ON Semiconductor®

Final Product/Process Change Notification

Document # : FPCN22191XF
Issue Date: 23 April 2018

Title of Change:	SOIC-8 Insourcing to ON Semiconductor Carmona, Philippines (OSPI) Factory from GEM (China).
Proposed first ship date:	30 July 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 1816 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
☐ Manufacturing Process Change
☒ Material Change
☐ Product specific change
☐ Datasheet/Product Doc change
☒ Shipping/Packaging/Marking
☐ Other: _____

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

Description and Purpose:

This Final Notification announces to customers that ON Semiconductor's plans to expand Assembly and Test operations of the former Fairchild SO8 packaged products to an existing internal manufacturing site in ON Semiconductor Carmona, Philippines (OSPI). 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 ON Semiconductor Carmona, Philippines (OSPI).

MOSFETs will be qualified and released with Copper wire as part of this expansion in ON Semiconductor Carmona, Philippines (as per table in List of affected parts).

ON Semiconductor Carmona, Philippines 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, China. 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
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, China and ON Semiconductor Carmona, Philippines (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
FDS4465	FDS4465
FDS4470	FDS4470
FDS4480	FDS4480
FDS4501H	FDS4501H
FDS4672A	FDS4672A
FDS4675	FDS4675
FDS4685	FDS4685
FDS4897C	FDS4897C
FDS4935A	FDS4935A
FDS6375	FDS6375
FDS6574A	FDS6574A
FDS6575	FDS6575
FDS6576	FDS6576
FDS6679	FDS6679
FDS6892A	FDS6892A
FDS6898A	FDS6898A
FDS6898A-G	FDS6898A
FDS6986AS	FDS6986AS
FDS8958A	FDS8958A
FDS9435A	FDS9435A
FDS9435A-NBAD008	FDS9435A
FDS9926A	FDS9926A
FDS9934C	FDS9934C
SI4435DY	4435

Reliability Data Summary:

QV DEVICE NAME: FDS6679
RMS: P42845, O44646
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	15,000 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	-	0/22
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

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

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
FDS4465	FDS6679
FDS4470	FDS6679
FDS4480	FDS6679
FDS4501H	FDS6679
FDS4672A	FDS6679
FDS4675	FDS6679
FDS4685	FDS6679
FDS4897C	FDS6679
FDS4935A	FDS6679
FDS6375	FDS6679
FDS6574A	FDS6679

FDS6575	FDS6679
FDS6576	FDS6679
FDS6679	FDS6679
FDS6892A	FDS6679
FDS6898A	FDS6679
FDS6986AS	FDS6679
FDS8958A	FDS6679
FDS9435A	FDS6679
FDS9435A-NBAD008	FDS6679
FDS9926A	FDS6679
FDS9934C	FDS6679
SI4435DY	FDS6679
FDS6898A-G	FDS6679

Appendix A: Changed Products

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Product	Customer Part Number	Qualification Vehicle
FDS4465		FDS6679
FDS4470		FDS6679
FDS4480		FDS6679
FDS4501H		FDS6679
FDS4672A		FDS6679
FDS4675		FDS6679
FDS4685		FDS6679
FDS4897C		FDS6679
FDS4935A		FDS6679
FDS6375		FDS6679
FDS6574A		FDS6679
FDS6575		FDS6679
FDS6576		FDS6679
FDS6679		FDS6679
FDS6892A		FDS6679
FDS6898A		FDS6679
FDS6986AS		FDS6679
FDS8958A		FDS6679
FDS9435A		FDS6679
FDS9926A		FDS6679
FDS9934C		FDS6679
SI4435DY		FDS6679