ON Semiconductor®

# Final Product/Process Change Notification

Document # : FPCN21831X
Issue Date: 10 August 2017

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|---|---|
| **Title of Change:** | Metal Mask Update to Fix AC On/Off issue at high temperature. |
| **Proposed first ship date:** | 17 November 2017 |
| **Contact information:** | Contact your local ON Semiconductor Sales Office or <Lubomir.Adamek@onsemi.com> |
| **Samples:** | Contact your local ON Semiconductor Sales Office or <Lubomir.Adamek@onsemi.com> |
| **Additional Reliability Data:** | Contact your local ON Semiconductor Sales Office or <Tomas.Vajter@onsemi.com >. |
| **Type of notification:** | This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change.<br>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:** | Product Marked with a date code after 09/2017 |
| **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) : ON Gresham, Oregon ☐ External Foundry/Subcon site(s)

**Description and Purpose:**

ON semiconductor will release an upgraded version - metal tweak of HV die. The new silicon incorporates improved discharge circuit. This upgraded version will replace the controller currently available.

Issue description:

- IC fails @ AC ON/OFF high temperature tests reported by customer
- Fail phenomenon was observed in HV DIE of the IC i.e. melted metal that connects HV HB structure shielding ring to VCC

Solution:

- Reducing the discharge current by increasing the resistor in internal discharge circuit.
- This value of current is safe for HV die even under extra high temperatures (above TSD).
- The modification is done via metal (M1, Via1, and M2) reconnection of resistors present on the die.
- Other parameters of the HV die are not affected by the discharge current reduction

**Reliability Data Summary:**

| Test | Specification | Condition | Interval | Results |
|---|---|---|---|---|
| ED | Electrical Distribution | Critical Parameters Room, Hot, Cold | Room, Hot, Cold | All results within specification |

**Electrical Characteristic Summary:**

Electrical characteristics are not impacted.

| List of Affected Standard Parts: |
|---|
| NCP1399AADR2G |
| NCP1399BADR2G |
| NCP1399ACDR2G |
| NCP1399AFDR2G |
| NCP1399AGDR2G |
| NCP1399AHDR2G |
| NCP1399AIDR2G |
| NCP1399AMDR2G |
| NCP1399ANDR2G |

**List of Affected Customer Specific Parts:**

*NOTE: Please be informed that parts impacted by this PDN/PCN are Special/Customer specific parts, thus MPN & CPN info will be available to affected customers only by clicking the "Custom PCN for Selected Company Button" in the Document Analysis page of PCMS/PCN Alert.*