ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20480

Generic Copy

Issue Date: 29-May-2014

TITLE: T4 UDFN Single Copper Wire Conversion

PROPOSED FIRST SHIP DATE: 29-Aug-2014

AFFECTED CHANGE CATEGORY(S): Assembly

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact your local ON Semiconductor Sales Office or Dianne von Borstel <d.von.borstel@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or Donna Scheuch <d.scheuch@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>.

DESCRIPTION AND PURPOSE:

ON Semiconductor has qualified 1.3 mil copper wire bonding on UDFN2020 6L T4S pad design wafer technology

Copper wire exhibits significantly better conductivity than gold or aluminium, enabling better heat dissipation and increased power ratings with thinner wire diameters.

Intermetallic growth in copper bonds is significantly slower than in gold wire bonds. This results in lower electrical resistance, lower heat generation and, ultimately, increased bond reliability and device performance. This is important for high temperature application.

Lower cost of copper wire makes it a competitive bonding wire alternative.

ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20480

Reliability Qualification and full electrical characterization over temperature have been performed.

RELIABILITY DATA SUMMARY:

Device type: NTLUS3A18PZ

Test	Name	Test Condition	Specification	Rd Pt	Lot A	Lot B	Lot C	Control
AC-PC	Preconditioning + Autoclave	TAmin = 121, RH = 100%, Pressure = 15 psig	JESD22-A102	96 Hr	0/77	0/77	0/77	0/77
HAST-PC	Precon Highly Accelerated Stress Test	TAmin = 130C, RH = 85%, Pressure = 18.8 psig	JESD22-A110D	96 Hr	0/77	0/77	0/77	0/77
HTSL	High Temperature Storage Life	TAmin = 150C	JESD22-A103	1008 Hr	0/77	0/77	0/77	0/77
IOL	Precon Intermittent Operational Life	Delta T =100C	MIL STD750, M 1037 AEC Q101	15000 cyc	0/77	0/77	0/77	0/77
HTGB	High Temperature Gate Bias	TAmin = 150C, TJmax = 150C	JESD22-A108	1008 Hr	0/77	0/77	0/77	0/77
HTRB	High Temperature Reverse Bias	TAmin = 150C, TJmax = 150C	JESD22-A108	1008 Hr	0/77	0/77	0/77	0/77
TC+PC	Temperature Cycling	TAmin = -65C, TAmax = 150C	JESD22-A104	1000 cyc	0/77	0/77	0/77	0/77
RSH	Resistance To Solder Heat	TAmin = 260C	JESD22-B106D	1000 cyc	0/77	0/77	0/77	0/77

ELECTRICAL CHARACTERISTIC SUMMARY:

There is no change in the electrical parametric performance. Characterization data is available upon request.

CHANGED PART IDENTIFICATION:

UDFN2020 6L T4S products assembled with the Copper Wire from the ON Semiconductor facility in Seremban, Malaysia will have a Finish Good Date Code beginning WW34 2014. 100% of the assembly run rate will be Cu bond wire after WW36 2014. WW34 & WW35 2014 may be a mix of Cu and Au bond wire.

List of affected General Parts:

NTLUS3A18PZTAG
NTLUS3A18PZTBG
NTLUS3A18PZTCG
NTLUS3A40PZTAG
NTLUS3A40PZTBG
NTLUS3A39PZTAG
NTLUS3A39PZTBG
NTLUS3A90PZTAG
NTLUS3A90PZTBG