ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20093

Generic Copy

Issue Date: 19-Jun-2013

TITLE: Power Switching Products (PQ) QFN/DFN 2x2 Cu Wire BOM Qualification in UTAC, Thailand

PROPOSED FIRST SHIP DATE: 19-Sep-2013

AFFECTED CHANGE CATEGORY(S): Assembly Site

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact your local ON Semiconductor Sales Office or <wyler.montoya@onsemi.com >

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or <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 <quality@onsemi.com>.

DESCRIPTION AND PURPOSE:

This is a Final Process Change Notice notifying customers of ON Semiconductor that Power Switching devices built on QFN 2x2 are now qualified to use Cu wire BOM at UTAC, Thailand assembly facility.

The affected devices on this PCN are qualified in Cu Wire BOM in ON Semiconductor Seremban Assembly, while UTAC, Thailand is only qualified using Au Wire BOM. At the expiration of this PCN, UTAC Thailand can process these affected devices using Cu Wire BOM.

The full electrical characterization over temperature performed on the qualification vehicle confirmed meeting the device functionality and electrical specifications.

ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20093

RELIABILITY DATA SUMMARY:

Reliability Test Results:

Qual Vehicles

- NCP5901BMNTBG – DFN 2x2

#	Test	Name	Test Conditions	End Point Req's	Test Results	Lot A (rej/ ss)	Lot B (rej/ ss)	Lot C (rej/ ss)	Control (rej/ ss)
1	Prep	Sample preparation and initial part testing	various	---	Initial Electrical	Done	Done	Done	Done
2	HTSL	High Temp Storage Life	TA = 150°C for 1008hrs	c = 0, Room	504 hrs	0/80	0/80	0/80	0/80
					1008hrs	0/80	0/80	0/80	0/80
3	PC	Moisture Preconditioning	MSL 1 @ 260°C	c = 0, Room	Post PC	-	-	-	-
4	TC-PC	Precond. Temp Cycle	-65/+150°C air to air	c = 0, Room	Post PC	0/80	0/80	0/80	0/80
					250 cycs	0/80	0/80	0/80	0/80
					500 cycs	0/80	0/80	0/80	0/80
5	RSH	Resistance to Solder Heat	JESD22 – B106 260°C Immersion	c = 0, Room	Results	0/30	0/30	0/30	0/30
9	BPS	Bond Pull Strength	Cond C	30 bonds from 5 units **Cpk ≥ 1.67**	Results	0/30	0/30	0/30	
10	BS	Bond Shear Test	AEC-Q100-001	30 bonds from 5 units **Cpk ≥ 1.67**	Results	0/30	0/30	0/30	
11	ED	Electrical Distribution	Per ON Datasheet Critical Parameter	Room, Hot, Cold **Cpk ≥ 1.67**	Results	Pass			Pass

Generic Reliability data :

- NCP5269MNTWG – QFN 3x3

#	Test	Name	Test Conditions	End Point Req's	Test Results	Lot A (rej/ ss)	Lot B (rej/ ss)	Lot C (rej/ ss)	Control (rej/ ss)
1	Prep	Sample preparation and initial part testing	various	---	Initial Electrical	Done	Done	Done	Done
2	HTOL	High Temp Op Life	TA = 125°C for 1008hrs	c = 0, Room	504 hrs	0/80	0/80	0/78	
					1008 hrs	0/80	0/80	0/78	
3	HTSL	High Temp Storage Life	TA = 150°C for 1008hrs	c = 0, Room	504 hrs	0/80	0/80	0/80	0/80
					1008hrs	0/80	0/80	0/80	0/80
4	PC	Moisture Preconditioning	MSL 1 @ 260°C	c = 0, Room	Post PC	-	-	-	-
5	UHAST-PC	Precond. Autoclave	TA= +130°C, RH = 85%, PSIG= 18.8, No bias	c = 0, Room	Post PC	0/80	0/80	0/80	0/80
					96 hrs	0/80	0/80	0/80	0/80
6	TC-PC	Precond. Temp Cycle	-65/+150°C air to air	c = 0, Room	Post PC	0/80	0/80	0/80	0/80
					250 cycs	0/80	0/80	0/80	0/80
					500 cycs	0/80	0/80	0/80	0/80
7	HAST-PC	Precond. HAST	TA= +130°C, RH = 85%, PSIG= 18.8, bias	c = 0, Room	Post PC	0/79	0/80	0/79	0/78
					96 hrs	0/79	0/80	0/79	0/78

ON Semiconductor

#	Test	Name	Test Conditions	End Point Req's	Test Results	Lot A (rej/ ss)	Lot B (rej/ ss)	Lot C (rej/ ss)	Control (rej/ ss)
8	RSH	Resistance to Solder Heat	JESD22 – B106 260°C Immersion	c = 0, Room	Results	0/30	0/30	0/30	0/30
9	BPS	Bond Pull Strength	Cond C	30 bonds from 5 units **Cpk ≥ 1.67**	Results	0/30	0/30	0/30	
10	BS	Bond Shear Test	AEC-Q100-001	30 bonds from 5 units **Cpk ≥ 1.67**	Results	0/30	0/30	0/30	
11	ED	Electrical Distribution	Per ON Datasheet Critical Parameter	Room, Hot, Cold **Cpk ≥ 1.67**	Results	Pass	Pass	Pass	

ELECTRICAL CHARACTERISTIC SUMMARY:

Electrical characteristic meet or exceeds the device specification.

CHANGED PART IDENTIFICATION:

At the expiration of this FPCN, UTAC, Thailand facility will follow ON Semiconductor standard marking for QFN packages. Assembly location can be identified by the assembly code seen on the top marking.

UTAC assembly code: G
Seremban Assembly Code: R

List of affected General Parts:

NCP5901BMNTBG
NCP5901BEMNTBG
NCP5901EMNTBG
NCP5901MNTBG
NCP81161MNTBG
NCP81151MNTBG
NCP5911MNTBG
FXS02
NCP81051MNTBG