



FINAL PRODUCT/PROCESS CHANGE NOTIFICATIONGeneric Copy

24 Apr 2009**SUBJECT: ON Semiconductor Final Product/Process Change Notification #16251****TITLE: NCP3420 Gresham Fab Qualification and Copper Wire Qualification Notice****PROPOSED FIRST SHIP DATE: 24 Jul 2009****AFFECTED PRODUCT DIVISION(S): CCPG****FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**Contact your local ON Semiconductor Sales Office or David Chu <david.chu@onsemi.com>**SAMPLES:** Contact your local ON Semiconductor Sales Office**ADDITIONAL RELIABILITY DATA:** AvailableContact your local ON Semiconductor Sales Office or Nicky Siu <nicky.siu@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 your local ON Semiconductor Sales Office.

DESCRIPTION AND PURPOSE:

ON Semiconductor has qualified the NCP3420DR2G on a second fab process, Gresham ONBCD25. The products affected will be dual sourced from both TSMC and Gresham wafer fabs.

ON Semiconductor has qualified the use of copper wire on the NCP3420DR2G. The wire-bonding for the affected device will be dual sourced and will use either gold or copper wire until gold wire inventory is depleted.

Due to the process change noted above, there have been changes to the electrical characteristics of the affected device. These changes are not expected to adversely affect the customer's application or the device's performance. See the electrical characteristics summary below for specific details about these changes.


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RELIABILITY DATA SUMMARY:
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

Copper Wire Qualification Plan

#	TEST	NAME	TEST CONDITIONS	END POINT REQUIREMENTS	SS x No. Lots	RESULTS
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	0/240
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	0/720
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	0/240
6	TC+PC	Temp Cycling+ preconditioning	Temp = -65°C to +150°C; for 500 cycles (JA104B)	c = 0, Room	80 x 3 lots	0/240
7	AC+PC	Autoclave+preconditioning	121°C/100% RH/15 PSIG for 96 hrs (JA102)	c = 0, Room	80 x 3 lots	0/240


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8	HTSL	High Temp Storage Life	Ta=150°C for 1008hrs (JA103)	c = 0, Room	80 x 3 lots	0/240
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	0/90
10	DPA	DeProcessing Analysis	Post HAST+PC, post TC+PC, and post AC+PC		2 x 3 lots	PASS
11	ED	Tri-Temp Electrical Characterization	Characterization of all parameters	Room, Hot, Cold	30 units x 3 lots	PASS
12	TR	Thermal Resistance	Provide thermal comparison data to ensure spec compliance		10 units x 1 eval lot + 1 cont lot	PASS
13	Yield	Wirebond Related Yield Analysis	per assembly MRB procedure		All units x 3 lots	PASS
14	BPS	Bond Pull Strength	M2011 Condition C or D	30 bonds on min. 5 units	30 x 3 lots	0/90
15	BS	Bond Shear	AEC-Q100-001	30 bonds on min. 5 units	30 x 3 lots	0/90

Reliability Test Results:
Available Upon Request


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ELECTRICAL CHARACTERISTIC SUMMARY:

Due to the process change noted above, the following electrical characteristics have changed. These changes will be reflected in the NCP3420 datasheet. All other electrical parameters will remain the same.

Parameter	Old Lower Limit	Old Typical Limit	Old Upper Limit	Revised Lower Limit	Revised Typical Limit	Revised Upper Limit
Output Resistance, Unbiased		15 kOhms		<u>10 kOhms</u>		<u>55 kOhms</u>
SW Pulldown Resistance		15 kOhms		<u>10 kOhms</u>		<u>55 kOhms</u>
Propogation Delay, tpdIODb	10ns	25ns	45ns	<u>1ns</u>	25ns	45ns
Propogation Delay, tpdhODb	10ns	25ns	45ns	1ns	25ns	45ns

AFFECTED DEVICE LIST

NCP3420DR2G