ON Semiconductor

INITIAL PRODUCT/PROCESS CHANGE NOTIFICATION
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12-Mar-2009

SUBJECT: ON Semiconductor Initial Product/Process Change Notification #16229

TITLE: NCP3420 Gresham Fab Qualification and Copper Wire Qualification Notification

PROPOSED FIRST SHIP DATE: 12-Jul-2009

AFFECTED PRODUCT DIVISION: CCPG

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact your local ON Semiconductor Sales Office or David Chu < david.chu@onsemi.com >

NOTIFICATION TYPE:

Initial Product/Process Change Notification (IPCN)

First change notification sent to customers. IPCNs are issued at least 120 days prior to implementation of the change. An IPCN is advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan.

The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN).

This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 90 days prior to implementation of the change.

DESCRIPTION AND PURPOSE:

ON Semiconductor is qualifying the NCP3420 on a second fab process, Gresham ONBCD25. The products affected will be dual sourced from both TSMC and Gresham.

ON Semiconductor is qualifying the use of copper wire on the NCP3420. The wire-bonding for the affected devices will be dual sourced and will use either gold or copper wire.

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QUALIFICATION PLAN:

Gresham Qualification Plan

1. High Temp Op Life (125 ˚C Tj, Dynamic) 3 lots/vehicle	Demonstrate ≤1000 FIT
2. High Temp Storage (150 ˚C)3 lots/vehicle X 80 units/lot	504, 1008 hrs.
3. Pre-Conditioning MSL 3 lots/vehicle X 240 units/lot	
4. HAST (130 ˚C/85%RH) 3 lots/vehicle X 80 units/lot	96 hrs.
5. Autoclave (121 ˚C/100%RH/15PSIG)3 lots/vehicle X 80 units/lot	96 hrs.
6. Temp Cycling (-65 ˚C to +150 ˚C)3 lots/vehicle X 80 units/lot	500, 1000 cycles
7. External Visual Inspection	All Units
8. Wire Bond Pull Strength	3 lots
9. Bond Shear Test	3 lots
10. ESD - Human Body Model	3 lots
11. ESD - Machine Model	3 lots
12. Latch-Up	3 lots

13. Characterization: A minimum of 30 packaged units from each of the three qualification lots are to be characterized across the full temperature range of the device as documented in the datasheet

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Copper Wire Qualification Plan

#	TEST	NAME	TEST CONDITIONS	END POINT REQUIREMENTS	SS x No. Lots
1	Prep	Sample preparation and initial part testing	various	---	All
2	Initial Electrical	Initial Electrical Prior To PC	---	----	All
3	HTOL	High Temp Op Life	Ta=125°C for 1008hrs (JA108)	c = 0, Room	80 x 3 lots
4	PC	Preconditioning - MSL 1	J STD 020A , JA 113 IR reflow at 260°C, HAST, TC, AC	c = 0, Room	240 x 3 lots
5	HAST+PC	Highly Accelerated Stress Test	Temp = +130°C; RH = 85%, psig ~28 with bias** for 96hrs (JA110)	c = 0, Room	80 x 3 lots
6	TC+PC	Temp Cycling+ preconditioning	Temp = -65°C to +150°C; for 500 cycles (JA104B)	c = 0, Room	80 x 3 lots
7	AC+PC	Autoclave+ preconditioning	121°C/100% RH/15 PSIG for 96 hrs (JA102)	c = 0, Room	80 x 3 lots
8	HTSL	High Temp Storage Life	Ta=150°C for 1008hrs (JA103)	c = 0, Room	80 x 3 lots
9	RSH	Resistance to Solder Heat	TS=260C, Tdwell=10 sec. Test after RSH. SMD devices are fully submerged during test. (JESD22 B-106)	N/A	30 x 3 lots
10	DPA	DeProcessing Analysis	Post HAST+PC, post TC+PC, and post AC+PC		2 x 3 lots
11	ED	Tri-Temp Electrical Characterization	Characterization of all parameters	Room, Hot, Cold	30 units x 3 lots
12	TR	Thermal Resistance	Provide thermal comparison data to ensure spec compliance		10 units x 1 eval lot + 1 cont lot
13	Yield	Wirebond Related Yield Analysis	per assembly MRB procedure		All units x 3 lots
14	BPS	Bond Pull Strength	M2011 Condition C or D	30 bonds on min. 5 units	30 x 3 lots
15	BS	Bond Shear	AEC-Q100-001	30 bonds on min. 5 units	30 x 3 lots

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AFFECTED DEVICE LIST:

NCP3420DR2G
NCP3420MNR2G