



Product Change Notification / MFOL-05ZTBD969

Date:

07-Nov-2023

Product Category:

8-bit Microcontrollers, Capacitive Touch Sensors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

Affected CPNs:

[MFOL-05ZTBD969_Affected_CPN_11072023.pdf](#)

[MFOL-05ZTBD969_Affected_CPN_11072023.csv](#)

Notification Text:

PCN Status:Initial 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 Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

Pre and Post Change Summary:

| | Pre Change | | Post Change | |
|---|--|---|--|--------------------------------|
| Packaging Process Technology | LeadFrame Package | | Panel Level Package (PLP) | |
| Assembly Site | Microchip Technology Thailand (Branch) (MMT) | Microchip Technology Thailand (HQ) (MTAI) | Assembly Site | Nepes Laweh Corporation (NEPL) |
| Wire Material | Au or CuPdAu | Au or CuPdAu | Stud | IV9000 |
| Die Attach Material | 3280 | 3280 or 8006NS | Backside Laminate (BSL) | BSP 140 |
| Molding Compound Material | G700LTD | G700LTD | Molding Compound Material | CEL-400ZHF40-PLM2K G |
| Lead-Frame Material | *C194 / A194 | *C194 / A194 | Land Grid Array (LGA), Stump, and Redistribution Layer (RDL) | MSA100 |
| See attached pre and post change comparison for lead frame and panel level package. | | | | |

Note: * C194, A194 or CDA194 Lead frame material are the same, it is just a MCHP internal labelling difference.

Impacts to Data Sheet:None

Change Impact:None

Reason for Change:To improve Productivity, Manufacturability, and Cycle Time by qualifying panel level package (PLP) packaging technology at NEPL assembly site.

Change Implementation Status:In Progress

Estimated Qualification Completion Date:February 2024

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive

pre and post change parts.

Time Table Summary:

| | November 2023 | | | | | > | February 2024 | | | | |
|--------------------------|---------------|--------|--------|--------|--------|---|---------------|--------|--------|--------|--------|
| Workweek | 4 4 | 4 5 | 4 6 | 4 7 | 4 8 | | 0 5 | 0 6 | 0 7 | 0 8 | 0 9 |
| Initial PCN Issue Date | | x | | | | | | | | | |
| Qual Report Availability | | | | | | | | | x | | |
| Final PCN Issue Date | | | | | | | | | x | | |

Method to Identify Change:Traceability code

Qualification Plan:Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History:November 07, 2023: Issued initial notification.

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

Attachments:

[PCN_MFOL-05ZTBD969_Pre and Post Change Summary.pdf](#)
[PCN_MFOL-05ZTBD969_Qual Plan.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.

Affected Catalog Part Numbers (CPN)

PIC16F1503-I/MG
PIC16F1503T-E/MG
PIC16F1503T-I/MG
PIC16F1503-E/MG
PIC16LF1503-E/MG
PIC16LF1503-I/MG
PIC16LF1503T-I/MG
PIC16LF1503T-E/MG
PIC16LF1559-I/MLM10
PIC16LF1559T-I/MLM10
PIC18LF13K22-I/ML
PIC18LF13K22T-I/ML
PIC16F1829-H/ML
PIC16F1829T-H/ML
PIC16F1509-I/ML
PIC16F1508T-I/ML
PIC16F1509T-I/ML
PIC16F1508-I/ML
PIC18F14K22T-E/ML
PIC16F1768T-E/ML
PIC16F1619T-I/ML
PIC16F1509T-E/ML
PIC16F1618T-I/ML
PIC16F1769T-E/ML
PIC16F1768-E/ML
PIC16F1769-E/ML
PIC16F1768T-I/ML
PIC16F1769T-I/ML
PIC16F1768-I/ML
PIC16F1769-I/ML
PIC18LF14K22-I/ML
PIC18LF14K22T-I/ML
PIC16LF1559T-I/ML
PIC16LF1559-I/ML
PIC16LF1559-E/ML
PIC16F1709-I/ML
PIC16F1709-E/ML
PIC16F1709T-I/ML
PIC16F1708-E/ML
PIC16F1708T-E/ML
PIC16LF1708-I/ML
PIC16F1708-I/ML
PIC16F1708T-I/ML
PIC16LF1708T-I/ML
PIC16LF1768-I/ML
PIC16LF1709-E/ML

MFOL-05ZTBD969 - CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

PIC16F1619-E/ML

PIC16LF1769-I/ML

PIC16F1618-I/ML

PIC16F1619-I/ML

PIC16LF1618-I/ML

PIC16LF1769T-I/ML

PIC16LF1768T-I/ML

PIC16F1707-I/ML

PIC16F1618-E/ML

PIC16LF1768-E/ML

PIC16LF1769-E/ML

PIC16LF1618T-I/ML

PIC16LF1619T-I/ML

PIC16LF1618-E/ML

PIC16LF1509-E/ML

PIC16LF1619-I/ML

PIC16LF1709T-I/ML

PIC16LF1709-I/ML

PIC16LF1619-E/ML

PIC16LF1509-I/ML

PIC16F1707-E/ML

PIC16LF1829-E/ML

PIC16LF1829-I/ML

PIC16LF1829T-I/ML

PIC16F1507T-I/ML

PIC16F1507-I/ML

PIC18F47Q84-E/NHX

PIC18F47Q84T-I/NHX

PIC18F46Q84-E/NHX

PIC18F46Q84T-I/NHX

PIC18F46Q83-I/NHX

PIC18F46Q83T-I/NHX

PIC18F46Q83-E/NHX

PIC18F46Q84-I/NHX

PIC18F47Q84-I/NHX

PIC18F47Q83-E/NHX

PIC18F47Q83T-I/NHX

PIC18F47Q83-I/NHX

PIC18F15Q40T-I/REB

PIC18F16Q20-I/REB

PIC18F16Q20T-I/REB

PIC18F14Q40T-I/REB

PIC18F14Q41-I/REB

PIC18F16Q41T-I/REB

PIC18F16Q40T-I/REB

PIC18F15Q41T-I/REB

PIC18F14Q41T-I/REB

PIC18F16Q40-E/REB

PIC18F16Q41-E/REB

MFOL-05ZTBD969 - CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

PIC18F14Q41-E/REB

PIC18F15Q40-E/REB

PIC18F16Q40T-E/REB

PIC18F14Q40-E/REB

PIC18F15Q41-E/REB

PIC18F15Q41-I/REB

PIC18F15Q40-I/REB

PIC18F16Q40-I/REB

PIC18F16Q41-I/REB

PIC18F14Q40-I/REB

PIC16LF15344T-I/ML

PIC16LF15344-I/ML

PIC16LF15344-E/ML

PIC16F15344-E/ML

PIC16F18346T-I/ML

PIC16F15344T-I/ML

PIC16F15344-I/ML

PIC16F18346-I/ML

PIC16LF18326T-I/7N

PIC18F25Q10T-I/STX

PIC18F27Q10T-E/STX

PIC18F26Q10-E/STX

PIC18F26Q10-I/STX

PIC18F26Q10T-I/STX

PIC18F27Q10-I/STX

PIC18F27Q10T-I/STX

PIC18F27Q10-E/STX

PIC18F25Q43T-I/STX

PIC18F25Q43-E/STX

PIC18F25Q43-I/STX

PIC18F25Q10-E/STX

PIC18F24Q10-I/STX

PIC18F24Q10T-I/STX

PIC16F18456-E/STX

PIC16F18455-E/STX

PIC16F18456-I/STX

PIC16F18455-I/STX

PIC16LF18455-I/STX

PIC16LF18456-E/STX

PIC16LF18455-E/STX

PIC16LF18456-I/STX

PIC16LF18455T-I/STX

PIC16F18455T-I/STX

PIC16F18456T-I/STX

PIC16LF18456T-I/STX

PIC18F27Q43T-I/STX

PIC18F27Q43-I/STX

PIC18F27Q43-E/STX

PIC18F25Q10-I/STX

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PIC18F24Q10-E/STX

PIC16F1507-E/ML

PIC16F1459-E/ML

PIC16F1829-E/ML

PIC16F1829-I/ML

PIC16LF1459-I/ML

PIC16F1829T-E/ML

PIC16F1459T-I/ML

PIC18F14K22T-I/ML

PIC16F1508T-E/ML

PIC16F1509-E/ML

PIC16LF1459-E/ML

PIC16F1828T-E/ML

PIC18F14K22-I/ML

PIC16F1459-I/ML

PIC18F13K22-E/ML

PIC16LF1507-E/ML

PIC18F13K22T-I/ML

PIC16LF1507T-I/ML

PIC18F13K22-I/ML

PIC16LF1508-E/ML

PIC16F1508-E/ML

PIC16LF721T-I/ML

PIC16F721-I/ML

PIC16LF1507-I/ML

PIC16F720-I/ML

PIC16LF1508T-I/ML

PIC18F14K22-E/ML

PIC16LF1508-I/ML

PIC16LF720T-I/ML

PIC16LF721-E/ML

PIC16LF720-E/ML

PIC16LF720-I/ML

PIC16LF721-I/ML

PIC16F721T-I/ML

PIC18LF14K22-E/ML

PIC16LF1828T-I/ML

PIC16LF1828-E/ML

PIC16LF1828-I/ML

PIC16LF1823-E/ML

PIC16LF1554-I/MLM10

PIC16LF1554T-I/MLM10

PIC16LF1825-E/ML

PIC16LF1825-I/ML

PIC16LF1825T-E/ML

PIC16LF1825T-I/ML

PIC16F1824T-I/ML

PIC16F1824-I/ML

MTCH105T-I/ML

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MTCHT05-I/ML

PIC16F1613-E/ML

PIC16LF1613T-E/ML

PIC16LF1705T-E/ML

PIC16F1615T-E/ML

PIC16LF1705-E/ML

PIC16LF1705-I/ML

PIC16LF1705T-I/ML

PIC16LF1554T-I/ML

PIC16LF1554-E/ML

PIC16LF1554-I/ML

PIC16F1764T-E/ML

PIC16F1705-I/ML

PIC16F1705-E/ML

PIC16F1705T-I/ML

PIC16F1704T-I/ML

PIC16F1704-E/ML

PIC16LF1704T-I/ML

PIC16LF1704-I/ML

PIC16F1615T-I/ML

PIC16F1613-I/ML

PIC16F1765-E/ML

PIC16LF1764T-I/ML

PIC16LF1615-E/ML

PIC16F1615-E/ML

PIC16F1614-I/ML

PIC16LF1613-E/ML

PIC16F1613T-I/ML

PIC16LF1765T-I/ML

PIC16F1765T-I/ML

PIC16F1765-I/ML

PIC16LF1614-E/ML

PIC16LF1704-E/ML

PIC16LF1615T-I/ML

PIC16F1615-I/ML

PIC16F1764T-I/ML

PIC16F1614-E/ML

PIC16F1614T-I/ML

PIC16LF1764-E/ML

PIC16LF1615-I/ML

PIC16F1703-I/ML

PIC16LF1614T-I/ML

PIC16LF1765-E/ML

PIC16LF1614-I/ML

PIC16LF1765-I/ML

PIC16LF1764-I/ML

PIC16LF1824-E/ML

PIC16LF1824-I/ML

PIC16LF1613-I/ML

MFOL-05ZTBD969 - CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

PIC16LF16131-I/ML
PIC16LF1454T-I/ML
PIC16F1454-E/ML
PIC16LF1454-I/ML
PIC16F1454T-I/ML
PIC16F1454-I/ML
PIC16F1455-E/ML
PIC16F1825-I/ML
PIC16F1455T-I/ML
PIC16F1823-E/ML
PIC16F1823T-I/ML
PIC16F1825T-I/ML
PIC16F1455-I/ML
PIC16F1823T-E/ML
PIC16F1823-I/ML
PIC16F1825T-E/ML
PIC16LF1823-I/ML
PIC18F24Q24T-I/STX
PIC18F24Q24-I/STX
PIC18F26Q24-I/STX
PIC18F25Q24-I/STX
PIC18F25Q24T-I/STX
PIC18F26Q24-E/STX
PIC18F24Q24-E/STX
PIC18F25Q24-E/STX
PIC18F26Q24T-I/STX
PIC18F24Q71-E/STX
PIC18F25Q71-I/STX
PIC18F24Q71-I/STX
PIC18F25Q71T-I/STX
PIC18F24Q71T-I/STX
PIC18F25Q71-E/STX
PIC18F26Q43T-I/STX
PIC18F26Q43-I/STX
PIC18F26Q43-E/STX
PIC18F26Q43T-E/STX
PIC18F26Q71T-I/STX
PIC18F26Q71-E/STX
PIC18F26Q71-I/STX
PIC16F15356T-I/STX
PIC16F15356-I/STX
PIC16LF1847T-I/STX
PIC16LF1847-I/STX
PIC16LF18856-E/STX
PIC16LF18856T-I/STX
PIC16LF18856-I/STX
PIC16F18856-I/STX
PIC16F18856T-I/STX
PIC16F18856-E/STX

MFOL-05ZTBD969 - CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

PIC18LF14K50T-I/MQ
PIC18LF13K50T-I/MQ
PIC18LF13K50-I/MQ
PIC18LF14K50-I/MQ
PIC18F14K50-I/MQ
PIC18F13K50T-I/MQ
PIC18F14K50-E/MQ
PIC18F14K50T-I/MQ
PIC18F13K50-I/MQ
PIC18F46Q43-I/MP
PIC18F46Q24T-I/MP
PIC18F45Q24T-I/MP
PIC18F45Q24-I/MP
PIC18F46Q24-I/MP
PIC18F45Q24-E/MP
PIC18F46Q24-E/MP
PIC18F44Q71-E/MP
PIC18F45Q71-I/MP
PIC18F44Q71-I/MP
PIC18F45Q71-E/MP
PIC18F45Q71T-I/MP
PIC18F44Q71T-I/MP
PIC18F46Q43-E/MP
PIC16F1719T-I/MP
PIC16F1719-I/MP
PIC18F46Q71-E/MP
PIC18F46Q71-I/MP
PIC18F46Q71T-I/MP
PIC16F1937-I/MP
PIC16F1939T-I/MP
PIC16F1717-I/MP
PIC18F43K22T-I/MP
PIC16F1717T-I/MP
PIC18F43K22-I/MP
PIC16F1937T-I/MP
PIC16F15376-I/MP
PIC16F15376T-I/MP
PIC18F45Q43T-I/MP
PIC18F45Q43-I/MP
PIC18F47Q10T-I/MP
PIC16F1779-I/MP
PIC16F1779-E/MP
PIC16F1779T-I/MP
PIC18F46Q43T-I/MP
PIC18F47Q10-E/MP
PIC18F47Q43T-I/MP
PIC18F47Q43-E/MP
PIC18F45Q43-E/MP
PIC18F47Q10-I/MP

MFOL-05ZTBD969 - CCB 6634 Initial Notice: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

PIC18F47Q841-E/NHX



MICROCHIP

QUALIFICATION PLAN SUMMARY

PCN #: MFOL-05ZTBD969

**Date:
October 17, 2023**

Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

Purpose: Qualification of Panel Level Package (PLP) packaging process technology available in 20L VQFN and 16L QFN (3x3x0.9mm), 16L QFN and 20L QFN (4x4x0.9mm), 16L VQFN and 28L VQFN (4x4x1.0mm), 40L VQFN, 40L QFN and 20L QFN (5x5x0.9mm) packages at NEPL assembly site.

CCB No: 6634

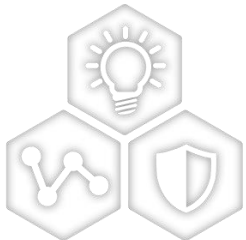
| | | |
|--------------|--|--|
| Misc. | Assembly site | NEPL |
| | BD Number | nMS_079WPC2105AA, Rev. 02 L-D-000398, Rev. A |
| | MP Code (MPC) | MVAT14Q9XFX6 |
| | Part Number (CPN) | PIC16F19176-E/MP |
| | MSL information | MSL1 @260C |
| | Assembly Shipping Media (T/R, Tube/Tray) | Tube |
| | Base Quantity Multiple (BQM) | 73 |
| | Reliability Site | MTAI |
| RDL | Part Number | IV9000 (Cu stud) / MSA100 (RDL, Stump, LGA) |
| MC | Part Number | CEL-400ZHF40-PLM2KG |
| BSL | Part Number | BSP 140 |
| PKG | Package Type | QFN |
| | Pin/Ball Count | 40 |
| | PKG width/size | 5x5x0.85mm |

| Test Name | Conditions | Sample Size | Min. Qty of Spares per Lot (should be properly marked) | Qty of Lots | Total Units | Fail Accept Qty | Est. Dur. Days | ATE Test Site | REL Test Site | Special Instructions |
|---|--|---|--|-------------|-------------|---------------------|----------------|---------------|---------------|--|
| Standard Pb-free Solderability | J-STD-002D; Perform 8-hour steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Standard Pb-free: Matte tin/ NiPdAu finish, SAC solder, wetting temp 245°C for both SMD & through hole packages. | 22 | 5 | 1 | 27 | > 95% lead coverage | 5 | | MTAI | Standard Pb-free solderability is the requirement. |
| Physical Dime | Measure per JESD22 B100 and B108 | 10 | 0 | 3 | 30 | 0 | 5 | | NEPL / MTAI | |
| External Visual | Mil. Std. 883-2009/2010 | All devices prior to submission for qualification testing | 0 | 3 | ALL | 0 | 5 | | NEPL / MTAI | |
| Preconditioning - Required for surface mount devices | JESD22-A113. +150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type; Electrical test pre and post stress at +25°C and +125°C. MSL 1 @260°C | 231 | 15 | 3 | 738 | 0 | 15 | MTAI | MTAI | Spares should be properly identified. 77 parts from each lot to be used for HAST, uHAST, Temp Cycle test. |
| HAST | JESD22-A110. +130°C/85% RH for 96 hours and 192 hrs. Electrical test pre and post stress at +25°C and +125°C. | 77 | 5 | 3 | 246 | 0 | 10 | MTAI | MTAI | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| UHAST | JESD22-A118. +130°C/85% RH for 96 hrs and 192 hrs. Electrical test pre and post stress at +25°C | 77 | 5 | 3 | 246 | 0 | 10 | MTAI | MTAI | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| Temp Cycle | JESD22-A104. -65°C to +150°C for 500 cycles and 1000 cycles. Electrical test pre and post stress at +125°C. | 77 | 5 | 3 | 246 | 0 | 15 | MTAI | MTAI | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |

CCB 6634
PCN ID#: MFOL-05ZTBD969



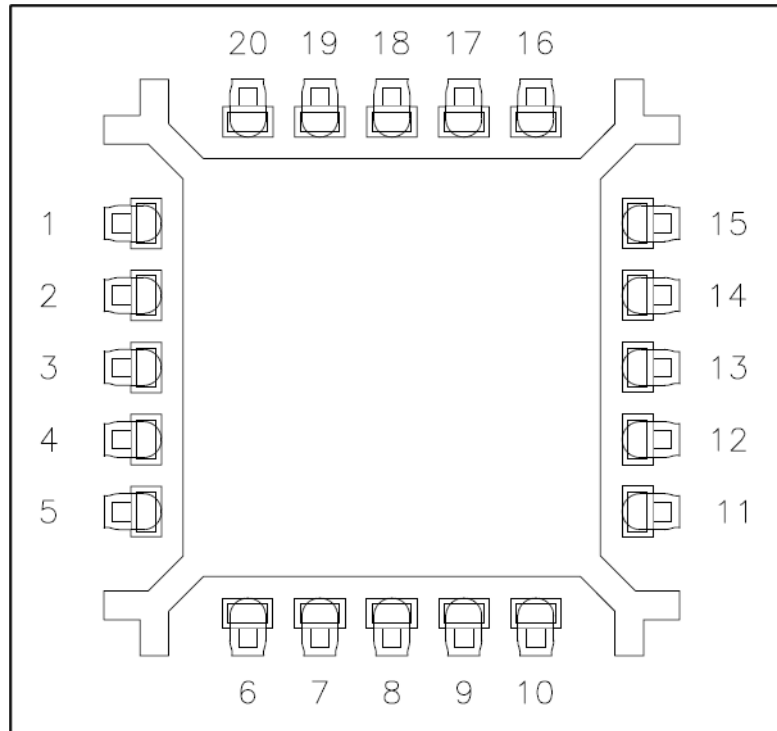
A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



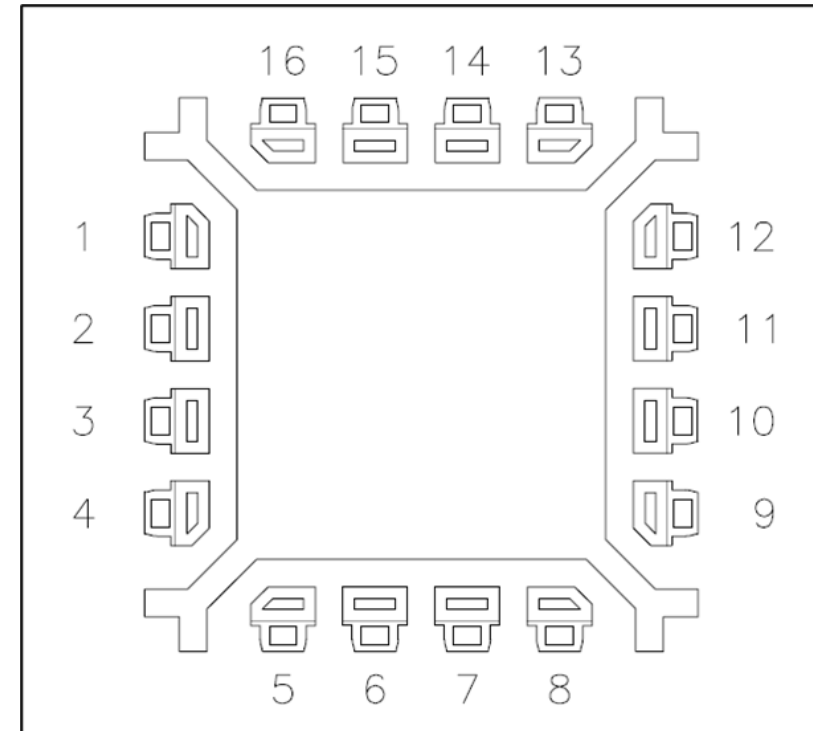
SMART | CONNECTED | SECURE

Leadframe Drawing of Affected Packages

MMT / MTA1



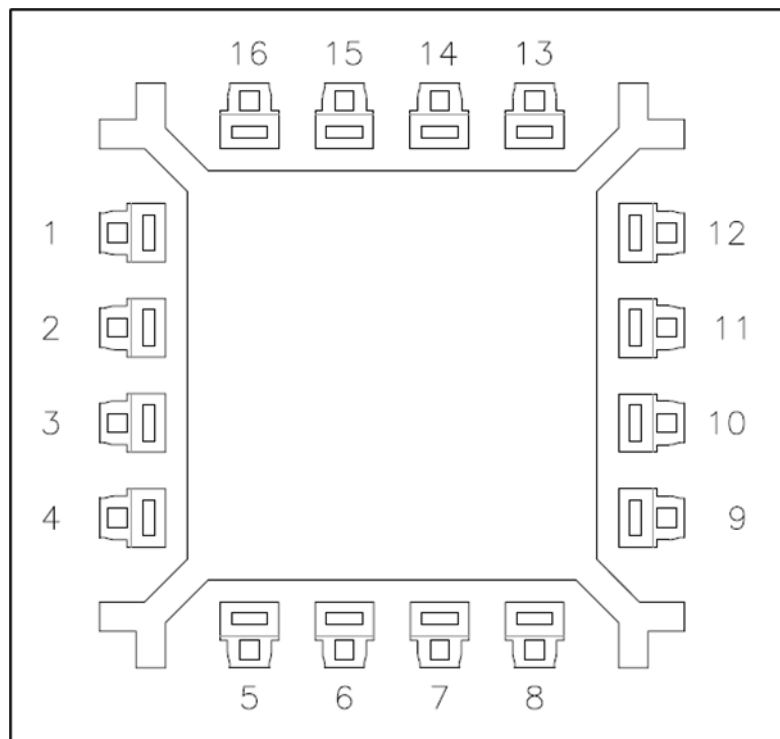
20L QFN 4x4x0.9mm



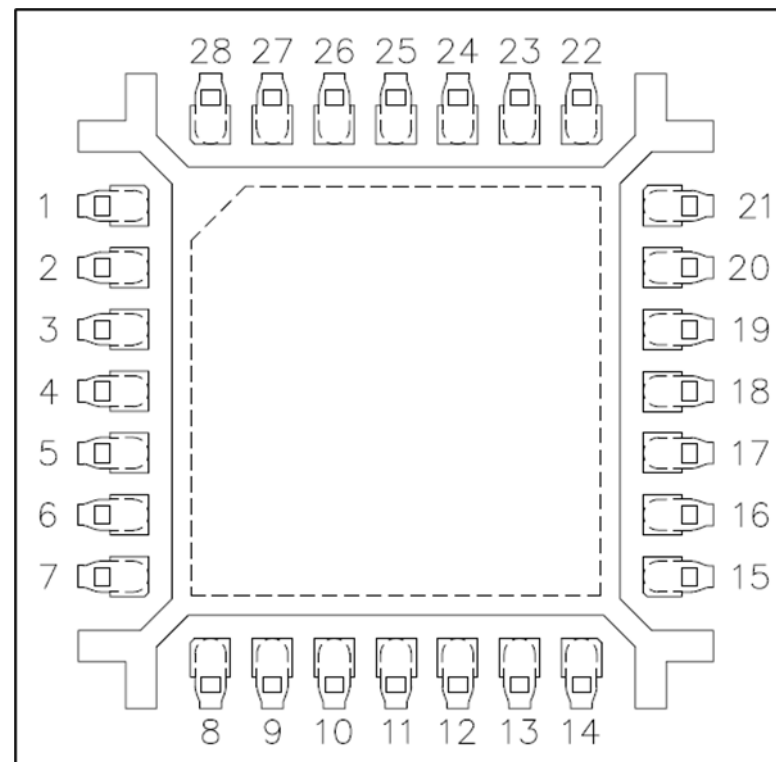
16L QFN 3x3x0.9mm

Leadframe Drawing of Affected Packages

MMT / MTAI



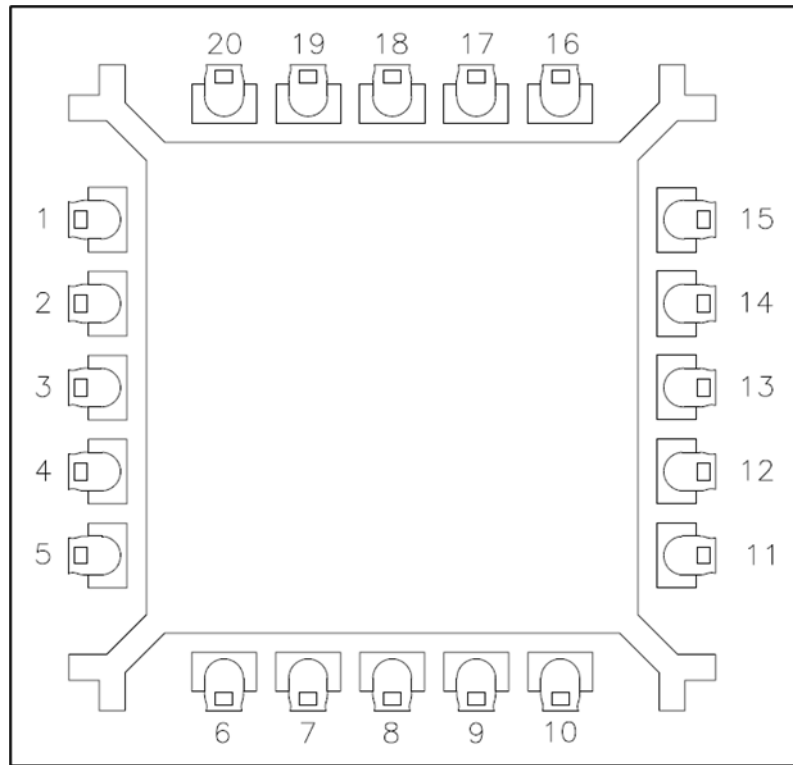
16L QFN 4x4x0.9mm



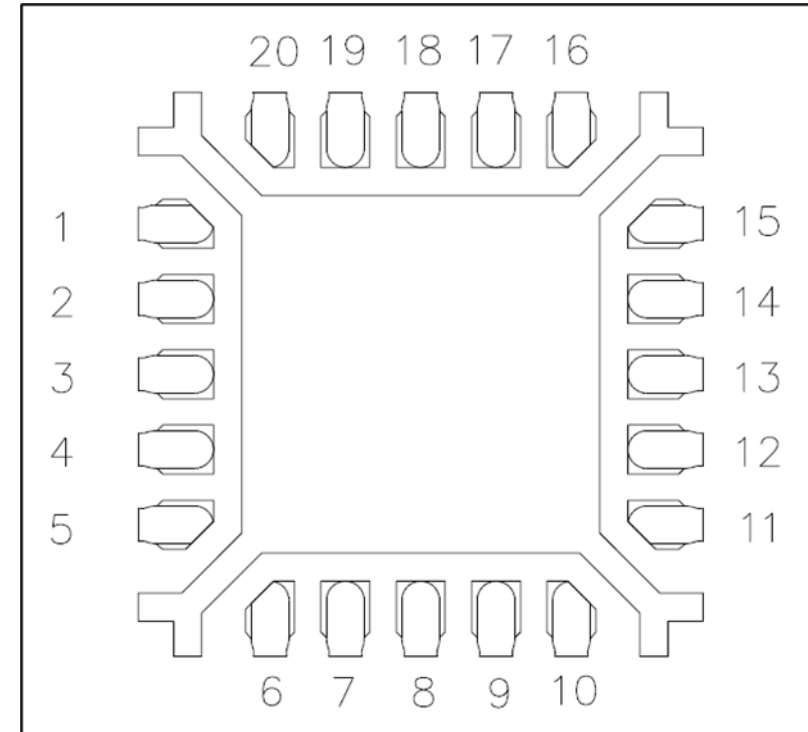
28L VQFN 4x4x1.0mm

Leadframe Drawing of Affected Packages

MMT / MTA1



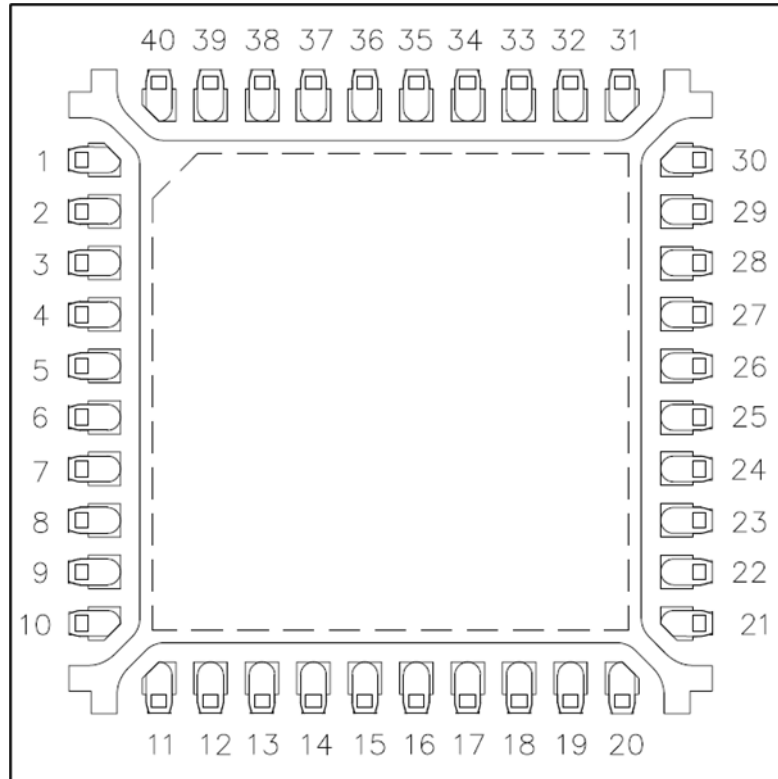
20L QFN 5x5x0.9mm



20L VQFN 3x3x0.9mm

Leadframe Drawing of Affected Packages

MMT / MTAI

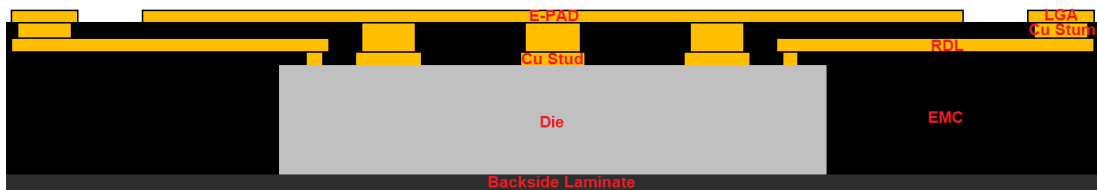
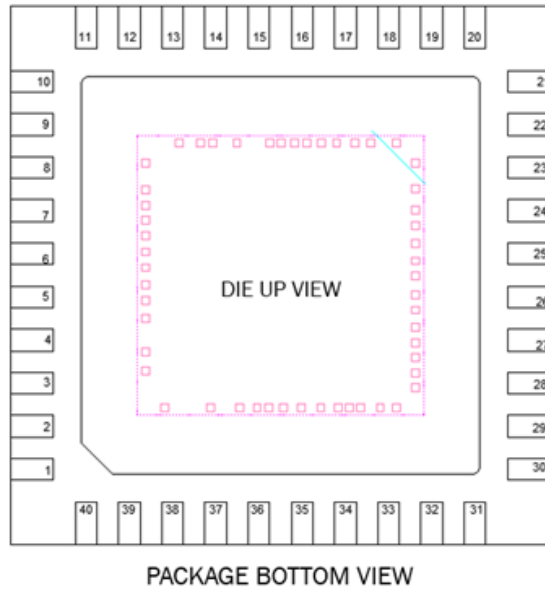


40L QFN 5x5x0.9mm

New Packaging Design for Panel Level Package (PLP) QFN

NEPL

Package Bottom and Cross-section View



RDL Design

