ON Semiconductor

Final Product/Process Change Notification

Document # : FPCN20419Z
Issue Date: 30 June 2015

Title of Change:	Transfer of Punch QFN 5x5 mm body size with Matte tin lead finish to Amkor Philippines (P1) due to Amkor Korea (K1) Closure
Proposed first ship date:	30 June 2016 or earlier upon customer approval
Contact information:	Contact your local ON Semiconductor Sales Office
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 12months prior to implementation of the change or earlier upon customer approval. 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 by datecode following the Assembly location code of new site as 'L'.
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) :

☒ External Foundry/Subcon site(s)
Amkor Technology Korea K1
Amkor Technology Philippines P1

Description and Purpose:

Amkor is closing the Korea K1 Plant per type of package. Assembly manufacturing operations for all Leadframe products now assembled in K1 will need to move to Philippines, P1 Plant.

K1 bill of materials and process will be supported in P1.

There will be no impact on fit/form/function/quality level of the device.

Summarize on the table below are the packages for transfer and its equivalent bill of materials:

BOM for Matte Tin Lead finish	ATK1	ATP1	Remarks
Leadframe	CuAg	CuAg	No Change
Epoxy	CRM1085A	CRM1085A	No Change
Mold compound	G700	G700	No Change

Reliability Data Summary:

This report summarizes the results of the reliability tests performed at OSPI to qualify Amkor Technology Philippines assembly site for QFN Punch package using 0.8 mil Au wire bond, EMEG700 mold compound and CRM1085A die-attach. Solder reflow peak temperature during qualification is 260°C. NCV7518MWTXG was used as qualification vehicle. All reliability tests conducted per plan were completed with passing results.

Test	Name	Test Condition	End Point Req's	Test Results	(rej/ss)	(rej/ss)	(rej/ss)
				Read Point	Qual Lot A	Qual Lot B	Qual Lot C
Prep	Sample preparation and initial part testing	Various	---	Initial Electrical	Done	Done	Done
HTOL	High Temperature Operating Life	Tj = +150°C for 1512 hours	c = 0, Room, Hot	504 Hrs	0/80	0/80	0/80
				1008 Hrs	0/80	0/80	0/80
				1512 Hrs	0/80	0/80	0/80
HTSL	High Temp Storage Life	Ta = +175°C for 1008 hours	c = 0, Room, Hot	504 Hrs	0/79	0/80	0/80
				1008 Hrs	0/79	0/80	0/80
PC	MSL3 Preconditioning	3x IR @ 260 deg C	c = 0, Room, Hot	Post Electrical	0/249	0/250	0/250
PC-TC	Preconditioning +Temp Cycle	Temp = -65°C to +150°C; for 1000 cycles	c = 0, Hot	Post PC Electrical	0/90	0/90	0/90
				500 cycles	0/86	0/87	0/89
				1000 cycles	0/77	0/78	0/80
PC-AC	Preconditioning + Autoclave	Temp = +121°C; RH = 100%, psig ~15 for 96hr	c = 0, Room	Electrical	0/80	0/80	0/80
				96 hrs	0/79	0/80	0/80
PC-HAST	Preconditioning + Highly Accelerated Stress Test	Temp = +130°C; RH = 85%, psig ~28 for 96hr	c = 0, Room, Hot	Post PC Electrical	0/79	0/80	0/80
				96 hrs	0/79	0/80	0/80
SAT	Scanning Acoustic Tomography	Compare for Delamination before and after PC	Compare to existing data	Time Zero	0/10	0/10	0/10
				Post MSL3	0/10	0/10	0/10
WBP	Custom Destructive Physical Analysis	Wire Bond Pull Test following TC 500cy	Minimum 3.0 grams; Cpk > 1.33	30 bonds minimum	0/30	0/30	0/30
DPA1	Destructive Physical Analysis	Following PC-TC	Compare to AEC Criteria + ILD & Passivation Crack Inspection	Results	0/4	0/4	0/4
DPA2	Destructive Physical Analysis	Following PC-HAST	Compare to AEC Criteria + Passivation Crack Inspection	Results	0/2	0/2	0/2
SD	Solderability	Solder Temp= 245oC	Visual Inspection	0/15	0/15	0/15	0/15
PD	Physical Dimension Inspection	Cpk > 1.33	Inspection	0/10	0/10	0/10	0/10

Electrical Characteristic Summary:

Electrical characteristics are not impacted

List of Affected Standard Parts:

Part Number	Qualification Vehicle
NCV7518MWTXG	NCV7518MWTXG