



FINAL PRODUCT/PROCESS CHANGE NOTIFICATIONGeneric Copy

15 Oct 2009**SUBJECT: ON Semiconductor Final Product/Process Change Notification #16346****TITLE: Solder Die Attach for the SOT223 Package****PROPOSED FIRST SHIP DATE: 15 Jan 2010****AFFECTED CHANGE CATEGORY(S): Die Attach Assembly****AFFECTED PRODUCT DIVISION(S):** Thyristor Division
Power MOSFET Division
Automotive Power Division**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**Contact your local ON Semiconductor Sales Office or Brian Goodburn<brian.goodburn@onsemi.com>**SAMPLES:** Contact your local ON Semiconductor Sales**ADDITIONAL RELIABILITY DATA:** AvailableContact your local ON Semiconductor Sales Office Office, or Donna Scheuch<d.scheuch@onsemi.com>
or Laura Rivers<laura.rivers@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:

This is a Final Product Change Notice for using a soft solder Die attach material for the SOT223 package. The material change will be going from an Epoxy to a Solder for Die attach. This FPCN is being issued for MOSFET, Thyristor, and Smart Discrete products.

Product changing to the soft solder Die attach material in the SOT223 package can be rated as MSL-1 instead of the current MSL-3 rating with the epoxy. Additionally, Power Devices built with solder will have improved electrical and thermal conductivity over Devices built with epoxy.

All Qualification and Reliability testing have been completed, and have passed all established criteria. Electrical characterization over temperature has been performed showing similar results between product built with soft solder and epoxy.

**Final Product/Process Change Notification #16346****RELIABILITY DATA SUMMARY:**

MMFT960T1G (MOSFET) – 3 separate assembly lots

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta=25°C, delta Tj=100°C, 2-min on/off, 15K- cy

Results: 0/168

Test: Temperature Cycling (TC-PC)

Conditions: Ta=-65°C/150°C, Air-to-Air, Dwell >=10-min, 1000-cycles

Results: 0/252

Test: Highly Accelerated Stress Test (HAST-PC)

Conditions: Vds=80% rated Voltage, Ta=131°C, RH=85%, P=18.8psig, 96-Hrs

Results: 0/252

Test: Highly Accelerated Stress Test (U-HAST-PC)

Conditions: Vds=80% rated Voltage, Ta=131°C, RH=85%, P=18.8psig, 96-Hrs

Results: 0/252

Test: Autoclave Test (AC-PC)

Conditions: Ta=121°C, P=15psi, RH=100%, 96-Hrs

Results: 0/252

Test: Resistance to Solder Heat

Conditions: Ta= 260°C, Dwell Time= 10-Sec, Immersion

Results: 0/90

NIF5003NT1G (Smart Discrete) – 3 separate assembly lots

Test: Intermittent Operating Life (IOL-PC)

Conditions: Ta=25°C, delta Tj=100°C, 2-min on/off, 15K- cy

Results: 0/168

Test: Temperature Cycling (TC-PC)

Conditions: Ta=-65°C/150°C, Air-to-Air, Dwell >=10-min, 1000-cycles

Results: 0/252

Test: Highly Accelerated Stress Test (HAST-PC)

Conditions: Vds=80% rated Voltage, Ta=131°C, RH=85%, P=18.8psig, 96-Hrs

Results: 0/252

Test: Highly Accelerated Stress Test (U-HAST-PC)

Conditions: Vds=80% rated Voltage, Ta=131°C, RH=85%, P=18.8psig, 96-Hrs

Results: 0/252

Test: Autoclave Test (AC-PC)

Conditions: Ta=121°C, P=15psi, RH=100%, 96-Hrs

Results: 0/252

Test: Resistance to Solder Heat

Conditions: Ta= 260°C, Dwell Time= 10-Sec, Immersion

Results: 0/90

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Z0103MNT1G (Thyristor) – 3 separate assembly lots

Test: High Temperature Reverse Bias (HTRB)

Conditions: $V_{ds} = 80\%$ V_{ds} rating, $T_a = 85^\circ\text{C}$, 1008-Hrs

Results: 0/252

ELECTRICAL CHARACTERISTIC SUMMARY:

There is no change in electrical parametric performance. Characterization data is available upon request.

CHANGED PART IDENTIFICATION:

The SOT223 Products assembled with the 'soft solder Die attach material' from ON Semiconductor will have a Finish Good Date Code representing Work Week 01, 2010 and newer.

**Final Product/Process Change Notification #16346****AFFECTED DEVICE LIST**

MAC08BT1G	NTF3055-100T1
MAC08MT1G	NTF3055-100T1G
MCR08BT1G	NTF3055-100T3
MCR08MT1G	NTF3055-100T3G
MMFT2406T1G	NTF3055-100T3LF
MMFT960T1	NTF3055-160T1G
MMFT960T1G	NTF3055L108T1
NCV8402STT1G	NTF3055L108T1G
NCV8402STT3G	NTF3055L108T3
NCV8403STT1G	NTF3055L108T3G
NCV8403STT3G	NTF3055L108T3LF
NCV8440STT1G	NTF3055L108T3LFG
NCV8440STT3G	NTF3055L175T1
NCV8450STT3G	NTF3055L175T1G
NIF5002NT1	NTF5P03T3
NIF5002NT1G	NTF5P03T3G
NIF5002NT3	NTF6P02T3
NIF5002NT3G	NTF6P02T3G
NIF5003NT1G	NYC222STT1G
NIF5003NT3G	NYC226STT1G
NIF625143T1G	NYC228STT1G
NIF625143T3G	SCR5129SG
NIF9N05CLT1	SMBF1066T1
NIF9N05CLT1G	SMBF1066T1G
NTF2955PT1	SMFT3355VLT3
NTF2955PT1G	Z0103MNT1G
NTF2955T1	Z0107MNT1G
NTF2955T1G	Z0109MNT1G