ON Semiconductor®

Final Product/Process Change Notification

Document # : FPCN21481X
Issue Date: 5 January 2017

Title of Change:	0W635-004-XTP base substrate and MSL/max reflow temperature change
Proposed first ship date:	12 April 2017 or earlier upon customer approval
Contact information:	Contact your local ON Semiconductor Sales Office or <Christophe.WAELCHLI@onsemi.com>
Samples:	Contact your local ON Semiconductor Sales Office
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or <Tara.McDonald@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:	Base substrate will be green (currently, base substrate is white)
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:

☐ All site(s) ☐ not applicable ☒ ON Semiconductor site(s) : ON Burlington, Canada ☐ External Foundry/Subcon site(s)

Description and Purpose:

0W635-004-XTP base substrate change and MSL/maximum reflow temperature change as detailed in the table below:

	Before Change Description	After Change Description
Base substrate	96% Al_2O_3 (white)	BT resin based laminate (green)
MSL / max reflow temperature	MSL5 / 240˚C	MSL3 / 260˚C

Reliability Data Summary:

QV DEVICE NAME: 0W635-004-XTD, E7120-102A59-AG
PACKAGE: 127AB 5.97x3.43, SIP59 4.14 x 3.18

Test	Name	Test Conditions	End Point Req's[1]	Device	End Point	(Rej / SS)
PC	MSL3 Preconditioning	Precondition 30°C/60%RH 192 hrs, 3x reflow @ 260°C	c = 0, SAT, OI	0W635 laminate SIP	N/A	0 / 44
			c = 0, RTFET			0 / 107
TC-PC	Temp Cycle + Preconditioning	Precondition 30°C/60%RH 192 hrs, 3x reflow @ 260°C followed by cycling at: -40°C / +85°C, Air to Air, 15 min soak, 10C/min ramp.	c = 0, RTFET	0W635 laminate SIP	100 cy	0 / 219
TS-PC	Thermal Shock + Preconditioning	Precondition 30°C/60%RH 192 hrs, 3x reflow @ 260°C followed by shock at: -40°C / +85°C, Liquid to Liquid, 15 min soak, 10C/min ramp.	c = 0, RTFET	E7120 SIP	15 cy	0 / 75
HAST-PC	Highly Accelerated Stress Test + Preconditioning	Precondition 30°C/60%RH 192 hrs, 2x reflow @ 240°C followed by TA= +130C, RH = 85%, PSIG= 18.8, bias 1.3V/2.0V	c = 0, RTFET	E7120 SIP	96 hrs	0 / 73
SD	Solderability - Reflow	Precondition 30°C/60%RH 192 hrs, 3x reflow @ 260°C into solder paste	c = 0, RTFET, BS, OI	E7120 SIP	N/A	0 / 5
SDx	Solderability – Point to Point	Precondition 30°C/60%RH 192 hrs, point to point solder simulation 750°C 3sec x 3x each pad	c = 0, RTFET, BS, OI	E7120 SIP	N/A	0 / 5
HTS	High Temp Bake	150°C	c = 0, RTFET	0W635 ceramic SIP	288 Hrs	0 / 75
LS	Light Sensitivity	1000W	c = 0, RTFET	0W635 ceramic SIP	N/A	0 / 5
LU	Latch Up	+/-100mA	c = 0, RTFET	0W635 ceramic SIP	--	0 / 6
ESD-HBM	Electro-static Discharge, Human Body Model (HBM)	≤2kV	c = 0, RTFET	0W635 ceramic SIP	--	0 / 3
ESD-MM	Electro-static Discharge, Machine (MM)	≤200V	c = 0, RTFET	0W635 ceramic SIP	--	0 / 3

Table 1: Reliability Evaluation Results

1. C = 0, 0 failures from sample accepted
   RTFET = Room temperature functional electrical test
   SAT = Scanning acoustic tomography
   OI = Package optical inspection 40x magnification
   BS = Bump shear, failure interface classification only

Electrical Characteristic Summary: Electrical characteristics are not impacted.

List of affected Standard Parts:

Part Number	Qualification Vehicle
0W635-004-XTP	0W635-004-XTD
0W635-004-XTD	