939TR
UP4103	L9958
UP4103	L9958TR

# Selected Test Vehicle

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TV	POSSEHL ETCHED CTRL LOT#	MITSUI STAMPED QUAL LOT#
A977*UAI1BC1	997200CX01	997200CX02
G9CD*UH27BF1	997200F201	997200F2RR
A977*UM31CG5	997220SC01	997220SCRP
B977*UB25CA6	997200F101	997200F1RR
G977*UB51AC6	997220TJ01	997220TJRR

# PSO20 Lead Reliability Report Summary



# Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UAI1)

Note: Sampling 160 pcs/lot – taken from tested good units after FT.

Reliability Test Status								
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997200CX01 Control	997200CX02 Qual	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 260°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 160 pcs	0 def / 160 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -65°C / +150°C	500 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	
3	PPT	Yes	TA = PPT 121°C/ 2Atm	96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 45 pcs	0 def / 45 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT	Pass	Pass	

Summary : All sample pass reliability without any failure

# Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UH27)

Note: Sampling 199 pcs/lot – taken from tested good units after FT.

Reliability Test Status								
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997200F201 Control	997200F2RR Qual	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 260°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 154 pcs	0 def / 154 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -55°C / +150°C	500 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
				1000 cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
				2000 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
Reliability Test Status								
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997200F201 Control	997200F2RR Qual	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C/ 2Atm	100 Cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 45 pcs	0 def / 45 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	

Summary : All sample pass reliability without any failure

## Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UM31)

Reliability Test Status								
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997220SC01 Control Lot	997220SCRP Qual Lot	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 260°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 40 pcs	0 delam / 40 pcs	
					ATE	3 para / 160 pcs	1 para / 160 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -65°C / +150°C	500 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	
3	PPT	Yes	TA = 121°C / 2 ATM	96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 45 pcs	0 def / 45 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	

Summary : All sample pass reliability without any failure

## Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UB25)

Note: Sampling 199 pcs/lot – taken from tested good units after FT.

No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997200F101 Control Lot	997200F1RR Qual Lot	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 260°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 154 pcs	0 def / 154 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -65°C / +150°C	500 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C / 2Atm	100 cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	Yes	TA = 150°C	1000 hrs	ATE	0 def / 45 pcs	0 def / 45 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	

**Summary :** All sample pass reliability without any failure

## Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UB51)

Reliability Test Status								
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS		Notes
						997220TJ01 Control	997220TJRR Qual	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 260°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 160 pcs	0 def / 160 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -65°C / +150°C	500 Cycle	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	
3	PPT	Yes	TA = PPT 121°C/ 2Atm	96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 45 pcs	0 def / 45 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT	Pass	Pass	

**Summary :** All sample pass reliability without any failure



## Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

**PCN Title :** PowerSO-20: New Lead Frame Introduction

**PCN Reference :** ADG/19/11849

**Subject :** Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

L9651	L5956PDTR	L5956PD
L5957PD	L5957PDTR	L9958
L9958TR	L9822EPD	L9822EPD013TR
L9651-TR	TDA7391LVPDTR	E-TDA7391PDTR



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## PRODUCT/PROCESS CHANGE NOTIFICATION

**SUBJECT** PowerSO-20: New Lead Frame Introduction

<b>IMPACTED PRODUCTS</b>	Below Products Housed in PowerSO-20	
	<b>ST Line</b>	<b>Commercial Product</b>
	CJ4203	CJ420-ASSY-CU
	L00903	E-TDA7391PDTR
	L00903	TDA7391LVPDTR
	U52203	L9822EPD
	U52203	L9822EPD013TR
	U70503	E-U705013TR
	UAI103	ATIC211SMPBEDTR
	UAI103	A2C00689410TR
	UAI103	ATIC211SMPBE-TR
	UB5103	L9651
<b>MANUFACTURING STEP</b>	Assembly	
<b>INVOLVED PLANT</b>	ST Muar Plant (Malaysia)	
<b>CHANGE REASON</b>	Manufacturing Flexibility	
<b>CHANGE DESCRIPTION</b>	<p>Introduction of new Lead Frame will change:</p> <ul style="list-style-type: none"> <li>- Lead Frame Supplier from Possehl to Mitsui</li> <li>- From Etched to Stamped Frame</li> <li>- Lead Frame Part Number</li> </ul> <p><b>No change</b> in frame drawing, dimension, package outline, Raw material, lead forming, Lead frame plating/finishing</p> <p><b>No change</b> in molding compound, bonding wire, die attach material</p> <p>ZVEI changes selected:</p> <p>SEM-PA-14</p> <p>SEM-PA-16</p>	

<b>TRACEABILITY</b>	Dedicated Finished good codes
<b>VALIDATION</b>	Validation result of new lead frame included  11849 Validation.pdf
<b>SAMPLES</b>	Available on demand
<b>IMPLEMENTATION</b>	We are ready to implement the change upon Customer agreement