

**Product / Process Change Notification CYAR-7RTMU5**[Home](#)

The information below reflects a change that is being implemented.

Notice Date: 05/07/2009

Product Category: dsPIC; PIC16xxx; PIC18xxx; PIC24xxx

Notification Subject: CCB# 893: Qualification of High Density Lead Frame in 28L QFN-S & 44L QFN Packages at UNIS Assembly Site

Notification Body:

PCN Status:

Initial notification

Microchip Part#s Affected (please see the link for these files at the end of this PCN):

See attachment of Affected package/device in Qualification plan.

[Microchip\\_Catalog\\_Part#s\\_Affected.xls](#)

[Microchip\\_Catalog\\_Part#s\\_Affected.pdf](#)

Description of Change:

Qualification of high density lead frame in 28L QFN-S and 44L QFN packages at UNIS assembly site.

Impacts to Data Sheet:

None

Reason for Change:

To improve on time delivery performance

Change Implementation Status:

In Progress

Estimated First Ship Date:

August 10, 2009 (Date code 0931)

NOTE: Please be advised that during the transition period customers may receive parts with either leadframe, due to existing inventory of the original materials.

Markings to Distinguish Revised from Unrevised Devices: (e.g.: Date Code, Device Marking, Ship Container Marking) Traceability code

| CATALOG_PART_NBR         | CATALOG_PART_NBR        |
|--------------------------|-------------------------|
| 28L QFN-S                | 44L QFN                 |
| DSPIC30F1010-20E/MM      | DSPIC30F2023-20E/ML     |
| DSPIC30F1010-30I/MM      | DSPIC30F2023-30I/ML     |
| DSPIC30F1010T-20E/MM     | DSPIC30F2023-30I/MLD32  |
| DSPIC30F1010T-30I/MM     | DSPIC30F2023-30V/MLD31  |
| DSPIC30F2010-20E/MM      | DSPIC30F2023T-20E/ML    |
| DSPIC30F2010-20I/MM      | DSPIC30F2023T-30I/ML    |
| DSPIC30F2010-30I/MM      | DSPIC30F2023T-30I/MLD32 |
| DSPIC30F2010-30V/MMA31   | DSPIC30F2023T-30V/MLD31 |
| DSPIC30F2010T-20E/MM     | DSPIC30F3010-20E/ML     |
| DSPIC30F2010T-20E/MM021  | DSPIC30F3010-20I/ML     |
| DSPIC30F2010T-20E/MM022  | DSPIC30F3010-30I/ML     |
| DSPIC30F2010T-20E/MMG    | DSPIC30F3010T-20E/ML    |
| DSPIC30F2010T-20E/MMG020 | DSPIC30F3010T-20I/ML    |
| DSPIC30F2010T-20I/MM     | DSPIC30F3010T-30I/ML    |
| DSPIC30F2010T-30I/MM     | DSPIC30F3011-10I/MLB22  |
| DSPIC30F2010T-30I/MMG    | DSPIC30F3011-20E/ML     |
| DSPIC30F2010T-30V/MMA31  | DSPIC30F3011-20I/ML     |
| DSPIC30F2020-20E/MM      | DSPIC30F3011-30I/ML     |
| DSPIC30F2020-30I/MM      | DSPIC30F3011T-10I/MLB21 |
| DSPIC30F2020-30I/MMB32   | DSPIC30F3011T-10I/MLB22 |
| DSPIC30F2020-30I/MMB35   | DSPIC30F3011T-20E/ML    |
| DSPIC30F2020T-20E/MM     | DSPIC30F3011T-20I/ML    |
| DSPIC30F2020T-30I/MM     | DSPIC30F3011T-30I/ML    |
| DSPIC30F2020T-30I/MM020  | DSPIC30F3012-20E/ML     |
| DSPIC30F2020T-30I/MMB32  | DSPIC30F3012-20I/ML     |
| DSPIC30F2020T-30I/MMB35  | DSPIC30F3012-30I/ML     |
| DSPIC33FJ06GS102-E/MM    | DSPIC30F3012T-20E/ML    |
| DSPIC33FJ06GS102-I/MM    | DSPIC30F3012T-20I/ML    |
| DSPIC33FJ06GS102T-E/MM   | DSPIC30F3012T-30I/ML    |
| DSPIC33FJ06GS102T-I/MM   | DSPIC30F3013-20E/ML     |
| DSPIC33FJ06GS202-E/MM    | DSPIC30F3013-20I/ML     |
| DSPIC33FJ06GS202-I/MM    | DSPIC30F3013-20I/MLC01  |
| DSPIC33FJ06GS202T-E/MM   | DSPIC30F3013-30I/ML     |
| DSPIC33FJ06GS202T-I/MM   | DSPIC30F3013T-20E/ML    |
| DSPIC33FJ128GP202-E/MM   | DSPIC30F3013T-20I/ML    |

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| DSPIC33FJ128GP202-I/MM  | DSPIC30F3013T-20I/MLC01 |
| DSPIC33FJ128GP202T-E/MM | DSPIC30F3013T-30I/ML    |
| DSPIC33FJ128GP202T-I/MM | DSPIC30F3014-20E/ML     |
| DSPIC33FJ128GP802-E/MM  | DSPIC30F3014-20I/ML     |
| DSPIC33FJ128GP802-I/MM  | DSPIC30F3014-30I/ML     |
| DSPIC33FJ128GP802T-E/MM | DSPIC30F3014-30I/MLA31  |
| DSPIC33FJ128GP802T-I/MM | DSPIC30F3014T-20E/ML    |
| DSPIC33FJ128MC202-E/MM  | DSPIC30F3014T-20I/ML    |
| DSPIC33FJ128MC202-I/MM  | DSPIC30F3014T-30I/ML    |
| DSPIC33FJ128MC202T-E/MM | DSPIC30F3014T-30I/MLA31 |
| DSPIC33FJ128MC202T-I/MM | DSPIC30F4011-20E/ML     |
| DSPIC33FJ128MC802-E/MM  | DSPIC30F4011-20I/ML     |
| DSPIC33FJ128MC802-I/MM  | DSPIC30F4011-30I/ML     |
| DSPIC33FJ128MC802T-E/MM | DSPIC30F4011T-20E/ML    |
| DSPIC33FJ128MC802T-I/MM | DSPIC30F4011T-20I/ML    |
| DSPIC33FJ16GS402-E/MM   | DSPIC30F4011T-30I/ML    |
| DSPIC33FJ16GS402-I/MM   | DSPIC30F4012-20E/ML     |
| DSPIC33FJ16GS402T-E/MM  | DSPIC30F4012-20I/ML     |
| DSPIC33FJ16GS402T-I/MM  | DSPIC30F4012-30I/ML     |
| DSPIC33FJ16GS502-E/MM   | DSPIC30F4012T-20E/ML    |
| DSPIC33FJ16GS502-I/MM   | DSPIC30F4012T-20I/ML    |
| DSPIC33FJ16GS502T-E/MM  | DSPIC30F4012T-30I/ML    |
| DSPIC33FJ16GS502T-I/MM  | DSPIC30F4013-20E/ML     |
| DSPIC33FJ32GP202-E/MM   | DSPIC30F4013-20I/ML     |
| DSPIC33FJ32GP202-I/MM   | DSPIC30F4013-30I/ML     |
| DSPIC33FJ32GP202T-E/MM  | DSPIC30F4013-30I/MLB31  |
| DSPIC33FJ32GP202T-I/MM  | DSPIC30F4013T-20E/ML    |
| DSPIC33FJ32GP302-E/MM   | DSPIC30F4013T-20I/ML    |
| DSPIC33FJ32GP302-I/MM   | DSPIC30F4013T-30I/ML    |
| DSPIC33FJ32GP302T-E/MM  | DSPIC30F4013T-30I/MLB31 |
| DSPIC33FJ32GP302T-I/MM  | DSPIC33FJ16GP304-E/ML   |
| DSPIC33FJ32MC202-E/MM   | DSPIC33FJ16GP304-I/ML   |
| DSPIC33FJ32MC202-I/MM   | DSPIC33FJ16GP304T-E/ML  |
| DSPIC33FJ32MC202T-E/MM  | DSPIC33FJ16GP304T-I/ML  |
| DSPIC33FJ32MC202T-I/MM  | DSPIC33FJ16MC304-E/ML   |
| DSPIC33FJ32MC302-E/MM   | DSPIC33FJ16MC304-I/ML   |
| DSPIC33FJ32MC302-I/MM   | DSPIC33FJ16MC304T-E/ML  |

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| DSPIC33FJ32MC302T-E/MM | DSPIC33FJ16MC304T-I/ML |
| DSPIC33FJ32MC302T-I/MM | DSPIC33FJ32GP204-E/ML  |
| DSPIC33FJ64GP202-E/MM  | DSPIC33FJ32GP204-I/ML  |
| DSPIC33FJ64GP202-I/MM  | DSPIC33FJ32GP204T-E/ML |
| DSPIC33FJ64GP202T-E/MM | DSPIC33FJ32GP204T-I/ML |
| DSPIC33FJ64GP202T-I/MM | DSPIC33FJ32MC204-E/ML  |
| DSPIC33FJ64GP802-E/MM  | DSPIC33FJ32MC204-I/ML  |
| DSPIC33FJ64GP802-I/MM  | DSPIC33FJ32MC204T-E/ML |
| DSPIC33FJ64GP802T-E/MM | DSPIC33FJ32MC204T-I/ML |
| DSPIC33FJ64GP802T-I/MM | PIC16F747-E/ML         |
| DSPIC33FJ64MC202-E/MM  | PIC16F747-I/ML         |
| DSPIC33FJ64MC202-I/MM  | PIC16F747T-I/ML        |
| DSPIC33FJ64MC202T-E/MM | PIC16F74-E/ML          |
| DSPIC33FJ64MC202T-I/MM | PIC16F74-I/ML          |
| DSPIC33FJ64MC802-E/MM  | PIC16F74T-E/ML         |
| DSPIC33FJ64MC802-I/MM  | PIC16F74T-I/ML         |
| DSPIC33FJ64MC802T-E/MM | PIC16F777-E/ML         |
| DSPIC33FJ64MC802T-I/MM | PIC16F777-I/ML         |
| PIC18F2331-E/MM        | PIC16F777T-I/ML        |
| PIC18F2331-I/MM        | PIC16F77-E/ML          |
| PIC18F2331T-I/MM       | PIC16F77-I/ML          |
| PIC18F2431-E/MM        | PIC16F77T-E/ML         |
| PIC18F2431-E/MMC01     | PIC16F77T-I/ML         |
| PIC18F2431-I/MM        | PIC16F874A-E/ML        |
| PIC18F2431T-I/MM       | PIC16F874A-I/ML        |
| PIC18F2480-E/ML        | PIC16F874AT-I/ML       |
| PIC18F2480-I/ML        | PIC16F877A-E/ML        |
| PIC18F2480T-E/ML       | PIC16F877A-I/ML        |
| PIC18F2480T-I/ML       | PIC16F877A-I/MLC31     |
| PIC18F2580-E/ML        | PIC16F877AT-I/ML       |
| PIC18F2580-I/ML        | PIC16F884-E/ML         |
| PIC18F2580T-I/ML       | PIC16F884-I/ML         |
| PIC18F2580T-I/MLC02    | PIC16F884T-I/ML        |
| PIC18LF2331-I/MM       | PIC16F887-E/ML         |
| PIC18LF2331T-I/MM      | PIC16F887-I/ML         |
| PIC18LF2431-I/MM       | PIC16F887T-I/ML        |
| PIC18LF2431T-I/MM      | PIC16F914-E/ML         |

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| PIC18LF2480-I/ML      | PIC16F914-I/ML      |
| PIC18LF2480T-I/ML     | PIC16F914T-I/ML     |
| PIC18LF2580-I/ML      | PIC16F917-E/ML      |
| PIC18LF2580-I/MLC01   | PIC16F917-I/ML      |
| PIC18LF2580T-I/ML     | PIC16F917T-I/ML     |
| PIC24HJ128GP202-E/MM  | PIC16LF747-I/ML     |
| PIC24HJ128GP202-I/MM  | PIC16LF747T-I/ML    |
| PIC24HJ128GP202T-E/MM | PIC16LF74-I/ML      |
| PIC24HJ128GP202T-I/MM | PIC16LF74T-I/ML     |
| PIC24HJ128GP502-E/MM  | PIC16LF777-I/ML     |
| PIC24HJ128GP502-I/MM  | PIC16LF777T-I/ML    |
| PIC24HJ128GP502T-E/MM | PIC16LF77-I/ML      |
| PIC24HJ128GP502T-I/MM | PIC16LF77T-I/ML     |
| PIC24HJ32GP202-E/MM   | PIC16LF874A-I/ML    |
| PIC24HJ32GP202-I/MM   | PIC16LF874AT-I/ML   |
| PIC24HJ32GP202T-E/MM  | PIC16LF877A-I/ML    |
| PIC24HJ32GP202T-I/MM  | PIC18F4220-E/ML     |
| PIC24HJ32GP302-E/MM   | PIC18F4220-I/ML     |
| PIC24HJ32GP302-I/MM   | PIC18F4220-I/ML020  |
| PIC24HJ32GP302T-E/MM  | PIC18F4220T-I/ML    |
| PIC24HJ32GP302T-I/MM  | PIC18F4220T-I/ML020 |
| PIC24HJ64GP202-E/MM   | PIC18F4221-E/ML     |
| PIC24HJ64GP202-I/MM   | PIC18F4221-I/ML     |
| PIC24HJ64GP202T-E/MM  | PIC18F4221T-I/ML    |
| PIC24HJ64GP202T-I/MM  | PIC18F4320-E/ML     |
| PIC24HJ64GP502-E/MM   | PIC18F4320-I/ML     |
| PIC24HJ64GP502-I/MM   | PIC18F4320-I/MLG    |
| PIC24HJ64GP502T-E/MM  | PIC18F4320T-I/ML    |
| PIC24HJ64GP502T-I/MM  | PIC18F4321-E/ML     |
|                       | PIC18F4321-I/ML     |
|                       | PIC18F4321T-I/ML    |
|                       | PIC18F4331-E/ML     |
|                       | PIC18F4331-I/ML     |
|                       | PIC18F4331T-I/ML    |
|                       | PIC18F4410-E/ML     |
|                       | PIC18F4410-I/ML     |
|                       | PIC18F4410T-I/ML    |

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|  | PIC18F4420-E/ML   |
|  | PIC18F4420-I/ML   |
|  | PIC18F4420T-I/ML  |
|  | PIC18F4423-E/ML   |
|  | PIC18F4423-I/ML   |
|  | PIC18F4423T-I/ML  |
|  | PIC18F442-E/ML    |
|  | PIC18F442-I/ML    |
|  | PIC18F442T-I/ML   |
|  | PIC18F4431-E/ML   |
|  | PIC18F4431-I/ML   |
|  | PIC18F4431T-I/ML  |
|  | PIC18F4439-E/ML   |
|  | PIC18F4439-I/ML   |
|  | PIC18F4439T-E/ML  |
|  | PIC18F4439T-I/ML  |
|  | PIC18F4450-I/ML   |
|  | PIC18F4450T-I/ML  |
|  | PIC18F4455-I/ML   |
|  | PIC18F4455T-I/ML  |
|  | PIC18F4458-I/ML   |
|  | PIC18F4458T-I/ML  |
|  | PIC18F4480-E/ML   |
|  | PIC18F4480-I/ML   |
|  | PIC18F4480T-I/ML  |
|  | PIC18F44J10-I/ML  |
|  | PIC18F44J10T-I/ML |
|  | PIC18F44J11-I/ML  |
|  | PIC18F44J11T-I/ML |
|  | PIC18F44J50-I/ML  |
|  | PIC18F44J50T-I/ML |
|  | PIC18F44K20-E/ML  |
|  | PIC18F44K20-I/ML  |
|  | PIC18F44K20T-I/ML |
|  | PIC18F4510-E/ML   |
|  | PIC18F4510-I/ML   |
|  | PIC18F4510T-I/ML  |

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|  | PIC18F4515-E/ML     |
|  | PIC18F4515-I/ML     |
|  | PIC18F4515T-I/ML    |
|  | PIC18F4520-E/ML     |
|  | PIC18F4520-I/ML     |
|  | PIC18F4520T-E/ML    |
|  | PIC18F4520T-I/ML    |
|  | PIC18F4520T-I/ML022 |
|  | PIC18F4520T-I/ML047 |
|  | PIC18F4523-E/ML     |
|  | PIC18F4523-I/ML     |
|  | PIC18F4523T-I/ML    |
|  | PIC18F4525-E/ML     |
|  | PIC18F4525-I/ML     |
|  | PIC18F4525-I/MLB4   |
|  | PIC18F4525T-I/ML    |
|  | PIC18F452-E/ML      |
|  | PIC18F452-I/ML      |
|  | PIC18F452T-E/ML     |
|  | PIC18F452T-I/ML     |
|  | PIC18F4539-E/ML     |
|  | PIC18F4539-I/ML     |
|  | PIC18F4539T-E/ML    |
|  | PIC18F4539T-I/ML    |
|  | PIC18F4550-I/ML     |
|  | PIC18F4550T-I/ML    |
|  | PIC18F4553-I/ML     |
|  | PIC18F4553T-I/ML    |
|  | PIC18F4580-E/ML     |
|  | PIC18F4580-I/ML     |
|  | PIC18F4580T-I/ML    |
|  | PIC18F4585-E/ML     |
|  | PIC18F4585-I/ML     |
|  | PIC18F4585T-I/ML    |
|  | PIC18F45J10-I/ML    |
|  | PIC18F45J10T-I/ML   |
|  | PIC18F45J11-I/ML    |

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|  | PIC18F45J11T-I/ML    |
|  | PIC18F45J50-I/ML     |
|  | PIC18F45J50T-I/ML    |
|  | PIC18F45K20-E/ML     |
|  | PIC18F45K20-I/ML     |
|  | PIC18F45K20-I/MLC01  |
|  | PIC18F45K20T-I/ML    |
|  | PIC18F45K20T-I/MLC01 |
|  | PIC18F4610-E/ML      |
|  | PIC18F4610-I/ML      |
|  | PIC18F4610T-I/ML     |
|  | PIC18F4620-E/ML      |
|  | PIC18F4620-I/ML      |
|  | PIC18F4620T-I/ML     |
|  | PIC18F4680-E/ML      |
|  | PIC18F4680-I/ML      |
|  | PIC18F4680T-I/ML     |
|  | PIC18F4682-E/ML      |
|  | PIC18F4682-I/ML      |
|  | PIC18F4682T-I/ML     |
|  | PIC18F4685-E/ML      |
|  | PIC18F4685-I/ML      |
|  | PIC18F4685T-I/ML     |
|  | PIC18F46J11-I/ML     |
|  | PIC18F46J11T-I/ML    |
|  | PIC18F46J50-I/ML     |
|  | PIC18F46J50T-I/ML    |
|  | PIC18F46K20-E/ML     |
|  | PIC18F46K20-I/ML     |
|  | PIC18F46K20T-I/ML    |
|  | PIC18LF4220-I/ML     |
|  | PIC18LF4220T-I/ML    |
|  | PIC18LF4221-I/ML     |
|  | PIC18LF4221T-I/ML    |
|  | PIC18LF4320-I/ML     |
|  | PIC18LF4320-I/MLC06  |
|  | PIC18LF4320-I/MLG    |

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|  | PIC18LF4320T-I/ML    |
|  | PIC18LF4320T-I/MLC05 |
|  | PIC18LF4320T-I/MLC06 |
|  | PIC18LF4321-I/ML     |
|  | PIC18LF4321T-I/ML    |
|  | PIC18LF4331-I/ML     |
|  | PIC18LF4331T-I/ML    |
|  | PIC18LF4410-I/ML     |
|  | PIC18LF4410T-I/ML    |
|  | PIC18LF4420-I/ML     |
|  | PIC18LF4420T-I/ML    |
|  | PIC18LF4423-I/ML     |
|  | PIC18LF4423T-I/ML    |
|  | PIC18LF442-I/ML      |
|  | PIC18LF442T-I/ML     |
|  | PIC18LF4431-I/ML     |
|  | PIC18LF4431-I/MLC02  |
|  | PIC18LF4431T-I/ML    |
|  | PIC18LF4431T-I/MLC02 |
|  | PIC18LF4439-I/ML     |
|  | PIC18LF4439T-I/ML    |
|  | PIC18LF4450-I/ML     |
|  | PIC18LF4450T-I/ML    |
|  | PIC18LF4455-I/ML     |
|  | PIC18LF4455T-I/ML    |
|  | PIC18LF4458-I/ML     |
|  | PIC18LF4458T-I/ML    |
|  | PIC18LF4480-I/ML     |
|  | PIC18LF4480T-I/ML    |
|  | PIC18LF44J10-I/ML    |
|  | PIC18LF44J10T-I/ML   |
|  | PIC18LF44J11-I/ML    |
|  | PIC18LF44J11T-I/ML   |
|  | PIC18LF44J50-I/ML    |
|  | PIC18LF44J50T-I/ML   |
|  | PIC18LF4510-I/ML     |
|  | PIC18LF4510T-I/ML    |

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|  | PIC18LF4515-I/ML     |
|  | PIC18LF4515T-I/ML    |
|  | PIC18LF4520-I/ML     |
|  | PIC18LF4520T-I/ML    |
|  | PIC18LF4520T-I/MLC07 |
|  | PIC18LF4523-I/ML     |
|  | PIC18LF4523T-I/ML    |
|  | PIC18LF4525-I/ML     |
|  | PIC18LF4525T-I/ML    |
|  | PIC18LF452-I/ML      |
|  | PIC18LF452-I/MLC01   |
|  | PIC18LF452T-I/ML     |
|  | PIC18LF4539-I/ML     |
|  | PIC18LF4539T-I/ML    |
|  | PIC18LF4550-I/ML     |
|  | PIC18LF4550-I/MLC04  |
|  | PIC18LF4550T-I/ML    |
|  | PIC18LF4550T-I/ML022 |
|  | PIC18LF4553-I/ML     |
|  | PIC18LF4553T-I/ML    |
|  | PIC18LF4580-I/ML     |
|  | PIC18LF4580T-I/ML    |
|  | PIC18LF4585-I/ML     |
|  | PIC18LF4585T-I/ML    |
|  | PIC18LF45J10-I/ML    |
|  | PIC18LF45J10T-I/ML   |
|  | PIC18LF45J11-I/ML    |
|  | PIC18LF45J11T-I/ML   |
|  | PIC18LF45J50-I/ML    |
|  | PIC18LF45J50T-I/ML   |
|  | PIC18LF4610-I/ML     |
|  | PIC18LF4610T-I/ML    |
|  | PIC18LF4620-I/ML     |
|  | PIC18LF4620-I/MLC04  |
|  | PIC18LF4620T-I/ML    |
|  | PIC18LF4680-I/ML     |
|  | PIC18LF4680T-I/ML    |

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|  | PIC18LF4682-I/ML       |
|  | PIC18LF4685-I/ML       |
|  | PIC18LF4685T-I/ML      |
|  | PIC18LF46J11-I/ML      |
|  | PIC18LF46J11T-I/ML     |
|  | PIC18LF46J50-I/ML      |
|  | PIC18LF46J50T-I/ML     |
|  | PIC24FJ16GA004-E/ML    |
|  | PIC24FJ16GA004-I/ML    |
|  | PIC24FJ16GA004-I/MLB4  |
|  | PIC24FJ16GA004T-I/ML   |
|  | PIC24FJ16GA004T-I/MLB4 |
|  | PIC24FJ32GA004-E/ML    |
|  | PIC24FJ32GA004-I/ML    |
|  | PIC24FJ32GA004-I/MLB4  |
|  | PIC24FJ32GA004T-I/ML   |
|  | PIC24FJ48GA004-E/ML    |
|  | PIC24FJ48GA004-I/ML    |
|  | PIC24FJ48GA004T-I/ML   |
|  | PIC24FJ64GA004-E/ML    |
|  | PIC24FJ64GA004-I/ML    |
|  | PIC24FJ64GA004-I/MLB4  |
|  | PIC24FJ64GA004T-I/ML   |
|  | PIC24HJ16GP304-E/ML    |
|  | PIC24HJ16GP304-I/ML    |
|  | PIC24HJ16GP304T-E/ML   |
|  | PIC24HJ16GP304T-I/ML   |
|  | PIC24HJ32GP204-E/ML    |
|  | PIC24HJ32GP204-I/ML    |
|  | PIC24HJ32GP204T-E/ML   |
|  | PIC24HJ32GP204T-I/ML   |

| CATALOG PART_NBR         | CATALOG PART_NBR        |
|--------------------------|-------------------------|
| 28L QFN-S                | 44L QFN                 |
| DSPIC30F1010-20E/MM      | DSPIC30F2023-20E/ML     |
| DSPIC30F1010-30I/MM      | DSPIC30F2023-30I/ML     |
| DSPIC30F1010T-20E/MM     | DSPIC30F2023-30I/MLD32  |
| DSPIC30F1010T-30I/MM     | DSPIC30F2023-30V/MLD31  |
| DSPIC30F2010-20E/MM      | DSPIC30F2023T-20E/ML    |
| DSPIC30F2010-20I/MM      | DSPIC30F2023T-30I/ML    |
| DSPIC30F2010-30I/MM      | DSPIC30F2023T-30I/MLD32 |
| DSPIC30F2010-30V/MMA31   | DSPIC30F2023T-30V/MLD31 |
| DSPIC30F2010T-20E/MM     | DSPIC30F3010-20E/ML     |
| DSPIC30F2010T-20E/MM021  | DSPIC30F3010-20I/ML     |
| DSPIC30F2010T-20E/MM022  | DSPIC30F3010-30I/ML     |
| DSPIC30F2010T-20E/MMG    | DSPIC30F3010T-20E/ML    |
| DSPIC30F2010T-20E/MMG020 | DSPIC30F3010T-20I/ML    |
| DSPIC30F2010T-20I/MM     | DSPIC30F3010T-30I/ML    |
| DSPIC30F2010T-30I/MM     | DSPIC30F3011-10I/MLB22  |
| DSPIC30F2010T-30I/MMG    | DSPIC30F3011-20E/ML     |
| DSPIC30F2010T-30V/MMA31  | DSPIC30F3011-20I/ML     |
| DSPIC30F2020-20E/MM      | DSPIC30F3011-30I/ML     |
| DSPIC30F2020-30I/MM      | DSPIC30F3011T-10I/MLB21 |
| DSPIC30F2020-30I/MMB32   | DSPIC30F3011T-10I/MLB22 |
| DSPIC30F2020-30I/MMB35   | DSPIC30F3011T-20E/ML    |
| DSPIC30F2020T-20E/MM     | DSPIC30F3011T-20I/ML    |
| DSPIC30F2020T-30I/MM     | DSPIC30F3011T-30I/ML    |
| DSPIC30F2020T-30I/MM020  | DSPIC30F3012-20E/ML     |
| DSPIC30F2020T-30I/MMB32  | DSPIC30F3012-20I/ML     |
| DSPIC30F2020T-30I/MMB35  | DSPIC30F3012-30I/ML     |
| DSPIC33FJ06GS102-E/MM    | DSPIC30F3012T-20E/ML    |
| DSPIC33FJ06GS102-I/MM    | DSPIC30F3012T-20I/ML    |
| DSPIC33FJ06GS102T-E/MM   | DSPIC30F3012T-30I/ML    |
| DSPIC33FJ06GS102T-I/MM   | DSPIC30F3013-20E/ML     |
| DSPIC33FJ06GS202-E/MM    | DSPIC30F3013-20I/ML     |
| DSPIC33FJ06GS202-I/MM    | DSPIC30F3013-20I/MLC01  |
| DSPIC33FJ06GS202T-E/MM   | DSPIC30F3013-30I/ML     |
| DSPIC33FJ06GS202T-I/MM   | DSPIC30F3013T-20E/ML    |
| DSPIC33FJ128GP202-E/MM   | DSPIC30F3013T-20I/ML    |
| DSPIC33FJ128GP202-I/MM   | DSPIC30F3013T-20I/MLC01 |
| DSPIC33FJ128GP202T-E/MM  | DSPIC30F3013T-30I/ML    |
| DSPIC33FJ128GP202T-I/MM  | DSPIC30F3014-20E/ML     |
| DSPIC33FJ128GP802-E/MM   | DSPIC30F3014-20I/ML     |
| DSPIC33FJ128GP802-I/MM   | DSPIC30F3014-30I/ML     |
| DSPIC33FJ128GP802T-E/MM  | DSPIC30F3014-30I/MLA31  |
| DSPIC33FJ128GP802T-I/MM  | DSPIC30F3014T-20E/ML    |
| DSPIC33FJ128MC202-E/MM   | DSPIC30F3014T-20I/ML    |
| DSPIC33FJ128MC202-I/MM   | DSPIC30F3014T-30I/ML    |
| DSPIC33FJ128MC202T-E/MM  | DSPIC30F3014T-30I/MLA31 |
| DSPIC33FJ128MC202T-I/MM  | DSPIC30F4011-20E/ML     |
| DSPIC33FJ128MC802-E/MM   | DSPIC30F4011-20I/ML     |
| DSPIC33FJ128MC802-I/MM   | DSPIC30F4011-30I/ML     |
| DSPIC33FJ128MC802T-E/MM  | DSPIC30F4011T-20E/ML    |
| DSPIC33FJ128MC802T-I/MM  | DSPIC30F4011T-20I/ML    |

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| DSPIC33FJ16GS402-E/MM  | DSPIC30F4011T-30I/ML    |
| DSPIC33FJ16GS402-I/MM  | DSPIC30F4012-20E/ML     |
| DSPIC33FJ16GS402T-E/MM | DSPIC30F4012-20I/ML     |
| DSPIC33FJ16GS402T-I/MM | DSPIC30F4012-30I/ML     |
| DSPIC33FJ16GS502-E/MM  | DSPIC30F4012T-20E/ML    |
| DSPIC33FJ16GS502-I/MM  | DSPIC30F4012T-20I/ML    |
| DSPIC33FJ16GS502T-E/MM | DSPIC30F4012T-30I/ML    |
| DSPIC33FJ16GS502T-I/MM | DSPIC30F4013-20E/ML     |
| DSPIC33FJ32GP202-E/MM  | DSPIC30F4013-20I/ML     |
| DSPIC33FJ32GP202-I/MM  | DSPIC30F4013-30I/ML     |
| DSPIC33FJ32GP202T-E/MM | DSPIC30F4013-30I/MLB31  |
| DSPIC33FJ32GP202T-I/MM | DSPIC30F4013T-20E/ML    |
| DSPIC33FJ32GP302-E/MM  | DSPIC30F4013T-20I/ML    |
| DSPIC33FJ32GP302-I/MM  | DSPIC30F4013T-30I/ML    |
| DSPIC33FJ32GP302T-E/MM | DSPIC30F4013T-30I/MLB31 |
| DSPIC33FJ32GP302T-I/MM | DSPIC33FJ16GP304-E/ML   |
| DSPIC33FJ32MC202-E/MM  | DSPIC33FJ16GP304-I/ML   |
| DSPIC33FJ32MC202-I/MM  | DSPIC33FJ16GP304T-E/ML  |
| DSPIC33FJ32MC202T-E/MM | DSPIC33FJ16GP304T-I/ML  |
| DSPIC33FJ32MC202T-I/MM | DSPIC33FJ16MC304-E/ML   |
| DSPIC33FJ32MC302-E/MM  | DSPIC33FJ16MC304-I/ML   |
| DSPIC33FJ32MC302-I/MM  | DSPIC33FJ16MC304T-E/ML  |
| DSPIC33FJ32MC302T-E/MM | DSPIC33FJ16MC304T-I/ML  |
| DSPIC33FJ32MC302T-I/MM | DSPIC33FJ32GP204-E/ML   |
| DSPIC33FJ64GP202-E/MM  | DSPIC33FJ32GP204-I/ML   |
| DSPIC33FJ64GP202-I/MM  | DSPIC33FJ32GP204T-E/ML  |
| DSPIC33FJ64GP202T-E/MM | DSPIC33FJ32GP204T-I/ML  |
| DSPIC33FJ64GP202T-I/MM | DSPIC33FJ32MC204-E/ML   |
| DSPIC33FJ64GP802-E/MM  | DSPIC33FJ32MC204-I/ML   |
| DSPIC33FJ64GP802-I/MM  | DSPIC33FJ32MC204T-E/ML  |
| DSPIC33FJ64GP802T-E/MM | DSPIC33FJ32MC204T-I/ML  |
| DSPIC33FJ64GP802T-I/MM | PIC16F747-E/ML          |
| DSPIC33FJ64MC202-E/MM  | PIC16F747-I/ML          |
| DSPIC33FJ64MC202-I/MM  | PIC16F747T-I/ML         |
| DSPIC33FJ64MC202T-E/MM | PIC16F74-E/ML           |
| DSPIC33FJ64MC202T-I/MM | PIC16F74-I/ML           |
| DSPIC33FJ64MC802-E/MM  | PIC16F74T-E/ML          |
| DSPIC33FJ64MC802-I/MM  | PIC16F74T-I/ML          |
| DSPIC33FJ64MC802T-E/MM | PIC16F777-E/ML          |
| DSPIC33FJ64MC802T-I/MM | PIC16F777-I/ML          |
| PIC18F2331-E/MM        | PIC16F777T-I/ML         |
| PIC18F2331-I/MM        | PIC16F77-E/ML           |
| PIC18F2331T-I/MM       | PIC16F77-I/ML           |
| PIC18F2431-E/MM        | PIC16F77T-E/ML          |
| PIC18F2431-E/MMC01     | PIC16F77T-I/ML          |
| PIC18F2431-I/MM        | PIC16F874A-E/ML         |
| PIC18F2431T-I/MM       | PIC16F874A-I/ML         |
| PIC18F2480-E/ML        | PIC16F874AT-I/ML        |
| PIC18F2480-I/ML        | PIC16F877A-E/ML         |
| PIC18F2480T-E/ML       | PIC16F877A-I/ML         |
| PIC18F2480T-I/ML       | PIC16F877A-I/MLC31      |
| PIC18F2580-E/ML        | PIC16F877AT-I/ML        |

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| PIC18F2580-I/ML       | PIC16F884-E/ML      |
| PIC18F2580T-I/ML      | PIC16F884-I/ML      |
| PIC18F2580T-I/MLC02   | PIC16F884T-I/ML     |
| PIC18LF2331-I/MM      | PIC16F887-E/ML      |
| PIC18LF2331T-I/MM     | PIC16F887-I/ML      |
| PIC18LF2431-I/MM      | PIC16F887T-I/ML     |
| PIC18LF2431T-I/MM     | PIC16F914-E/ML      |
| PIC18LF2480-I/ML      | PIC16F914-I/ML      |
| PIC18LF2480T-I/ML     | PIC16F914T-I/ML     |
| PIC18LF2580-I/ML      | PIC16F917-E/ML      |
| PIC18LF2580-I/MLC01   | PIC16F917-I/ML      |
| PIC18LF2580T-I/ML     | PIC16F917T-I/ML     |
| PIC24HJ128GP202-E/MM  | PIC16LF747-I/ML     |
| PIC24HJ128GP202-I/MM  | PIC16LF747T-I/ML    |
| PIC24HJ128GP202T-E/MM | PIC16LF74-I/ML      |
| PIC24HJ128GP202T-I/MM | PIC16LF74T-I/ML     |
| PIC24HJ128GP502-E/MM  | PIC16LF777-I/ML     |
| PIC24HJ128GP502-I/MM  | PIC16LF777T-I/ML    |
| PIC24HJ128GP502T-E/MM | PIC16LF77-I/ML      |
| PIC24HJ128GP502T-I/MM | PIC16LF77T-I/ML     |
| PIC24HJ32GP202-E/MM   | PIC16LF874A-I/ML    |
| PIC24HJ32GP202-I/MM   | PIC16LF874AT-I/ML   |
| PIC24HJ32GP202T-E/MM  | PIC16LF877A-I/ML    |
| PIC24HJ32GP202T-I/MM  | PIC18F4220-E/ML     |
| PIC24HJ32GP302-E/MM   | PIC18F4220-I/ML     |
| PIC24HJ32GP302-I/MM   | PIC18F4220-I/ML020  |
| PIC24HJ32GP302T-E/MM  | PIC18F4220T-I/ML    |
| PIC24HJ32GP302T-I/MM  | PIC18F4220T-I/ML020 |
| PIC24HJ64GP202-E/MM   | PIC18F4221-E/ML     |
| PIC24HJ64GP202-I/MM   | PIC18F4221-I/ML     |
| PIC24HJ64GP202T-E/MM  | PIC18F4221T-I/ML    |
| PIC24HJ64GP202T-I/MM  | PIC18F4320-E/ML     |
| PIC24HJ64GP502-E/MM   | PIC18F4320-I/ML     |
| PIC24HJ64GP502-I/MM   | PIC18F4320-I/MLG    |
| PIC24HJ64GP502T-E/MM  | PIC18F4320T-I/ML    |
| PIC24HJ64GP502T-I/MM  | PIC18F4321-E/ML     |
|                       | PIC18F4321-I/ML     |
|                       | PIC18F4321T-I/ML    |
|                       | PIC18F4331-E/ML     |
|                       | PIC18F4331-I/ML     |
|                       | PIC18F4331T-I/ML    |
|                       | PIC18F4410-E/ML     |
|                       | PIC18F4410-I/ML     |
|                       | PIC18F4410T-I/ML    |
|                       | PIC18F4420-E/ML     |
|                       | PIC18F4420-I/ML     |
|                       | PIC18F4420T-I/ML    |
|                       | PIC18F4423-E/ML     |
|                       | PIC18F4423-I/ML     |
|                       | PIC18F4423T-I/ML    |
|                       | PIC18F442-E/ML      |
|                       | PIC18F442-I/ML      |

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| PIC18F442T-I/ML     |
| PIC18F4431-E/ML     |
| PIC18F4431-I/ML     |
| PIC18F4431T-I/ML    |
| PIC18F4439-E/ML     |
| PIC18F4439-I/ML     |
| PIC18F4439T-E/ML    |
| PIC18F4439T-I/ML    |
| PIC18F4450-I/ML     |
| PIC18F4450T-I/ML    |
| PIC18F4455-I/ML     |
| PIC18F4455T-I/ML    |
| PIC18F4458-I/ML     |
| PIC18F4458T-I/ML    |
| PIC18F4480-E/ML     |
| PIC18F4480-I/ML     |
| PIC18F4480T-I/ML    |
| PIC18F44J10-I/ML    |
| PIC18F44J10T-I/ML   |
| PIC18F44J11-I/ML    |
| PIC18F44J11T-I/ML   |
| PIC18F44J50-I/ML    |
| PIC18F44J50T-I/ML   |
| PIC18F44K20-E/ML    |
| PIC18F44K20-I/ML    |
| PIC18F44K20T-I/ML   |
| PIC18F4510-E/ML     |
| PIC18F4510-I/ML     |
| PIC18F4510T-I/ML    |
| PIC18F4515-E/ML     |
| PIC18F4515-I/ML     |
| PIC18F4515T-I/ML    |
| PIC18F4520-E/ML     |
| PIC18F4520-I/ML     |
| PIC18F4520T-E/ML    |
| PIC18F4520T-I/ML    |
| PIC18F4520T-I/ML022 |
| PIC18F4520T-I/ML047 |
| PIC18F4523-E/ML     |
| PIC18F4523-I/ML     |
| PIC18F4523T-I/ML    |
| PIC18F4525-E/ML     |
| PIC18F4525-I/ML     |
| PIC18F4525-I/MLB4   |
| PIC18F4525T-I/ML    |
| PIC18F452-E/ML      |
| PIC18F452-I/ML      |
| PIC18F452T-E/ML     |
| PIC18F452T-I/ML     |
| PIC18F4539-E/ML     |
| PIC18F4539-I/ML     |
| PIC18F4539T-E/ML    |

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| PIC18F4539T-I/ML     |
| PIC18F4550-I/ML      |
| PIC18F4550T-I/ML     |
| PIC18F4553-I/ML      |
| PIC18F4553T-I/ML     |
| PIC18F4580-E/ML      |
| PIC18F4580-I/ML      |
| PIC18F4580T-I/ML     |
| PIC18F4585-E/ML      |
| PIC18F4585-I/ML      |
| PIC18F4585T-I/ML     |
| PIC18F45J10-I/ML     |
| PIC18F45J10T-I/ML    |
| PIC18F45J11-I/ML     |
| PIC18F45J11T-I/ML    |
| PIC18F45J50-I/ML     |
| PIC18F45J50T-I/ML    |
| PIC18F45K20-E/ML     |
| PIC18F45K20-I/ML     |
| PIC18F45K20-I/MLC01  |
| PIC18F45K20T-I/ML    |
| PIC18F45K20T-I/MLC01 |
| PIC18F4610-E/ML      |
| PIC18F4610-I/ML      |
| PIC18F4610T-I/ML     |
| PIC18F4620-E/ML      |
| PIC18F4620-I/ML      |
| PIC18F4620T-I/ML     |
| PIC18F4680-E/ML      |
| PIC18F4680-I/ML      |
| PIC18F4680T-I/ML     |
| PIC18F4682-E/ML      |
| PIC18F4682-I/ML      |
| PIC18F4682T-I/ML     |
| PIC18F4685-E/ML      |
| PIC18F4685-I/ML      |
| PIC18F4685T-I/ML     |
| PIC18F46J11-I/ML     |
| PIC18F46J11T-I/ML    |
| PIC18F46J50-I/ML     |
| PIC18F46J50T-I/ML    |
| PIC18F46K20-E/ML     |
| PIC18F46K20-I/ML     |
| PIC18F46K20T-I/ML    |
| PIC18LF4220-I/ML     |
| PIC18LF4220T-I/ML    |
| PIC18LF4221-I/ML     |
| PIC18LF4221T-I/ML    |
| PIC18LF4320-I/ML     |
| PIC18LF4320-I/MLC06  |
| PIC18LF4320-I/MLG    |
| PIC18LF4320T-I/ML    |

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| PIC18LF4320T-I/MLC05 |
| PIC18LF4320T-I/MLC06 |
| PIC18LF4321-I/ML     |
| PIC18LF4321T-I/ML    |
| PIC18LF4331-I/ML     |
| PIC18LF4331T-I/ML    |
| PIC18LF4410-I/ML     |
| PIC18LF4410T-I/ML    |
| PIC18LF4420-I/ML     |
| PIC18LF4420T-I/ML    |
| PIC18LF4423-I/ML     |
| PIC18LF4423T-I/ML    |
| PIC18LF442-I/ML      |
| PIC18LF442T-I/ML     |
| PIC18LF4431-I/ML     |
| PIC18LF4431-I/MLC02  |
| PIC18LF4431T-I/ML    |
| PIC18LF4431T-I/MLC02 |
| PIC18LF4439-I/ML     |
| PIC18LF4439T-I/ML    |
| PIC18LF4450-I/ML     |
| PIC18LF4450T-I/ML    |
| PIC18LF4455-I/ML     |
| PIC18LF4455T-I/ML    |
| PIC18LF4458-I/ML     |
| PIC18LF4458T-I/ML    |
| PIC18LF4480-I/ML     |
| PIC18LF4480T-I/ML    |
| PIC18LF44J10-I/ML    |
| PIC18LF44J10T-I/ML   |
| PIC18LF44J11-I/ML    |
| PIC18LF44J11T-I/ML   |
| PIC18LF44J50-I/ML    |
| PIC18LF44J50T-I/ML   |
| PIC18LF4510-I/ML     |
| PIC18LF4510T-I/ML    |
| PIC18LF4515-I/ML     |
| PIC18LF4515T-I/ML    |
| PIC18LF4520-I/ML     |
| PIC18LF4520T-I/ML    |
| PIC18LF4520T-I/MLC07 |
| PIC18LF4523-I/ML     |
| PIC18LF4523T-I/ML    |
| PIC18LF4525-I/ML     |
| PIC18LF4525T-I/ML    |
| PIC18LF452-I/ML      |
| PIC18LF452-I/MLC01   |
| PIC18LF452T-I/ML     |
| PIC18LF4539-I/ML     |
| PIC18LF4539T-I/ML    |
| PIC18LF4550-I/ML     |
| PIC18LF4550-I/MLC04  |

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| PIC18LF4550T-I/ML      |
| PIC18LF4550T-I/ML022   |
| PIC18LF4553-I/ML       |
| PIC18LF4553T-I/ML      |
| PIC18LF4580-I/ML       |
| PIC18LF4580T-I/ML      |
| PIC18LF4585-I/ML       |
| PIC18LF4585T-I/ML      |
| PIC18LF45J10-I/ML      |
| PIC18LF45J10T-I/ML     |
| PIC18LF45J11-I/ML      |
| PIC18LF45J11T-I/ML     |
| PIC18LF45J50-I/ML      |
| PIC18LF45J50T-I/ML     |
| PIC18LF4610-I/ML       |
| PIC18LF4610T-I/ML      |
| PIC18LF4620-I/ML       |
| PIC18LF4620-I/MLC04    |
| PIC18LF4620T-I/ML      |
| PIC18LF4680-I/ML       |
| PIC18LF4680T-I/ML      |
| PIC18LF4682-I/ML       |
| PIC18LF4685-I/ML       |
| PIC18LF4685T-I/ML      |
| PIC18LF46J11-I/ML      |
| PIC18LF46J11T-I/ML     |
| PIC18LF46J50-I/ML      |
| PIC18LF46J50T-I/ML     |
| PIC24FJ16GA004-E/ML    |
| PIC24FJ16GA004-I/ML    |
| PIC24FJ16GA004-I/MLB4  |
| PIC24FJ16GA004T-I/ML   |
| PIC24FJ16GA004T-I/MLB4 |
| PIC24FJ32GA004-E/ML    |
| PIC24FJ32GA004-I/ML    |
| PIC24FJ32GA004-I/MLB4  |
| PIC24FJ32GA004T-I/ML   |
| PIC24FJ48GA004-E/ML    |
| PIC24FJ48GA004-I/ML    |
| PIC24FJ48GA004T-I/ML   |
| PIC24FJ64GA004-E/ML    |
| PIC24FJ64GA004-I/ML    |
| PIC24FJ64GA004-I/MLB4  |
| PIC24FJ64GA004T-I/ML   |
| PIC24HJ16GP304-E/ML    |
| PIC24HJ16GP304-I/ML    |
| PIC24HJ16GP304T-E/ML   |
| PIC24HJ16GP304T-I/ML   |
| PIC24HJ32GP204-E/ML    |
| PIC24HJ32GP204-I/ML    |
| PIC24HJ32GP204T-E/ML   |
| PIC24HJ32GP204T-I/ML   |



# **QUALIFICATION PLAN**

**CCB#: 893**  
**PCN#: CYAR-7RTMU5**

**Date:**  
**Apr 27, 2009**

## **Qualification of High Density Lead Frame in 28L QFN-S & 44L QFN Packages at UNIS Assembly Site**

### **Distribution**

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**Purpose:** \_\_\_\_\_ Qualification of High Density Lead Frame in 28L QFN-S &  
44L QFN Packages at UNIS Assembly Site  
**Mask:** \_\_\_\_\_ DECS9  
**Part No.:** \_\_\_\_\_ PIC18F468  
**Bonding No.:** \_\_\_\_\_ A-029554 Rev. B

**Package:**

**Type** \_\_\_\_\_ 44L QFN  
**Width or Size:** \_\_\_\_\_ 8x8  
**Die thickness:** \_\_\_\_\_ 11 mils  
**Die size:** \_\_\_\_\_ 177.4 x 227.4 mils

**Lead frame:**

**Paddle size:** \_\_\_\_\_ 268 x 268 mils  
**Material** \_\_\_\_\_ A194  
**Surface** \_\_\_\_\_ Bare copper on paddle  
**Process** \_\_\_\_\_ Etched  
**Lead Lock** \_\_\_\_\_ No  
**Part Number** \_\_\_\_\_ TBD

**Wire:**

**Material** \_\_\_\_\_ Au

**Die Attach Epoxy:**

**Part Number** \_\_\_\_\_ CRM1067DJ  
**Conductive** \_\_\_\_\_ Yes

**Mold Compound:** \_\_\_\_\_ G770HCD

**Reliability Test plan:** \_\_\_\_\_ See attached, STD Package Reliability Test plan for 44L  
QFN (8x8) Package at UNIS.

| Test Name                                                 | Conditions                                                                                                                                                                                                                                                      | Sample Size | Min. Qty of Spares per Lot (should be properly marked) | Quantity of Lots | Total Units | Fail Accept #       | Est. Dur. Days | Special Instructions                                                                                          |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|------------------|-------------|---------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| Solderability                                             | JESD22 B102; Perform 8 hour steam aging prior to testing.                                                                                                                                                                                                       | 22          | 0                                                      | 1                | 22          | > 95% lead coverage | 5              |                                                                                                               |
| Wire Bond Pull - WBP                                      | Mil. Std. 883-2011                                                                                                                                                                                                                                              | 5           | 0                                                      | 1                | 5           | 0                   | 5              | 30 bonds from a min. of 5 devices.                                                                            |
| Wire Bond Shear - WBS                                     | CDF-AEC-Q100-001                                                                                                                                                                                                                                                | 5           | 0                                                      | 1                | 5           |                     | 5              | 30 bonds from a min. of 5 devices.                                                                            |
| Physical Dimensions                                       | Measure per JESD22 B100 and B108                                                                                                                                                                                                                                | 10          | 0                                                      | 3                | 30          | 0                   | 5              |                                                                                                               |
|                                                           |                                                                                                                                                                                                                                                                 |             |                                                        |                  |             |                     |                |                                                                                                               |
| External Visual                                           | Mil. Std. 883-2009/2010                                                                                                                                                                                                                                         | ALL         | 0                                                      | 3                | ALL         | 0                   | 5              | All devices prior to submission for qualification testing                                                     |
|                                                           |                                                                                                                                                                                                                                                                 |             |                                                        |                  |             |                     |                |                                                                                                               |
| Preconditioning - *<br>Required for surface mount devices | +150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020C for package type; Electrical test pre and post stress at +25°C. Perform SAM analysis using the standard sample size. MSL1/260°C | 231         | 15                                                     | 3                | 738         | 0                   | 15             | Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test. |

| Test Name   | Conditions                                                                                                                                                    | Sample Size | Min. Qty of Spares per Lot (should be properly marked) | Quantity of Lots | Total Units | Fail Accept # | Est. Dur. Days | Special Instructions                                                                          |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|------------------|-------------|---------------|----------------|-----------------------------------------------------------------------------------------------|
| HAST *      | +130 °C/85% RH for 96 hours.<br>Electrical test pre and post stress at +25 and +85°C.                                                                         | 77          | 5                                                      | 3                | 246         | 0             | 10             | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| Autoclave * | +121 °C/15 psig for 96 hours.<br>Electrical test pre and post stress at +25 °C                                                                                | 77          | 5                                                      | 3                | 246         | 0             | 10             | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| Temp Cycle* | -65°C to +150°C for 500 cycles.<br>Electrical test pre and post stress at +85°C; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress. | 77          | 5                                                      | 3                | 246         | 0             | 15             | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |