# Product Change Notification / GBNG-03UMRU813

## Date:

15-Aug-2022

## Product Category:

Clock and Timing - Clock and Data Distribution, Clock and Timing - Clock Generation, Clock and Timing - Oscillators

## PCN Type:

Manufacturing Change

## Notification Subject:

CCB 4479 Final Notice: Qualification of NSEB and UTL3 as a new assembly site for selected PL123xx, PL133xx, PL135xx, PL610xx and PL611xx device families available in 6L UDFN (1.3x2.0x0.6mm) package.

## Affected CPNs:

GBNG-03UMRU813_Affected_CPN_08152022.pdf
GBNG-03UMRU813_Affected_CPN_08152022.csv

## Notification Text:

**PCN Status:**Final Notification

**PCN Type:**Manufacturing Change

**Microchip Parts Affected:**Please open one of the files found in the Affected CPNs section.
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

**Description of Change:**Qualification of NSEB and UTL3 as a new assembly site for selected PL123xx, PL133xx, PL135xx, PL610xx and PL611xx device families available in 6L UDFN (1.3x2.0x0.6mm) package.

**Pre and Post Change Summary:**

| | | Pre Change | Post Change | |
|---|---|---|---|---|
| Assembly Site | | TAIWAN IC PACKING CORP<br>(TICP) | UTAC Thai Limited (UTL-1) LTD (NSEB) | UTAC Thai Limited (UTL-3) |
| Wire Material | | Au | Au | Au |
| Die Attach Material | | EN4900GC | 8600 | 8600 |
| Molding Compound Material | | CEL-9220HF | G700LTD | G700LTD |
| Lead-Frame | Material | C7025 | C194 | C194 |
| | Paddle Size | 43X50 | 43X45 | 43X45 |
| | Design | See Pre and Post change comparison. | | |

**Impacts to Data Sheet:**None

**Change Impact:**None

**Reason for Change:**To improve on-time delivery performance by qualifying NSEB and UTL3 as a new assembly site.

**Change Implementation Status:**In Progress

**Estimated First Ship Date:**September 09, 2022 (date code: 2237)

Note: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

**Time Table Summary:**

| | December 2020 | | | | | > | August 2022 | | | | | September 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Workweek | 49 | 50 | 51 | 52 | 53 | | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| Initial PCN Issue Date | | | | x | | | | | | | | | | | |
| Qual Report Availability | | | | | | | | | x | | | | | | |
| Final PCN Issue Date | | | | | | | | | x | | | | | | |
| Estimated | | | | | | | | | | | | x | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Implementation Date | | | | | | | | | | | | | | | |

**Method to Identify Change:**Traceability code

**Qualification Report:**Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

**Revision History:**December 23, 2020: Issued initial notification.
August 15, 2022: Issued final notification. Update PCN letter to include UTL-3 as a new assembly site. Attached the qualification report. Provided estimated first ship date to be on September 09, 2022.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

## Attachments:

PCN_GBNG-03UMRU813_Pre and Post Change Summary.pdf
PCN_GBNG-03UMRU813_Qual Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

**Terms and Conditions:**

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If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

# QUALIFICATION REPORT SUMMARY

## PCN#: GBNG-03UMRU813

Date:
July 27, 2022

## Qualification of NSEB and UTL3 as a new assembly site for selected PL123xx, PL133xx, PL135xx, PL610xx and PL611xx device families available in 6L UDFN (1.3x2.0x0.6mm) package.

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# PACKAGE QUALIFICATION REPORT

| | |
|---|---|
| **Purpose** | Qualification of UTL3 as a new assembly site for selected PL123xx, PL133xx, PL135xx, PL610xx and PL611xx device families available in 6L UDFN (1.3x2.0x0.6mm) package. |
| **CN** | ES360151 |
| **QUAL ID** | R2101043 Rev. B |
| **MP CODE** | UGMC1SHXAA03 |
| **Part No.** | PL611S-02-D69GC-R |
| **Bonding No.** | BDM-002790 Rev. C |
| **CCB No.** | 4479 |
| **Package** | |
| **Type** | 6L UDFN |
| **Package size** | 1.3x2.0x0.6 mm |
| **Lead Frame** | |
| **Paddle size** | 43 x 45 mils |
| **Material** | C194 |
| **Surface** | PPF |
| **Process** | Etched |
| **Lead Lock** | Yes |
| **Part Number** | F70020 |
| **Material** | |
| **Epoxy** | 8600 |
| **Wire** | Au wire |
| **Mold Compound** | G700LTD |
| **Plating Composition** | NiPdAu |

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# PACKAGE QUALIFICATION REPORT

## Manufacturing Information

| Assembly Lot No. | Wafer Lot No. | Date Code |
|---|---|---|
| NSEB214800476.200 | GF02921194406.100 | 2109GB4 |
| NSEB214800644.110 | GF02921194406.100 | 2109GJT |
| NSEB214800645.200 | GF02921194406.100 | 2109GJW |

**Result** ☒ Pass ☐ Fail ☐ ____________________

6L UDFN (1.3x2.0x0.6 mm) assembled by NSEB pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Precondition Prior Perform Reliability Tests (At MSL Level 1)** | **Electrical Test:** +25°C System: TMT_TCG_NT | JESD22-A113 | 693(0) | 693 | | Good Devices |
| | Bake 150°C, 24 hrs System: CHINEE | JIP/ IPC/JEDEC J-STD-020E | | 693 | | |
| | 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH | | | 693 | | |
| | 3x Convection-Reflow 265°C max<br>System: Vitronics Soltec MR1243 | | | 693 | | |
| | **Electrical Test:** +25°C System: TMT_TCG_NT | | | 0/693 | Pass | |
| **Temp Cycle** | **Stress Condition:**<br>-65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H | JESD22-A104 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:**<br>+25°C System: TMT_TCG_NT | | 231(0) | 0/231 | Pass | 77 units / lot |
| | **Bond Strength:**<br>Wire Pull (>4.00 grams) | | 15 (0) | 0/15 | Pass | |
| | Bond Shear (>18.00 grams) | | 15 (0) | 0/15 | Pass | |
| **UNBIASED-HAST** | **Stress Condition:**<br>+130°C/85%RH, 96 hrs.<br>System: HAST 6000X | JESD22-A118 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** +25°C<br>System: TMT_TCG_NT | | 231(0) | 0/231 | Pass | 77 units / lot |
| **High Temperature Storage Life** | **Stress Condition:**<br>Bake 175°C, 504 hrs<br>System: SHEL LAB | JESD22-A103 | | 45 | | 45 units |
| | **Electrical Test:** +25°C<br>System: TMT_TCG_NT | | 45(0) | 0/45 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Solderability**<br>**Temp 245°C** | **Steam Aging:** Temp 93°C,8Hrs<br>System: SAS-3000<br>Solder Dipping:Solder Temp.245°C<br>Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6<br>System: ERSA RA 2200D<br>Visual Inspection: External Visual Inspection | J-STD-002 | 22 (0) | 22<br>22<br>0/22 | Pass | |
| **Wire sweep** | Wire sweep Inspection<br>15 Wires / lot | - | 45(0)<br>Wires | 0/45 | Pass | |
| **Physical**<br>**Dimensions** | Physical Dimension,<br>10 units from 1 lot | JESD22-B100/B108 | 30(0) Units | 0/30 | Pass | |
| **Bond Strength**<br>**Data Assembly** | Wire Pull (>4.00 grams) | Mil. Std. 883-2011 | 30 (0) Wires | 0/30 | Pass | |
| | Bond Shear (>20.00 grams) | CDF-AEC-Q100-001 | 30 (0) bonds | 0/30 | Pass | |

# PACKAGE QUALIFICATION REPORT

| | |
|---|---|
| **Purpose** | Qualification of NSEB as a new assembly site for selected PL123xx, PL133xx, PL135xx, PL610xx and PL611xx device families available in 6L UDFN (1.3x2.0x0.6mm) package. |
| **CN** | ES360330 |
| **QUAL ID** | R2100829 Rev. B |
| **MP CODE** | UGMC1SHXAA03 |
| **Part No.** | PL611S-02-D69GC-R |
| **Bonding No.** | BDM-002790 Rev. C |
| **CCB No.** | 4479 |
| **Package** | |
| **Type** | 6L UDFN |
| **Package size** | 1.3 x 2.0 x 0.6 mm |
| **Lead Frame** | |
| **Paddle size** | 43 x 45 mils |
| **Material** | C194 |
| **Surface** | PPF |
| **Process** | Etched |
| **Lead Lock** | Yes |
| **Part Number** | F70020 |
| **Material** | |
| **Epoxy** | 8600 |
| **Wire** | Au wire |
| **Mold Compound** | G700LTD |
| **Plating Composition** | NiPdAu |

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# PACKAGE QUALIFICATION REPORT

## Manufacturing Information

| Assembly Lot No. | Wafer Lot No. | Date Code |
|---|---|---|
| NSEB214100165.000 | GF02921194406.100 | 2102SEU |
| NSEB214100166.000 | GF02921194406.100 | 2102SGR |
| NSEB214100167.000 | GF02921194406.100 | 2102SH9 |

**Result** ☒ Pass ☐ Fail ☐ ______________

6L UDFN (1.3x2.0x0.6 mm) assembled by NSEB pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

## PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Precondition Prior Perform Reliability Tests (At MSL Level 1)** | **Electrical Test:** +25°C<br>System: TMT_TCG_NT | JESD22-A113 | 693(0) | 693 | | Good Devices |
| | Bake 150°C, 24 hrs<br>System: CHINEE | JIP/ IPC/JEDEC J-STD-020E | | 693 | | |
| | 85°C/85%RH Moisture Soak 168 hrs.<br>System: TABAI ESPEC Model PR-3SPH | | | 693 | | |
| | 3x Convection-Reflow 265°C max<br>System: Vitronics Soltec MR1243 | | | 693 | | |
| | **Electrical Test:** +25°C<br>System: TMT_TCG_NT | | | 0/693 | Pass | |
| **Temp Cycle** | **Stress Condition:**<br>-65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H | JESD22-A104 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** + 25°C System: TMT_TCG_NT | | 231(0) | 0/231 | Pass | 77 units / lot |
| | **Bond Strength:**<br>Wire Pull (>4.00 grams) | | 15 (0) | 0/15 | Pass | |
| | Bond Shear (>18.00 grams) | | 15 (0) | 0/15 | Pass | |
| **UNBIASED-HAST** | **Stress Condition:**<br>+130°C/85%RH, 96 hrs.<br>System: HAST 6000X | JESD22-A118 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** + 25°C<br>System: TMT_TCG_NT | | 231(0) | 0/231 | Pass | 77 units / lot |
| **High Temperature Storage Life** | **Stress Condition:**<br>Bake 175°C, 504 hrs<br>System: SHEL LAB | JESD22-A103 | | 45 | | 45 units |
| | **Electrical Test:** +25°C<br>System: TMT_TCG_NT | | 45(0) | 0/45 | Pass | |
| **Solderability Temp 245°C** | **Steam Aging:** Temp 93°C,8Hrs<br>System: SAS-3000 | J-STD-002 | 22 (0) | 22 | | |
| | Solder Dipping:Solder Temp.245°C<br>Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 | | | 22 | | |
| | System: ERSA RA 2200D<br>Visual Inspection: External Visual Inspection | | | 0/22 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Wire sweep** | Wire sweep Inspection<br>15 Wires / lot | - | 45(0) Wires | 0/45 | Pass | |
| **Physical Dimensions** | Physical Dimension,<br>10 units from 1 lot | JESD22-B100/B108 | 30(0) Units | 0/30 | Pass | |
| **Bond Strength Data Assembly** | Wire Pull (>4.00 grams) | Mil. Std. 883-2011 | 30 (0) Wires | 0/30 | Pass | |
| | Bond Shear (>20.00 grams) | CDF-AEC-Q100-001 | 30 (0) bonds | 0/30 | Pass | |

# PRE AND POST CHANGE SUMMARY

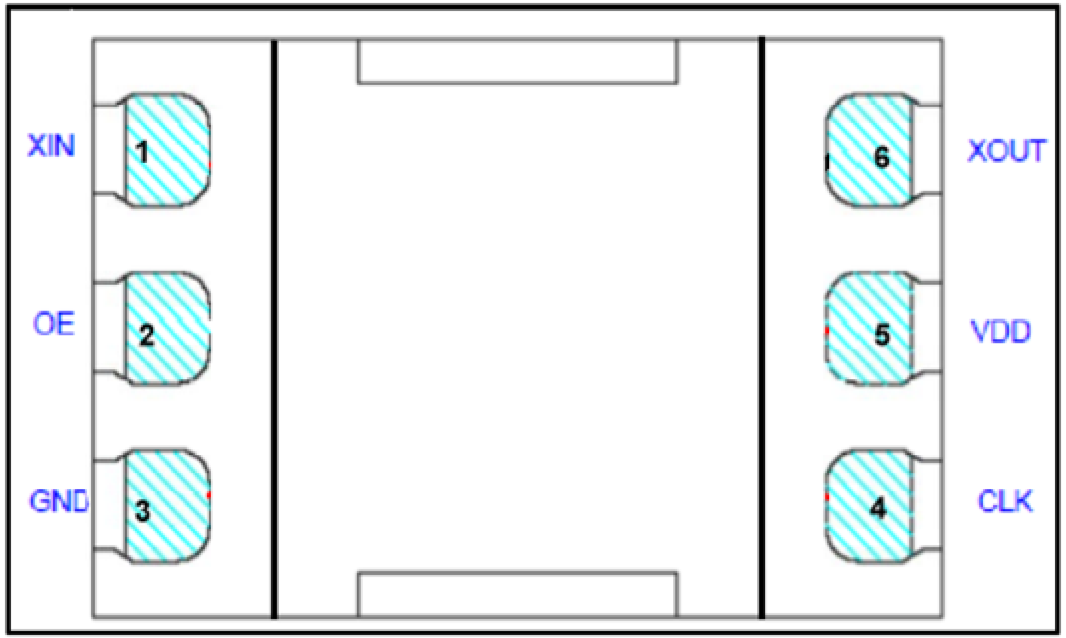
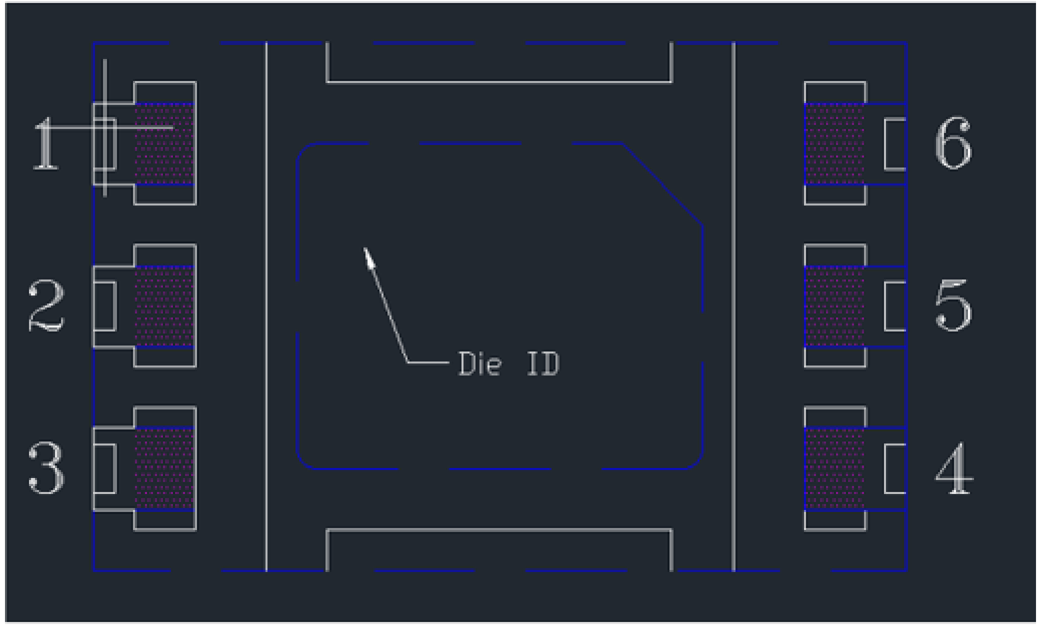
## CCB 4479

## PCN #: GBNG-03UMRU813

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

SMART | CONNECTED | SECURE

# Lead Frame Comparison

| TICP | NSEB/UTL-3 |
|---|---|
|  |  |

**TICP**

| DAP Surface Prep | Spot (PPF) |
|---|---|
| Lead-frame Paddle size | 43X50 |

**NSEB/UTL-3**

| DAP Surface Prep | PPF |
|---|---|
| Lead-frame Paddle size | 43X45 |

GBNG-03UMRU813 - CCB PL133xx PL135xx PL610xx and PL611xx device families available in 6L UDF

Affected Catalog Part Numbers(CPN)

PL610-01-R67GC
PL610-01-R86GC
PL610-01-R85GC
PL610-01-R91GC
PL610-01-002
PL135-27GI
PL610-01-Q90GI
PL610-01-R83GI
PL610-01-R87GI
PL610-01-R88GI
PL610-01-R67GC-R
PL610-01-R86GC-R
PL610-01-R85GC-R
PL610-01-R91GC-R
PL610-01-Q90GI-R
PL135-27GI-R
PL610-01-R83GI-R
PL610-01-R87GI-R
PL610-01-R88GI-R
PL611S-27-002
PL611S-27-O23GC-R
PL611S-27-O24GC-R
PL123-02NGC
PL133-21GC
PL133-27GC
PL611S-02-P31GC
PL611S-19-R29GC
PL611S-19-Q48GC
PL611S-19-R58GC
PL611S-19-R60GC
PL611S-19-R70GC
PL611S-02-Q26GC
PL611S-18-R77GC
PL611S-02-R99GC
PL611S-18-J79GC
PL611S-02-S26GC
PL611S-19-S31GC
PL611S-19-S33GC
PL611S-02-S38GC
PL611S-19-S70GC
PL611S-02-002
PL611S-19-002

PL123-02NGI
PL133-27GI
PL611S-19-A18GI
PL611S-19-R70GI
PL611S-02-R84GI
PL611S-02-R85GI
PL611S-02-R96GI
PL611S-02-R97GI
PL611S-02-R98GI
PL611S-02-S10GI
PL611S-18-002
PL611S-18-R94GI
PL611S-18-R95GI
PL611S-02-S11GI
PL611S-02-S12GI
PL611S-02-S15GI
PL611S-02-S16GI
PL611S-02-S17GI
PL611S-02-S18GI
PL611S-19-S24GI
PL611S-02-S25GI
PL611S-02-S29GI
PL611S-18-S47GI
PL611S-02-S49GI
PL611S-02-S57GI
PL611S-18-S62GI
PL611S-02-S68GI
PL611S-02-S71GI
PL611S-19-S72GI
PL123-02NGC-R
PL133-27GC-R
PL611S-02-D69GC-R
PL611S-02-M28GC-R
PL611S-19-C85GC-R
PL611S-19-N50GC-R
PL611S-19-N51GC-R
PL133-21GC-R
PL611S-19-Q48GC-R
PL611S-02-P31GC-R
PL611S-19-R29GC-R
PL611S-02GC-R
PL611S-19-R58GC-R
PL611S-19-R60GC-R
PL611S-19-R70GC-R
PL611S-19-R70GC-T5
PL611S-02-Q26GC-R
PL611S-18-R77GC-R

PL611S-02-R99GC-R
PL611S-18-J79GC-R
PL611S-02-S26GC-R
PL611S-19-S31GC-R
PL611S-19-S33GC-R
PL611S-02-S38GC-R
PL611S-19-S70GC-R
PL123-02NGI-R
PL133-27GI-R
PL611S-19-A18GI-R
PL611S-02GI-R
PL611S-19-R70GI-R
PL611S-19-R70GI-T5
PL611S-02-R84GI-R
PL611S-02-R85GI-R
PL611S-02-R96GI-R
PL611S-02-R97GI-R
PL611S-02-R98GI-R
PL611S-02-S10GI-R
PL611S-18-R94GI-R
PL611S-18-R95GI-R
PL611S-02-S11GI-R
PL611S-02-S12GI-R
PL611S-02-S15GI-R
PL611S-02-S16GI-R
PL611S-02-S17GI-R
PL611S-02-S18GI-R
PL611S-19-S24GI-R
PL611S-02-S25GI-R
PL611S-02-S29GI-R
PL611S-18-S47GI-R
PL611S-02-S49GI-R
PL611S-02-S57GI-R
PL611S-18-S62GI-R
PL611S-02-S68GI-R
PL611S-02-S71GI-R
PL611S-19-S72GI-R