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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION 20068A**

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**Issue Date:** 23-Apr-2014

**TITLE:** Qualify OSPI as alternate supplier of SOIC16, SOIC24 & SOIC28 packages

**PROPOSED FIRST SHIP DATE:**

SOIC16, SOIC24 & SOIC28 – 23-Jul-2014

**AFFECTED CHANGE CATEGORY(S):** Assembly Manufacturing Site and BOM

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:** Contact your local ON Semiconductor Sales Office or Ovidiu Tol <[ovidiu.tol@onsemi.com](mailto:ovidiu.tol@onsemi.com)> or Francis Santos <[francis.santos@onsemi.com](mailto:francis.santos@onsemi.com)>

**SAMPLES:** Contact your local ON Semiconductor Sales Office

**ADDITIONAL RELIABILITY DATA:** Available  
Contact your local ON Semiconductor Sales Office or [Francis.Lualhati@onsemi.com](mailto:Francis.Lualhati@onsemi.com) & [Gelo.Ramos@onsemi.com](mailto:Gelo.Ramos@onsemi.com)

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact <[quality@onsemi.com](mailto:quality@onsemi.com)>.

**DESCRIPTION AND PURPOSE:**

Qualify OSPI as assembly site for SOIC16, 24, & 28. OSPI is already a qualified source of SOIC packages and is TS16949 certified.

OSPI will be using its standard Bill of Materials and Process Flow with no expected impact to form, fit, and function.

For SOIC16N the Leadframe plating will change from NiPdAu to Matte-tin.

For wide body SOICs, ON Semiconductor has re-classified the Moisture Sensitivity Level on the affected parts from MSL1-260C to MSL3-260C. The reason for this MSL re-classification is a new lead frame had to be qualified due to the Thailand flooding some time ago.



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**RELIABILITY TEST SUMMARY:**

**SOIC16L:**

SOIC16N - QUAL VEHICLE CAT9554WI

Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)	(rej/ ss)
				Read Point	Lot A	Lot B	Lot C
Prep	Sample preparation and initial part testing	various	---	Initial Electrical	done	done	done
HTSL	High Temp Storage Life	Temp = +150°C for 1008 hours	c = 0, Room, Hot	508 Hrs	0/80	0/80	0/80
PC	MSL1 Preconditioning	3x IR @ 260 deg C	c = 0, Room	1008 Hrs	0/80	0/80	0/80
TC-PC	Temp Cycle + Preconditioning	Temp = -65°C to +150°C; for 500 cycles	c = 0, Room, Hot	Post Electrical	0/240	0/240	0/240
				Post PC Electrical	0/80	0/80	0/80
				500 cjc	0/80	0/80	0/80
HAST-PC	Highly Accelerated Stress Test + Preconditioning	Temp = +130°C; RH = 85%, psig ~28 for 96hr	c = 0, Room, Hot	1000 cjc	0/80	0/80	0/80
				Post PC Electrical	0/80	0/80	0/80
AC-PC	Autoclave + Preconditioning	Temp = +121°C; RH = 100%, psig ~15 for 96hr	c = 0, Room	96 hrs	0/80	0/80	0/80
				Post PC Electrical	0/80	0/80	0/80
CDPA	Custom Destructive Physical Analysis	Wire Bond Pull Test following 500 cjc TC + PC	Minimum 3.0 grams	30 bonds minimum	0/30	0/30	0/30
BPS	Bond Pull Strength	Cpk > 1.33	5 parts minimum	30 bonds minimum	0/30	0/30	0/30
BS	Bond Shear	Cpk > 1.33	5 parts minimum	30 bonds minimum	0/30	0/30	0/30
SD	Solderability	Solder Temp= 245°C	Visual Inspection	15 units minimum	0/15	0/15	0/15
PD	Physical Dimension Inspection	Cpk > 1.33	Inspection	10 units minimum	0/10	0/10	0/10
CHAR	Characterization	Per AEC-Q003	Room, Hot, Cold	Results	0/30	0/30	0/30
ESD	Electro-static Discharge	Human Body Model, 500V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 1000V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 1500V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 2000V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 2500V	n/a	Results	0/3	0/3	0/3
		Machine Model, 100V	n/a	Results	0/3	0/3	0/3
		Machine Model, 200V	n/a	Results	0/3	0/3	0/3
Machine Model, 300V	n/a	Results	0/3	0/3	0/3		
LU	Latch Up	Voltage: 5.6V; Current: 100 mA at 125°C	n/a	Results	0/6	0/6	0/6



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SOIC24L:

SOIC24L - QUAL VEHICLE CAT5259WI

Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
				Read Point	Lot A	Lot B
Prep	Sample preparation and initial part testing	various	---	Initial Electrical	done	done
HTSL	High Temp Storage Life	Temp = +150°C for 1008 hours	c = 0, Room, Hot	508 Hrs	0/80	0/80
				<b>1008 Hrs</b>	0/80	0/80
PC	MSL3 Preconditioning	3x IR @ 260 deg C	c = 0, Room	Post Electrical	0/240	0/240
TC-PC	Temp Cycle + Preconditioning	Temp = -65°C to +150°C; for 500 cycles	c = 0, Room, Hot	Post PC Electrical	0/80	0/80
				<b>500 cyc</b>	0/80	0/80
				1000 cyc	0/80	0/80
HAST-PC	Highly Accelerated Stress Test + Preconditioning	Temp = +130°C; RH = 85%, psig ~28 for 96hr	c = 0, Room, Hot	Post PC Electrical	0/80	0/80
				<b>96 hrs</b>	0/80	0/80
AC-PC	Autoclave + Preconditioning	Temp = +121°C; RH = 100%, psig ~15 for 96hr	c = 0, Room	Post PC Electrical	0/80	0/80
				<b>96 hrs</b>	0/80	0/80
CDPA	Custom Destructive Physical Analysis	Wire Bond Pull Test following 500 cyc TC + PC	Minimum 3.0 grams	30 bonds minimum	0/30	0/30
BPS	Bond Pull Strength	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30
BS	Bond Shear	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30
SD	Solderability	Solder Temp= 245°C	Visual Inspection	15 units minimum	0/15	0/15
PD	Physical Dimension Inspection	Cpk > 1.33	Inspection	10 units minimum	0/10	0/10
CHAR	Characterization	Per AEC-Q003	Room, Hot, Cold	Results	0/30	0/30
ESD	Electro-static Discharge	Human Body Model, 500V	n/a	Results	0/3	0/3
		Human Body Model, 1000V	n/a	Results	0/3	0/3
		Human Body Model, 1500V	n/a	Results	0/3	0/3
		Human Body Model, 2000V	n/a	Results	0/3	0/3
		Human Body Model, 2500V	n/a	Results	0/3	0/3
		Machine Model, 100V	n/a	Results	0/3	0/3
		Machine Model, 200V	n/a	Results	0/3	0/3
		Machine Model, 300V	n/a	Results	0/3	0/3
LU	Latch Up	Voltage: 5.6V; Current: 100 mA at 125°C	n/a	Results	0/6	0/6



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SOIC24L - QUAL VEHICLE CAT9555WI

Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
				Read Point	Lot C	Lot D
Prep	Sample preparation and initial part testing	various	---	Initial Electrical	done	done
HTSL	High Temp Storage Life	Temp = +150°C for 1008 hours	c = 0, Room, Hot	508 Hrs	0/80	0/80
				<b>1008 Hrs</b>	0/80	0/80
PC	MSL3 Preconditioning	3x 1R @ 260 deg C	c = 0, Room	Post Electrical	0/240	0/240
TC-PC	Temp Cycle + Preconditioning	Temp = -65°C to +150°C; for 500 cycles	c = 0, Room, Hot	Post PC Electrical	0/80	0/80
				<b>500 cyc</b>	0/80	0/80
				1000 cyc	0/80	0/80
HAST-PC	Highly Accelerated Stress Test + Preconditioning	Temp = +130°C; RH = 85%, psig ~28 for 96hr	c = 0, Room, Hot	Post PC Electrical	0/80	0/80
				<b>96 hrs</b>	0/80	0/80
AC-PC	Autoclave + Preconditioning	Temp = +121°C; RH = 100%, psig ~15 for 96hr	c = 0, Room	Post PC Electrical	0/80	0/80
				<b>96 hrs</b>	0/80	0/80
CDPA	Custom Destructive Physical Analysis	Wire Bond Pull Test following 500 cyc TC + PC	Minimum wire pull reading of 3 grams	30 bonds minimum	0/30	0/30
BPS	Bond Pull Strength	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30
BS	Bond Shear	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30
SD	Solderability	Solder Temp= 245°C	Visual Inspection	15 units minimum	0/15	0/15
PD	Physical Dimension Inspection	Cpk > 1.33	Inspection	10 units minimum	0/10	0/10
CHAR	Characterization	Per AEC-Q003	Room, Hot, Cold	Results	0/30	0/30
ESD	Electro-static Discharge	Human Body Model, 500V	n/a	Results	0/3	0/3
		Human Body Model, 1000V	n/a	Results	0/3	0/3
		Human Body Model, 1500V	n/a	Results	0/3	0/3
		Human Body Model, 2000V	n/a	Results	0/3	0/3
		Human Body Model, 2500V	n/a	Results	0/3	0/3
		Machine Model, 100V	n/a	Results	0/3	0/3
		Machine Model, 200V	n/a	Results	0/3	0/3
Machine Model, 300V	n/a	Results	0/3	0/3		
LU	Latch Up	Voltage: 5.6V; Current: 100 mA at 125°C	n/a	Results	0/6	0/6



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**SOIC28L:**

SOIC24L - QUAL VEHICLE CAT4026WI

Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)	(rej/ ss)
				Read Point	Lot A	Lot B	Lot C
Prep	Sample preparation and initial part testing	various	---	Initial Electrical	done	done	done
HTSL	High Temp Storage Life	Temp = +150°C for 1008 hours	c = 0, Room	508 Hrs	0/80	0/80	0/80
				<b>1008 Hrs</b>	0/80	0/80	0/80
PC	MSL3 Preconditioning	3x IR @ 260 deg C	c = 0, Room	Post Electrical	0/240	0/240	0/240
TC-PC	Temp Cycle + Preconditioning	Temp = -65°C to +150°C; for 500 cycles	c = 0, Room	Post PC Electrical	0/80	0/80	0/80
				<b>500 cyc</b>	0/80	0/80	0/80
				1000 cyc	0/80	0/80	0/80
HAST-PC	Highly Accelerated Stress Test + Preconditioning	Temp = +130°C; RH = 85%, psig ~28 for 96hr	c = 0, Room	Post PC Electrical	0/80	0/80	0/80
				<b>96 hrs</b>	0/80	0/80	0/80
AC-PC	Autoclave + Preconditioning	Temp = +121°C; RH = 100%, psig ~15 for 96hr	c = 0, Room	Post PC Electrical	0/80	0/80	0/80
				<b>96 hrs</b>	0/80	0/80	0/80
CDPA	Custom Destructive Physical Analysis	Wire Bond Pull Test following 500 cyc TC + PC	Minimum wire pull reading of 3 grams	30 bonds minimum	0/30	0/30	0/30
BPS	Bond Pull Strength	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30	0/30
BS	Bond Shear	Cpk >1.33	5 parts minimum	30 bonds minimum	0/30	0/30	0/30
SD	Solderability	Solder Temp= 245°C	Visual Inspection	15 units minimum	0/15	0/15	0/15
PD	Physical Dimension Inspection	Cpk > 1.33	Inspection	10 units minimum	0/10	0/10	0/10
CHAR	Characterization	Per AEC-Q003	Room	Results	0/30	0/30	0/30
ESD	Electro-static Discharge	Human Body Model, 500V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 1000V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 1500V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 2000V	n/a	Results	0/3	0/3	0/3
		Human Body Model, 2500V	n/a	Results	0/3	0/3	0/3
		Machine Model, 100V	n/a	Results	0/3	0/3	0/3
		Machine Model, 200V	n/a	Results	0/3	0/3	0/3
Machine Model, 300V	n/a	Results	0/3	0/3	0/3		
LU	Latch Up	150 mA at 125°C	n/a	Results	0/6	0/6	0/6

**ELECTRICAL CHARACTERISTIC SUMMARY:**

There were no changes in device electrical performance or specifications. Summary data for qualification vehicle/s are available. Please contact your local ON Semiconductor Sales Office or <Francis Santos – Francis.Santos@onsemi.com >

**CHANGED PART IDENTIFICATION:**

The parts assembled in OSPI will have letter "P" marked on the front at the location that identifies the assembly house. For SOIC16, the new manufacturing location will result in a change of the Pb-free 2nd level interconnect (lead finish); the lead finish will change from NiPdAu to 100% matte Sn. Product bar code labeling will denote the lead finish as per JESD97, May 2004, section 5 and the 'e3' designator will be used to properly identify this material.



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**List of affected General Parts:**

**SOIC16N**

CAT9554WI-GT2	CAT9554AWI-GT2	CAT9534WI-G
CAT9554WI-G	CAT9534WI-GT2	CAT9557WI-GT2

**SOIC24L**

CAT5401WI-00-T1	CAT5409WI-10-T1	CAT5261WI-50-T1
CAT5401WI00	CAT5409WI10	CAT5261WI50
CAT5401WI-10-T1	CAT5409WI-50-T1	CAT5259WI-00-T1
CAT5401WI10	CAT5409WI50	CAT5259WI00
CAT5401WI-50-T1	CAT5419WI-00-T1	CAT5259WI-50-T1
CAT5401WI50	CAT5419WI00	CAT5259WI50
CAT5411WI-00-T1	CAT5419WI-10-T1	CAT5269WI-00-T1
CAT5411WI00	CAT5419WI10	CAT5269WI00
CAT5411WI-10-T1	CAT5419WI-50-T1	CAT5269WI-50-T1
CAT5411WI10	CAT5419WI50	CAT5269WI50
CAT5411WI-25-T1	CAT5251WI-00-T1	CAT9532WI-T1
CAT5411WI25	CAT5251WI00	CAT9532WI
CAT5411WI-50-T1	CAT5251WI-50-T1	CAT9552WI-T1
CAT5411WI50	CAT5251WI50	CAT9555WI-T1
CAT5409WI-00-T1	CAT5261WI-00-T1	CAT9555WI
CAT5409WI00	CAT5261WI00	CAT4016W-T1

**SOIC28L**

CAT4026V-T1