



Final Product/Process Change Notification

Document # : FPCN21855X

Issue Date: 28 August 2017

Title of Change:	Qualification of new solder die attach composition as alternative of die attach material for Trench IGBTs of TO247 package in On Semiconductor Vietnam (OSV)											
Proposed first ship date:	5 December 2017 or earlier upon customer approval											
Contact information:	Contact your local ON Semiconductor Sales Office or <dong.ta@onsemi.com>											
Samples:	Contact your local ON Semiconductor Sales Office or <dong.ta@onsemi.com>											
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or <cheanching.sim@onsemi.com>											
Type of notification:	<p>This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change.</p> <p>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>.</p>											
Change Part Identification:	Products from ON Semiconductor Vietnam (OSV) will be marked with site code "VN" prior to date code											
Change category:	<input type="checkbox"/> Wafer Fab Change <input checked="" type="checkbox"/> Assembly Change <input type="checkbox"/> Test Change <input type="checkbox"/> Other _____											
Change Sub-Category(s):	<input type="checkbox"/> Manufacturing Site Change/Addition <input checked="" type="checkbox"/> Material Change <input type="checkbox"/> Datasheet/Product Doc change <input type="checkbox"/> Manufacturing Process Change <input type="checkbox"/> Product specific change <input type="checkbox"/> Shipping/Packaging/Marking <input type="checkbox"/> Other: _____											
Sites Affected:	<input type="checkbox"/> All site(s) <input type="checkbox"/> not applicable <input checked="" type="checkbox"/> ON Semiconductor site(s) : ON Dong Nai Province, Vietnam <input type="checkbox"/> External Foundry/Subcon site(s)											
Description and Purpose:												
<p>This FPCN announces the qualification of a new solder die attach composition as alternative of the current die attach material for Trench IGBTs of TO247 package in On Semiconductor Vietnam (OSV). There is no change to the supplier.</p> <p>Currently, these devices using the solder composition Pb95Sn5 as die attach material in ON Semiconductor Vietnam (OSV). The new solder composition Sn25Ag10Sb is being added as alternative of die attach material in ON Semiconductor Vietnam (OSV).</p>												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;"></th> <th style="width: 50%; text-align: center;">Before Change</th> <th style="width: 25%; text-align: center;">After Change</th> </tr> <tr style="background-color: #c8e6c9;"> <th></th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top;">solder die attach composition</td> <td style="text-align: center; vertical-align: top;">Pb95Sn5 Supplier: Heraeus</td> <td style="text-align: center; vertical-align: top;">Pb95Sn5 Sn25Ag10Sb Supplier: Heraeus</td> </tr> </tbody> </table>					Before Change	After Change		Description	Description	solder die attach composition	Pb95Sn5 Supplier: Heraeus	Pb95Sn5 Sn25Ag10Sb Supplier: Heraeus
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	Description	Description										
solder die attach composition	Pb95Sn5 Supplier: Heraeus	Pb95Sn5 Sn25Ag10Sb Supplier: Heraeus										
<u>Change benefits:</u> Flexibility of solder die attach using												
<p>This solder composition Sn25Ag10Sb has been used successfully as die attach material in Tongfu Microelectronics (TFME) and now will be added as alternative in On Semiconductor Vietnam (OSV).</p> <p>Upon the expiration of this FPCN, TO247 packaged Trench IGBTs for the affected devices will be used in either of the two solder die attach composition Pb95Sn5 or Sn25Ag10Sb for die attach material in ON Semiconductor Vietnam (OSV) location. These products have been qualified to industrial requirements. These products will be Pb-free, Halide free and RoHS compliant.</p>												

**Reliability Data Summary:**

QV DEVICE NAME:NGTB40N120IHRWG

PACKAGE: TO247

Test	Specification	Condition	Interval	Result
HTSL	JESD22-A103	Ta = 175 °C	1008 hrs	0/240
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, deltaTj=100°C max, Ton = Toff = 5min	6000 cyc	0/240
TC	JESD22-A104	Temp = -55°C to +150°C	1000 cyc	0/240
UHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/240
H3TRB	JESD22-A101	Temp = 85°C, RH=85%, bias = 100V	1008 hrs	0/240
RSH	JESD22- B106	Ta = 265°C, 10 sec		0/90

QV DEVICE NAME: NGTB50N120FL2WG

PACKAGE: TO247

Test	Specification	Condition	Interval	Result
HTSL	JESD22-A103	Ta = 175 °C	1008 hrs	0/240
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, deltaTj=100°C max, Ton = Toff = 5min	6000 cyc	0/240
TC	JESD22-A104	Temp = -55°C to +150°C	1000 cyc	0/240
UHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/240
H3TRB	JESD22-A101	Temp = 85°C, RH=85%, bias = 100V	1008 hrs	0/240
RSH	JESD22- B106	Ta = 265°C, 10 sec		0/90

QV DEVICE NAME:NGTB75N65FL2WG

PACKAGE: TO247

Test	Specification	Condition	Interval	Result
HTSL	JESD22-A103	Ta = 175 °C	1008 hrs	0/240
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, deltaTj=100°C max, Ton = Toff = 5min	6000 cyc	0/240
TC	JESD22-A104	Temp = -55°C to +150°C	1000 cyc	0/240
UHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/240
H3TRB	JESD22-A101	Temp = 85°C, RH=85%, bias = 100V	1008 hrs	0/240
RSH	JESD22- B106	Ta = 265°C, 10 sec		0/90

Electrical Characteristic Summary:

Electrical characteristics are not impacted.



List of affected Standard Parts:

Part Number	Qualification Vehicle
NGTB15N120IHRWG	NGTB40N120IHRWG
NGTB15N120IHWG	
NGTB20N120IHRWG	
NGTB20N120IHWG	
NGTB30N120IHRWG	
NGTB40N120IHRWG	
NGTB15N135IHRWG	
NGTB20N135IHRWG	
NGTB30N135IHRWG	
NGTB30N135IHR1WG	
NGTB40N135IHRWG	
NGTB40N65IHRWG	
NGTB15N120FL2WG	
NGTB25N120FL2WG	
NGTB25N120SWG	
NGTB30N120FL2WG	
NGTB30N120L2WG	
NGTB40N120FL2WG	
NGTB40N120SWG	
NGTB50N120FL2WG	



Part Number	Qualification Vehicle
NGTB30N60IHLWG	
NGTB30N65IHL2WG	
NGTB35N60FL2WG	
NGTB35N65FL2WG	
NGTB40N60FL2WG	
NGTB40N60L2WG	
NGTB40N65FL2WG	
NGTB40N65IHL2WG	
NGTB45N60S1WG	
NGTB45N60S2WG	
NGTB45N60SWG	NGTB75N65FL2WG
NGTB50N60FL2WG	
NGTB50N60L2WG	
NGTB50N60S1WG	
NGTB50N60SWG	
NGTB50N65S1WG	
NGTB50N65FL2WG	
NGTB60N65FL2WG	
NGTB75N60FL2WG	
NGTB75N60SWG	
NGTB75N65FL2WG	