ON Semiconductor

Final Product/Process Change Notification

Document # : FPCN21392X
Issue Date: 3 August 2016

Title of Change:	Qualification of Lead Frame raw material change used in the ON Semiconductor QFP80,TQFP100, TQFP120, QFP256J(28X28), QIP100E(14X20), SQFP64(10X10) and SQFP144(20X20) package types.
Proposed first ship date:	3 November 2016
Contact information:	Contact your local ON Semiconductor Sales Office or <Takeshi2.Hoshino@onsemi.com>,<Yutaka.Okamura@onsemi.com>,<Takehito.Tsukui@onsemi.com>,<Shuichi.Takahashi@onsemi.com>,<Naoki.Koyama@onsemi.com>,<Shinya.Okada@onsemi.com>,<Ikuo.Saeki@onsemi.com>,<Hiroshi.Kojima@onsemi.com>,<Tetsuya.Fukushima@onsemi.com>
Samples:	Contact your local ON Semiconductor Sales Office
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office
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:	Affected products will be identified with date code.
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 Tarlac City, Philippines ☐ External Foundry/Subcon site(s)

Description and Purpose:

This is a Final Process Change Notice to announce the replacement of existing lead frame raw material from C64730 to C19400 (C50710/C19400: ASTM code). The reason is that the existing lead frame raw material will no longer be available.

The table below shows comparison of mechanical and chemical properties between the two materials.

Material Name		C19400(Alternative)	C64730(Existing)
Mechanical properties			
Coefficient of Thermal Expansion	$X10^{-8}/K$	17.6	17.0
Thermal Conductivity	W (m·K)	262	150
Electrical Resistivity	μΩm	0.025	0.049
Electrical Conductivity	%IACS	65	35
Modulus Elasticity	KN/mm^2	121	125
Chemical properties			
Cu	%	Remain	Remain
Zn	%	0.05 ~ 0.20	0.2 ~ 0.5
Pb	%	Max 0.03	None
Fe	%	2.10 ~ 2.60	None
P	%	0.01 ~ 0.15	None
Sn	%	None	1.0 ~ 1.5
Ni	%	None	2.9 ~ 3.5
Si	%	None	0.5 ~ 0.9

Reliability Data Summary:

QV DEVICE NAME : LC75056PE-H
PACKAGE : QIP100

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	–	PASS
PC	JEITA ED-4701/300	MSL 3 @ 260 °C	2 times	PASS

QV DEVICE NAME : LC78683ES
PACKAGE : QFP80

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	-	PASS
PC	JEITA ED-4701/300	MSL 3 @ 260 °C	2 times-	PASS

QV DEVICE NAME : LC98800DFA-11L-D-2H
PACKAGE : QFP256

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	-	PASS
PC	JEITA ED-4701/300	MSL 3 @ 260 °C	2 times-	PASS

QV DEVICE NAME : LV25350PW-TLM-E
PACKAGE : SQFP64

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	-	PASS
PC	JEITA ED-4701/300	MSL 3 @ 260 °C	2 times-	PASS

QV DEVICE NAME : LC786961PW-11UF-LR-H
PACKAGE : SQFP144

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	-	PASS
PC	JEITA ED-4701/300	MSL 4 @ 260 °C	2 times-	PASS

QV DEVICE NAME : LC75090PT-H
PACKAGE : TQFP100

Test	Specification	Condition	Interval	Results
HTSL	JEITA ED-4701/200	Ta=150°C	1008 hrs	0/22
AC	JEITA ED-4701-3	Ta=121°C , 15psig	96 hrs	0/22
TC	JEITA ED-4701/100	Ta= -65°C to +150°C	100 cyc	0/22
SD	JEITA ED-4701/301	Ta = 245°C , 5 sec	-	PASS
PC	JEITA ED-4701/300	MSL 3 @ 260 °C	2 times-	PASS

Electrical Characteristic Summary:

Electrical characteristics are not impacted.

List of affected Standard Parts:	
Part Number	**Qualification Vehicle**
C88F83B0AU-TC-H	LC75090PT-H
C88F85D0AU-TC-H	LC75090PT-H
LC749000AT-8B15H	LC75090PT-H
LC75056E-H	LC75056PE-H
LC79430KNE-E	LC75056PE-H
LC87F5N62BU-QIP-E	LC75056PE-H
LC87F5NC8AVU-QIP-E	LC75056PE-H
LC87F5VP6AU-QIP-H	LC75056PE-H
LC87F5WC8AVU-QIP-H	LC75056PE-H
LC87F6AC8ALU-EJ-H	LC75056PE-H
LC87F7DC8AVU-QIP-H	LC75056PE-H
LC87F7NC8AVUEJ-2H	LC75056PE-H
LC87F7NJ2AVUEJ-2H	LC75056PE-H
LC87F7NP6AVUEJ-2H	LC75056PE-H
LC88F58B0AU-SQFPH	LV25350PW-TLM-E