



Initial Product/Process Change Notification

Document #: IPCN21292ZO

Issue Date: 05 Apr 2023

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|---|---|
| Title of Change: | Qualification of VHVIC (Very High Voltage IC) Technology at onsemi Aizu Japan - Automotive Release |
| Proposed Changed Material First Ship Date: | 04 Feb 2024 or earlier if approved by customer |
| Current Material Last Order Date: | N/A <i>Orders received after the Current Material Last Order Date expiration are to be considered as orders for new changed material as described in this PCN. Orders for current (unchanged) material after this date will be per mutual agreement and current material inventory availability.</i> |
| Current Material Last Delivery Date: | N/A <i>The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory</i> |
| Product Category: | Active components – Integrated circuits |
| Contact information: | Contact your local onsemi Sales Office or Scott.Brow@onsemi.com |
| PCN Samples Contact: | Contact your local onsemi Sales Office to place sample order. Sample requests are to be submitted no later than 45 days after publication of this change notification. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements. |
| Additional Reliability Data: | Contact your local onsemi Sales Office or Tomas.Vajter@onsemi.com |
| Type of Notification: | This is an Initial Product/Process Change Notification (IPCN) sent to customers. An IPCN is an advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan. The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN). This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 6 months prior to implementation of the change. In case of questions, contact <PCN.Support@onsemi.com> . |
| Change Category | |
| Category | Type of Change |
| Process - Wafer Production | New / change of wafer substrate material, Move of all or part of wafer fab to a different location/site/subcontractor |

Description and Purpose:

onsemi would like to notify its customers of the qualification of our Very High Voltage IC (VHVIC) Technology at our onsemi Aizu, Japan FAB. This qualification enables expanded capacity for this technology. All products listed in this IPCN may be dual sourced from either the current onsemi wafer FAB in Gresham, OR US or onsemi Aizu, Japan. This is the latest PCN associated with this change. This technology was previously qualified into Aizu and has been running at this FAB for > 5 years for other products in this technology. Reference FPCN21292X-FPCN21292XQ for previous notifications on this equivalent change.

| Change Item | Before Change Description | After Change Description | |
|-------------------------|---------------------------|--------------------------|---------------------|
| FAB | onsemi Gresham, USA | onsemi Aizu, Japan | onsemi Gresham, USA |
| Substrate Epi Thickness | 60um | 3um | 60um |

Automotive devices NCV1077CSTBT3G and NCV1077STBT3G were originally released to production in Aizu and will only have the substrate Epi Thickness change as part of this notification.

| | From | To |
|-------------------------|------|-----|
| Substrate Epi Thickness | 60um | 3um |

There is no product marking change as a result of this change.

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|---|---|--------------------------------------|
| Reason / Motivation for Change: | Capacity improvement | |
| Anticipated impact on fit, form, function, reliability, product safety or manufacturability: | The device will be qualified and validated based on the same Product Specification. No anticipated impacts. | |
| Sites Affected: | | |
| onsemi Sites | | External Foundry/Subcon Sites |
| onsemi Aizu, Japan | | None |
| Marking of Parts/ Traceability of Change: | Product out of Aizu, Japan can be identified on the label by referring to the "Diffused In" location. If produced in Aizu, it will show JP, if produced in Gresham, it will show US. Product will also be identifiable by trace codes and lot numbers associated with the product. onsemi cannot lot combine product from (2) different wafer FABs on the same reel of product. | |

Reliability Data Summary:

QV DEVICE NAME NCV1060BD100R2G
RMS O85340
PACKAGE SOIC10 AU SNGL HPBF

| Test | Specification | Condition | Interval |
|---------|----------------------|--|----------|
| HTOL | JESD22-A108 | Ta=125°C, 100 % max rated Vcc, HV=700V | 2016 hrs |
| HTSL | JESD22-A103 | Ta= 150°C | 2016 hrs |
| PC | J-STD-020 JESD-A113 | MSL1 @ 260 °C | |
| TC | JESD22-A104 | Ta= -65°C to +150°C | 1000 cyc |
| HAST | JESD22-A110 | 130°C, 85% RH, 18.8psig, bias | 96 hrs |
| uHAST | JESD22-A118 | 130°C, 85% RH, 18.8psig, unbiased | 96 hrs |
| BPS | M883 Method 2011 | 3gm Pull Force Min | |
| BPS | M883 Method 2011 | 3gm Pull Force Min After TC500/1000 & HAST96/192 | |
| BS | AEC-Q100-001 | | |
| BS | AEC-Q100-001 | After TC500/1000 & HAST96/192 | |
| ESD HBM | Per device datasheet | Target HBM 2kV | |
| ESD CDM | Per device datasheet | Target 1kV | |
| LU | Per device datasheet | +/-100mA | |
| ED | ON Data Sheet | Cpk > 1.67 Test @ R, H, C | Cpk>1.67 |

QV DEVICE NAME NCV5183DR2G
RMS O89561
PACKAGE SOIC 8N VHVIC PB FREE

| Test | Specification | Condition | Interval |
|---------|----------------------|--|----------|
| HTOL | JESD22-A108 | Ta=125°C, 100 % max rated Vcc, HV=800V | 2016 hrs |
| ELFR | JESD22-A108 | Ta=125°C, 100 % max rated Vcc | 48 hrs |
| HTSL | JESD22-A103 | Ta= 150°C | 2016 hrs |
| PC | J-STD-020 JESD-A113 | MSL1 @ 260 °C | |
| TC | JESD22-A104 | Ta= -65°C to +150°C | 1000 cyc |
| HAST | JESD22-A110 | 130°C, 85% RH, 18.8psig, bias | 192 hrs |
| uHAST | JESD22-A118 | 130°C, 85% RH, 18.8psig, unbiased | 96 hrs |
| RSH | JESD22- B106 | Ta = 265C, 10 sec | |
| BPS | M883 Method 2011 | 3gm Pull Force Min | |
| BPS | M883 Method 2011 | 3gm Pull Force Min After TC500/1000 & HAST96/192 & HTSL1008/2016 | |
| BS | AEC-Q100-001 | | |
| BS | AEC-Q100-001 | After TC500/1000 & HAST96/192 | |
| ESD HBM | Per device datasheet | Target HBM 2kV | |
| ESD CDM | Per device datasheet | Target 1kV | |
| LU | Per device datasheet | +/-100mA | |
| ED | ON Data Sheet | Cpk > 1.67 Test @ R, H, C | Cpk>1.67 |

Electrical Characteristics Summary:

Electrical characteristics are not impacted.

List of Affected Parts:

Note: Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the [PCN Customized Portal](#).

| Current Part Number | New Part Number | Qualification Vehicle |
|---------------------|-----------------|-----------------------|
| NCV1077STBT3G | N/A | NCV1060BD060R2G |
| NCV1077CSTBT3G | N/A | NCV1060BD060R2G |
| NCV1034DR2G | N/A | NCV5183DR2G |
| NCV5183DR2G | N/A | NCV5183DR2G |
| NCV5104DR2G | N/A | NCV5183DR2G |



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|-----------------|-----|-----------------|
| NCV5106ADR2G | N/A | NCV5183DR2G |
| NCV1397BDR2G | N/A | NCV5183DR2G |
| NCV1397ADR2G | N/A | NCV5183DR2G |
| NCV1063AD100R2G | N/A | NCV1060BD060R2G |
| NCV1063AD060R2G | N/A | NCV1060BD060R2G |
| NCV1060BD100R2G | N/A | NCV1060BD060R2G |
| NCV1060BD060R2G | N/A | NCV1060BD060R2G |