ON Semiconductor®

Final Product/Process Change Notification

Document # : FPCN22191XC
Issue Date: 21 March 2018

Title of Change:	SOIC-8 Insourcing to ON Semiconductor Philippines (OSPI) Factory from GEM (China)
Proposed first ship date:	28 June 2018
Contact information:	Contact your local ON Semiconductor Sales Office or <Rodrigo.Milana.Jr@onsemi.com>
Samples:	Contact your local ON Semiconductor Sales Office
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or <Lalan.Ortega@onsemi.com>
Type of notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change. ON Semiconductor will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact <PCN.Support@onsemi.com>.
Change Part Identification:	Product marked with date code 1811 or later may be built from current factory or from OSPI Factory. The trace code marking on Line 2 is of the form ALYW where A = Assembly Location, L = Wafer Lot ID and YW is a 2-digit date code. Product marked with "P" as the assembly location will be from OSPI. Additionally on the label of the box and reel, the ASSY LOC: PO will also indicate product assembled in OSPI. Please see sample label on Page 2 at the following URL http://www.onsemi.com/pub/Collateral/LABELRM-D.PDF to see the location of the ASSY LOC.
Change category:	☐ Wafer Fab Change ☒ Assembly Change ☒ Test Change ☐ Other _____

Change Sub-Category(s):

☒ Manufacturing Site Change/Addition	☒ Material Change	☐ Datasheet/Product Doc change
☐ Manufacturing Process Change	☐ Product specific change	☒ Shipping/Packaging/Marking
		☐ Other: _____

Sites Affected:	ON Semiconductor Sites: ON Carmona, Philippines	External Foundry/Subcon Sites: GEM Electronics, China

Description and Purpose:

This Final Notification announces to customers ON Semiconductor's plans to expand Assembly and Test operations of former Fairchild SO8 packaged products to an existing internal manufacturing site in OSPI, Philippines. This is a capacity expansion, and at the end of the FPCN approval cycle, these products may be dual sourced from either GEM, China or from OSPI, Philippines.
MOSFETs will be qualified and released with Copper wire as part of this expansion in OSPI, Philippines (as per table in List of affected parts).
OSPI is certified with ISO9001:2015 and IATF 16949 and is currently running production for SO8 package and Copper Wire. These products are currently using Copper wire at GEM. These products will continue being Pb-free, Halide free and RoHS compliant. Qualification tests are designed to show that the reliability of the transferred devices will continue to meet or exceed ON Semiconductor standards.

BOM changes associated with this FPCN are shown here:

Material to be changed	**Before Change Description**	**After Change Description**
Lead frame	Ag spot Cu	Ag spot Cu (No change)
Mold Compound	Sumitomo G600FL	Sumitomo G600F
Die Attach	Kyocera CT285, Henkel ABP8062T	Henkel ABP8062T
Wire size and Material	2 mil Cu	2 mil Cu (No change)

Additionally, this FPCN serves to notify customers of a change in the marking for all products listed for BOTH sites, GEM and OSPI. The new marking will be of the form:

Line 1 is the Product Identification (see table for new Product IDs)
Line 2 is the Trace code with the following nomenclature: A = Assy Location, L = Wafer Lot ID, YW = 2 digit date code. The X at the end of the line is a wrap character if additional identification is needed from Line 1.

OPN	Line 1 Marking
FDS8447	FDS8447
FDS8449	FDS8449
FDS8870	FDS8870
FDS8876	FDS8876
FDS8878	FDS8878
FDS8878-G	FDS8878
FDS8880	FDS8880
FDS8880-SN00134	FDS8880
FDS8882	FDS8882
FDS8884	FDS8884
FDS8884-G	FDS8884
FDS8896	FDS8896
FDS8949	FDS8949
FDS8978	FDS8978
FDS8978-F40	FDS8978
FDS8984	FDS8984
FDS8984-F40	FDS8984
FDS4435BZ	FDS4435BZ
FDS4435BZ-G	FDS4435BZ
FDS4935BZ	FDS4935BZ
FDS6673BZ	FDS6673BZ
FDS6673BZ-G	FDS6673BZ
FDS6675BZ	FDS6675BZ
FDS6675BZ-G	FDS6675BZ
FDS6679AZ	FDS6679AZ
FDS6679AZ-G	FDS6679AZ
FDS6681Z	FDS6681Z
FDS8858CZ	FDS8858CZ
FDS8958B	FDS8958B

Reliability Data Summary:

QV DEVICE NAME: FDS8978
RMS: O40037, O44191
PACKAGE: SOIC 8

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta = 150°C, 80% max rated V	1008 hrs	0/80
HTGB	JESD22-A108	Ta = 150°C, 100% max rated Vgss	1008 hrs	0/80
HTSL	JESD22-A103	Ta = 150°C	2016 hrs	0/80
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, delta Tj=100°C On/off = 2.0 min	30000 cyc	0/80
TC	JESD22-A104	Ta= -55°C to +150°C	2000 cyc	0/80
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/80
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	192 hrs	0/80
PC	J-STD-020 JESD-A113	MSL 1 @260°C	-	0/320
SAT	JEDEC STD 035	Pre and Post MSL 1	-	0/25
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 10 sec	-	0/15
PD	JESD22-B100	Per POD, case 751EB	-	0/30
CDPA	MILSTD750 Method 2037	Wire Pull after TC1000 cycles	-	0/5
CDPA	MILSTD750 Method 2037	Wire Pull after HTSL 1008hrs	-	0/5
DPA	AEC Q101-004 Section 4	Destructive Physical Analysis after TC1000 cycles	-	0/2
ED	Tri Temperature Characterization, Per 48A	Temp at 25°C, -55°C, 150°C with Thermal Resistance (Rth)	-	Passed

QV DEVICE NAME: FDS6681Z
RMS: S42844, O44558, S40038
PACKAGE: SOIC 8

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta = 150°C, 80% max rated V	1008 hrs	0/84
HTGB	JESD22-A108	Ta = 150°C, 100% max rated Vgss	1008 hrs	0/84
HTSL	JESD22-A103	Ta = 150°C	2016 hrs	0/84
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, delta Tj=100°C On/off = 2.0 min	30000 cyc	0/84
TC	JESD22-A104	Ta= -55°C to +150°C	2000 cyc	0/84
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/83
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/84
PC	J-STD-020 JESD-A113	MSL 1 @260°C	-	0/335
SAT	JEDEC STD 035	Pre and Post MSL 1	-	0/22
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 10 sec	-	0/15
PD	JESD22-B100	Per POD, case 751EB	-	0/30
CDPA	MILSTD750 Method 2037	Wire Pull after TC1000 cycles	-	0/5
CDPA	MILSTD750 Method 2037	Wire Pull after HTSL 1008hrs	-	0/5
DPA	AEC Q101-004 Section 4	Destructive Physical Analysis after TC1000 cycles	-	0/3
ED	Tri Temperature Characterization, Per 48A	Temp at 25°C, -55°C, 150°C with Thermal Resistance (Rth)	-	Passed

QV DEVICE NAME: FDS86240
RMS: P42846, O41790, P40040
PACKAGE: SOIC 8

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta = 150°C, 80% max rated V	1008 hrs	0/80
HTGB	JESD22-A108	Ta = 150°C, 100% max rated Vgss	1008 hrs	0/80
HTSL	JESD22-A103	Ta = 150°C	2016 hrs	0/80
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, delta Tj=100°C On/off = 2.0 min	30000 cyc	0/80
TC	JESD22-A104	Ta= -55°C to +150°C	1000 cyc	0/80
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/80
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	192 hrs	0/80
PC	J-STD-020 JESD-A113	MSL 1 @260°C	-	0/320
SAT	JEDEC STD 035	Pre and Post MSL 1	-	0/22
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 10 sec	-	0/15
PD	JESD22-B100	Per POD, case 751EB	-	0/30
CDPA	MILSTD750 Method 2037	Wire Pull after TC1000 cycles	-	0/5
DPA	AEC Q101-004 Section 4	Destructive Physical Analysis after TC1000 cycles	-	0/2
ED	Tri Temperature Characterization, Per 48A	Temp at 25°C, -55°C, 150°C with Thermal Resistance (Rth)	-	Passed

Electrical Characteristic Summary:

The temperature characterization meet datasheet specification. Electrical characteristics are not impacted. Detail of Electrical characterization result is available upon request.

List of Affected Standard Parts:

Part Number	Qualification Vehicle
FDS4435BZ	FDS6681Z
FDS4935BZ	
FDS6673BZ	
FDS6675BZ	
FDS6679AZ	
FDS6681Z	
FDS8858CZ	
FDS8958B	
FDS8447	FDS8978
FDS8449	
FDS8870	
FDS8876	
FDS8878	
FDS8880	
FDS8882	
FDS8884	
FDS8896	
FDS8949	
FDS8978	
FDS8978-F40	
FDS8984	
FDS8984-F40	

Note: There are Special/Customer specific parts impacted by this PCN, thus MPN & CPN info will be available to affected customers only by following the link on the Email notification to retrieve an addendum that contains a list of affected products specific to the company.

Appendix A: Changed Products

Product	Customer Part Number	Qualification Vehicle
FDS4435BZ		FDS6681Z
FDS4935BZ		FDS6681Z
FDS6673BZ		FDS6681Z
FDS6675BZ		FDS6681Z
FDS6679AZ		FDS6681Z
FDS6681Z		FDS6681Z
FDS8447		FDS8978
FDS8449		FDS8978
FDS8858CZ		FDS6681Z
FDS8870		FDS8978
FDS8876		FDS8978
FDS8878		FDS8978
FDS8880		FDS8978
FDS8882		FDS8978
FDS8884		FDS8978
FDS8896		FDS8978
FDS8949		FDS8978
FDS8958B		FDS6681Z
FDS8978		FDS8978
FDS8984		FDS8978