

PRODUCT/PROCESS CHANGE NOTIFICATION

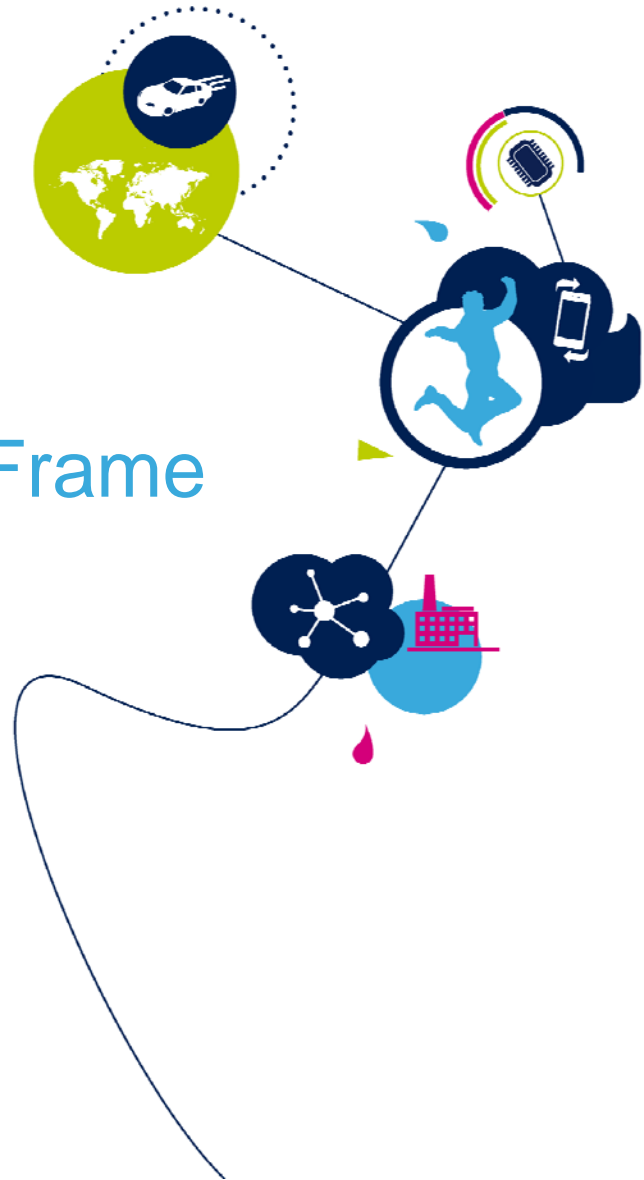
SUBJECT **PowerSO-20: New Lead Frame Introduction**

IMPACTED PRODUCTS	<p>Below Products Housed in PowerSO-20</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="background-color: #0070C0; color: white;">ST Line</th> <th style="background-color: #0070C0; color: white;">Commercial Product</th> <th style="background-color: #0070C0; color: white;">ST Line</th> <th style="background-color: #0070C0; color: white;">Commercial Product</th> </tr> </thead> <tbody> <tr><td>CJ4203</td><td>CJ420-ASSY-CU</td><td>UB5103</td><td>L9651-TR</td></tr> <tr><td>L00903</td><td>E-TDA7391PDTR</td><td>UH2703</td><td>L5956PD</td></tr> <tr><td>L00903</td><td>TDA7391LVPDTR</td><td>UH2703</td><td>L5956PDTR</td></tr> <tr><td>U52203</td><td>L9822EPD</td><td>UH3703</td><td>L5957PD</td></tr> <tr><td>U52203</td><td>L9822EPD013TR</td><td>UH3703</td><td>L5957PDTR</td></tr> <tr><td>U70503</td><td>E-U705013TR</td><td>UM3103</td><td>ATIC111-CG-77</td></tr> <tr><td>UAI103</td><td>ATIC211SMPBEDTR</td><td>UM3103</td><td>ATIC111TRCG77</td></tr> <tr><td>UAI103</td><td>A2C00689410TR</td><td>UN2903</td><td>L9939TR</td></tr> <tr><td>UAI103</td><td>ATIC211SMPBE-TR</td><td>UP4103</td><td>L9958</td></tr> <tr><td>UB5103</td><td>L9651</td><td>UP4103</td><td>L9958TR</td></tr> </tbody> </table>	ST Line	Commercial Product	ST Line	Commercial Product	CJ4203	CJ420-ASSY-CU	UB5103	L9651-TR	L00903	E-TDA7391PDTR	UH2703	L5956PD	L00903	TDA7391LVPDTR	UH2703	L5956PDTR	U52203	L9822EPD	UH3703	L5957PD	U52203	L9822EPD013TR	UH3703	L5957PDTR	U70503	E-U705013TR	UM3103	ATIC111-CG-77	UAI103	ATIC211SMPBEDTR	UM3103	ATIC111TRCG77	UAI103	A2C00689410TR	UN2903	L9939TR	UAI103	ATIC211SMPBE-TR	UP4103	L9958	UB5103	L9651	UP4103	L9958TR
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MANUFACTURING STEP	Assembly																																												
INVOLVED PLANT	ST Muar Plant (Malaysia)																																												
CHANGE REASON	Manufacturing Flexibility																																												
CHANGE DESCRIPTION	<p>Introduction of new Lead Frame will change:</p> <ul style="list-style-type: none"> - Lead Frame Supplier from Possehl to Mitsui - From Etched to Stamped Frame - Lead Frame Part Number <p>No change in frame drawing, dimension, package outline, Raw material, lead forming, Lead frame plating/finishing</p> <p>No change in molding compound, bonding wire, die attach material</p> <p>ZVEI changes selected: SEM-PA-14 SEM-PA-16</p>																																												

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

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

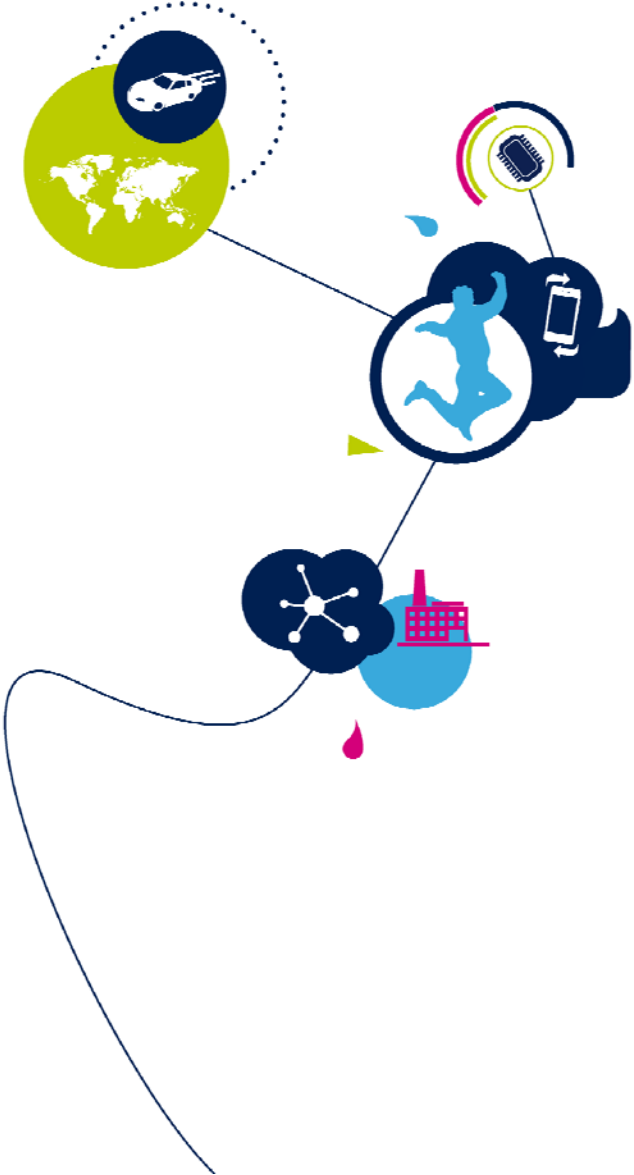
Impacted Products List

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

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

PSO20 Lead Reliability Report Summary



Frame Conversion from Etched (Possehl) to Stamped (Mitsui) Reliability (UA1)

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 (IL3 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	997220SCR 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.

Reliability Test Status								
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