



## Product / Process Change Notification JLIO-7J7TZ3

Notice Date: 09/10/2008

Product Category: dsPIC; Ethernet Communication; LIN Communication;  
PIC16xxx; PIC18xxx; PIC24xxx

Notification Subject: CCB#848: QUALIFICATION OF 28L QFN (6X6X0.9MM)  
PACKAGE AT ASAT LIMITED, CHINA (ASAC)  
ASSEMBLY

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.  
[CCB#848\\_Microchip\\_Catalot\\_Part#s\\_Affected.xls](#)  
[CCB#848\\_Microchip\\_Catalot\\_Part#s\\_Affected.pdf](#)

Description of Change:  
New assembly site

Impacts to Data Sheet:  
None

Reason for Change:

To improve production cycle time and on-time delivery performance for products in the 28L QFN package (6X6X0.9MM).

Change Implementation Status:  
In Progress

Estimated Change Implementation Date(s):  
Oct 31, 2008 (Date Code: 0844)

NOTE: Please be advised that the utilization of this assembly site (ASAC) for the 28L QFN package (6X6X0.9MM) will depend on the backlog demand for products in this package.

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

Attachment(s):

PCN\_JL10-7J7TZ3\_28L QFN\_ASAC\_CCB848 Qual Plan.pdf    CCB#848\_Microchip\_Catalog\_Part#s\_Affected.pdf

CCB#848\_Microchip\_Catalog\_Part#s\_Affected.xls



**MICROCHIP**

# **QUALIFICATION PLAN**

**CCB 848  
JLIO-7J7TZ3  
August 15, 2008**

**28L QFN 6x6x0.9mm  
At  
ASAT Limited, China (ASAC) Assembly**

Distribution

Surasit P.  
Wanphen L.  
Wichai K.  
Chaweng W.  
Gerry O.  
Chalermpon P.

Rangsun K.  
A. Navarro  
R. Sharma

Microchip Technology ( Thailand ) Co.,Ltd.  
14 Moo 1 T.Wangtakien A. Muangchacherngsao,  
Chacherngsao, Thailand,24000  
Tel. (6638) 857119-45 , 857311-19 ext. 1231  
Fax (6638) 857149-50

**Purpose:** \_\_\_\_\_ To qualify ASAC assembly site for 28L QFN  
6x6x0.9mm package.  
**MP code:** \_\_\_\_\_ DEBG47M4XVL1  
**Part No.:** \_\_\_\_\_ PIC18LF2410-I/MLVAO  
**Bonding No.:** \_\_\_\_\_ BDE-000625 Rev 01

**Package:**

**Type** \_\_\_\_\_ 28L QFN 6x6  
**Width or Size** \_\_\_\_\_ 6x6 mm  
**Die thickness:** \_\_\_\_\_ 11 mils  
**Die size:** \_\_\_\_\_ 145.7x146.9 mils

**Lead frame:**

**Paddle size:** \_\_\_\_\_ 177x177 mils  
**Material** \_\_\_\_\_ QPL China-Ci194  
**Surface** \_\_\_\_\_ Bare Cu  
**Process** \_\_\_\_\_ Etched  
**Lead Lock** \_\_\_\_\_ Half Etched  
**Part Number** \_\_\_\_\_ 11606058-2

**Wire:**

**Material** \_\_\_\_\_ Au – Tanaka Japan  
**Wire Diameter** \_\_\_\_\_ 1.0 mil

**Die Attach Epoxy:**

**Part Number** \_\_\_\_\_ A2200 – Ablestik USA  
**Conductive** \_\_\_\_\_ Yes

**Mold Compound:** \_\_\_\_\_ G770 C – Sumitomo Singapore

**Reliability Test plan:** \_\_\_\_\_ See attached , STD Package Reliability Test plan for  
28L QFN 6x6

Package Reliability Tests								
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	Cpk > 1.33 or 0 fails after TC	5	30 bonds from a min. 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	1	5	Cpk > 1.33	5	30 bonds from a min. 5 devices.
Physical Dimensions	Measure per JESD22 B100 and B108	10	0	3	30	0 and Cpk > 1.33	5	
External Visual	Mil. Std. 883-2009/2010	ALL	0	3	ALL	0	5	All devices prior to submission for qualification testing
Preconditioning - * 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.	231	15	3	738	0	15	Spares should be properly identified.

Package Reliability Tests								
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. 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. 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. 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.

<b>Microchip Catalog Part Numbers Affected</b>
--

DSPIC30F1010-20E/MM
DSPIC30F1010-30I/MM
DSPIC30F1010T-20E/MM
DSPIC30F1010T-30I/MM
DSPIC30F2010-20E/MM
DSPIC30F2010-20I/MM
DSPIC30F2010-30I/MM
DSPIC30F2010-30V/MMA31
DSPIC30F2010T-20E/MM
DSPIC30F2010T-20E/MM021
DSPIC30F2010T-20E/MM022
DSPIC30F2010T-20E/MMG
DSPIC30F2010T-20E/MMG020
DSPIC30F2010T-20I/MM
DSPIC30F2010T-30I/MM
DSPIC30F2010T-30I/MMG
DSPIC30F2010T-30V/MMA31
DSPIC30F2011-20E/ML
DSPIC30F2011-20I/ML
DSPIC30F2011-30I/ML
DSPIC30F2011T-20E/ML
DSPIC30F2011T-20I/ML
DSPIC30F2011T-30I/ML
DSPIC30F2012-20E/ML
DSPIC30F2012-20I/ML
DSPIC30F2012-30I/ML
DSPIC30F2012T-20E/ML
DSPIC30F2012T-20I/ML
DSPIC30F2012T-30I/ML
DSPIC30F2020-20E/MM
DSPIC30F2020-30I/MM
DSPIC30F2020-30I/MMB32
DSPIC30F2020T-20E/MM
DSPIC30F2020T-30I/MM
DSPIC30F2020T-30I/MMB32
DSPIC33FJ128GP202-E/MM
DSPIC33FJ128GP202-I/MM
DSPIC33FJ128GP202T-E/MM
DSPIC33FJ128GP202T-I/MM
DSPIC33FJ128GP802-E/MM
DSPIC33FJ128GP802-I/MM
DSPIC33FJ128GP802T-E/MM
DSPIC33FJ128GP802T-I/MM
DSPIC33FJ128MC202-E/MM
DSPIC33FJ128MC202-I/MM
DSPIC33FJ128MC202T-E/MM
DSPIC33FJ128MC202T-I/MM
DSPIC33FJ128MC802-E/MM
DSPIC33FJ128MC802-I/MM

DSPIC33FJ128MC802T-E/MM
DSPIC33FJ128MC802T-I/MM
DSPIC33FJ12GP202-E/ML
DSPIC33FJ12GP202-I/ML
DSPIC33FJ12GP202T-E/ML
DSPIC33FJ12GP202T-I/ML
DSPIC33FJ12MC202-E/ML
DSPIC33FJ12MC202-I/ML
DSPIC33FJ12MC202T-E/ML
DSPIC33FJ12MC202T-I/ML
DSPIC33FJ32GP202-E/MM
DSPIC33FJ32GP202-I/MM
DSPIC33FJ32GP202T-E/MM
DSPIC33FJ32GP202T-I/MM
DSPIC33FJ32GP302-E/MM
DSPIC33FJ32GP302-I/MM
DSPIC33FJ32GP302T-E/MM
DSPIC33FJ32GP302T-I/MM
DSPIC33FJ32MC202-E/MM
DSPIC33FJ32MC202-I/MM
DSPIC33FJ32MC202T-E/MM
DSPIC33FJ32MC202T-I/MM
DSPIC33FJ32MC302-E/MM
DSPIC33FJ32MC302-I/MM
DSPIC33FJ32MC302T-E/MM
DSPIC33FJ32MC302T-I/MM
DSPIC33FJ64GP202-E/MM
DSPIC33FJ64GP202-I/MM
DSPIC33FJ64GP202T-E/MM
DSPIC33FJ64GP202T-I/MM
DSPIC33FJ64GP802-E/MM
DSPIC33FJ64GP802-I/MM
DSPIC33FJ64GP802T-E/MM
DSPIC33FJ64GP802T-I/MM
DSPIC33FJ64MC202-E/MM
DSPIC33FJ64MC202-I/MM
DSPIC33FJ64MC202T-E/MM
DSPIC33FJ64MC202T-I/MM
DSPIC33FJ64MC802-E/MM
DSPIC33FJ64MC802-I/MM
DSPIC33FJ64MC802T-E/MM
DSPIC33FJ64MC802T-I/MM
ENC28J60-I/ML
ENC28J60-I/MLC05
ENC28J60/ML
ENC28J60/MLC01
ENC28J60T-I/ML
ENC28J60T/ML
ENC28J60T/MLC01
HA1517-I/ML109
HA1517T-I/ML109
MCP23016-I/ML



MCP23016T-I/ML
MCP23017-E/ML
MCP23017T-E/ML
MCP23S17-E/ML
MCP23S17T-E/ML
PIC16C62B-04E/ML
PIC16C62B-20E/ML
PIC16C62B-20I/ML
PIC16C62BT-04E/ML
PIC16C62BT-20E/ML
PIC16C63A-04E/ML
PIC16C63A-20E/ML
PIC16C63A-20I/ML
PIC16C63A-E/MLPKG
PIC16C63AT-04E/ML
PIC16C63AT-20E/ML
PIC16C63AT-20I/ML051
PIC16C72A-04E/ML
PIC16C72A-20E/ML
PIC16C72A-20I/ML
PIC16C72AT-04E/ML
PIC16C72AT-20E/ML
PIC16C73B-04E/ML
PIC16C73B-20E/ML
PIC16C73B-20I/ML
PIC16C73B-E/MLPKG
PIC16C73BT-04E/ML
PIC16F627A-E/ML
PIC16F627A-I/ML
PIC16F627AT-I/ML
PIC16F628A-E/ML
PIC16F628A-I/ML
PIC16F628AT-E/ML
PIC16F628AT-I/ML
PIC16F648A-E/ML
PIC16F648A-I/ML
PIC16F648AT-E/ML
PIC16F648AT-I/ML
PIC16F716-E/ML
PIC16F72-E/ML
PIC16F72-I/ML
PIC16F72-I/MLG
PIC16F722-I/ML
PIC16F722T-I/ML
PIC16F723-E/ML
PIC16F723-I/ML
PIC16F723T-I/ML
PIC16F726-E/ML
PIC16F726-I/ML
PIC16F726T-I/ML
PIC16F72T-I/ML
PIC16F73-E/ML

PIC16F73-I/ML
PIC16F737-E/ML
PIC16F737-I/ML
PIC16F737T-E/ML
PIC16F737T-I/ML
PIC16F73T-E/ML
PIC16F73T-I/ML
PIC16F76-E/ML
PIC16F76-I/ML
PIC16F767-E/ML
PIC16F767-I/ML
PIC16F767T-E/ML
PIC16F767T-I/ML
PIC16F76T-E/ML
PIC16F76T-I/ML
PIC16F76T-I/MLG
PIC16F818-E/ML
PIC16F818-I/ML
PIC16F818-I/ML033
PIC16F818-I/MLTSL
PIC16F818T-E/ML
PIC16F818T-I/ML
PIC16F818T-I/ML033
PIC16F818T-I/MLTSL
PIC16F819-E/ML
PIC16F819-I/ML
PIC16F819-I/MLC10
PIC16F819-I/MLG
PIC16F819-I/MLTSL
PIC16F819T-E/ML
PIC16F819T-I/ML
PIC16F819T-I/MLG
PIC16F819T-I/MLTSL
PIC16F87-E/ML
PIC16F87-I/ML
PIC16F873A-E/ML
PIC16F873A-I/ML
PIC16F873AT-E/ML
PIC16F873AT-I/ML
PIC16F873AT-I/MLG
PIC16F876A-E/ML
PIC16F876A-I/ML
PIC16F876A-I/MLC30
PIC16F876AT-E/ML
PIC16F876AT-I/ML
PIC16F87T-E/ML
PIC16F87T-I/ML
PIC16F88-E/ML
PIC16F88-I/ML
PIC16F88-I/ML026
PIC16F882-E/ML
PIC16F882-I/ML

PIC16F882T-I/ML
PIC16F883-E/ML
PIC16F883-I/ML
PIC16F883T-I/ML
PIC16F883T-I/ML024
PIC16F886-E/ML
PIC16F886-I/ML
PIC16F886T-I/ML
PIC16F88T-E/ML
PIC16F88T-I/ML
PIC16F913-E/ML
PIC16F913-E/MLC02
PIC16F913-I/ML
PIC16F913T-E/MLC02
PIC16F913T-I/ML
PIC16F916-E/ML
PIC16F916-E/MLC02
PIC16F916-I/ML
PIC16F916T-E/MLC02
PIC16F916T-I/ML
PIC16LC63A-04I/ML
PIC16LC63A-04I/MLC03
PIC16LC72A-04I/ML
PIC16LC72AT-04I/ML
PIC16LF627A-I/ML
PIC16LF627AT-I/ML
PIC16LF627AT-I/ML030
PIC16LF628A-I/ML
PIC16LF628A-I/MLG
PIC16LF628AT-I/ML
PIC16LF628AT-I/MLG
PIC16LF648A-I/ML
PIC16LF648AT-I/ML
PIC16LF72-I/ML
PIC16LF72-I/ML026
PIC16LF72-I/MLG
PIC16LF723-E/ML
PIC16LF723-I/ML
PIC16LF723T-I/ML
PIC16LF726-E/ML
PIC16LF726-I/ML
PIC16LF726T-I/ML
PIC16LF72T-I/ML
PIC16LF72T-I/ML068
PIC16LF72T-I/MLC02
PIC16LF72T-I/MLG
PIC16LF73-I/ML
PIC16LF737-I/ML
PIC16LF737T-I/ML
PIC16LF73T-I/ML
PIC16LF73T-I/ML065
PIC16LF73T-I/ML144

PIC16LF73T-I/MLG
PIC16LF76-I/ML
PIC16LF767-I/ML
PIC16LF767T-I/ML
PIC16LF76T-I/ML057
PIC16LF818-I/ML
PIC16LF818-I/MLTSL
PIC16LF818T-I/ML
PIC16LF818T-I/MLTSL
PIC16LF819-I/ML
PIC16LF819-I/MLC16
PIC16LF819-I/MLTSL
PIC16LF819T-I/ML
PIC16LF819T-I/ML024
PIC16LF819T-I/MLTSL
PIC16LF87-I/ML
PIC16LF873A-I/ML
PIC16LF873AT-I/ML
PIC16LF876A-I/ML
PIC16LF876AT-I/ML
PIC16LF876AT-I/ML036
PIC16LF876AT-I/MLC11
PIC16LF87T-I/ML
PIC16LF88-I/ML
PIC16LF88T-I/ML
PIC16LF88T-I/ML022
PIC16LF88T-I/ML023
PIC18F1220-E/ML
PIC18F1220-I/ML
PIC18F1220-I/MLC04
PIC18F1220T-I/ML
PIC18F1220T-I/ML020
PIC18F1230-E/ML
PIC18F1230-I/ML
PIC18F1230-I/MLXXX
PIC18F1230T-E/ML
PIC18F1230T-I/ML
PIC18F1320-E/ML
PIC18F1320-I/ML
PIC18F1320-I/MLC04
PIC18F1320T-I/ML
PIC18F1330-E/ML
PIC18F1330-I/ML
PIC18F1330-I/MLXXX
PIC18F1330-ICD/ML
PIC18F1330T-E/ML
PIC18F1330T-I/ML
PIC18F2221-E/ML
PIC18F2221-I/ML
PIC18F2221T-I/ML
PIC18F2321-E/ML
PIC18F2321-I/ML

PIC18F2321T-E/ML
PIC18F2321T-I/ML
PIC18F2331-E/MM
PIC18F2331-I/MM
PIC18F2331T-I/MM
PIC18F2410-E/ML
PIC18F2410-I/ML
PIC18F2410-I/MLC01
PIC18F2410T-I/ML
PIC18F2410T-I/MLC01
PIC18F2420-E/ML
PIC18F2420-I/ML
PIC18F2420T-E/ML
PIC18F2420T-I/ML
PIC18F2423-E/ML
PIC18F2423-I/ML
PIC18F2423T-I/ML
PIC18F2431-E/MM
PIC18F2431-E/MMC01
PIC18F2431-I/MM
PIC18F2431T-I/MM
PIC18F2450-I/ML
PIC18F2450T-I/ML
PIC18F2450T-I/ML100
PIC18F2450T-I/ML101
PIC18F2450T-I/ML102
PIC18F2450T-I/ML103
PIC18F2450T-I/ML106
PIC18F2450T-I/ML107
PIC18F2480-E/ML
PIC18F2480-I/ML
PIC18F2480T-E/ML
PIC18F2480T-I/ML
PIC18F24J10-I/ML
PIC18F24J10T-I/ML
PIC18F24K20-E/ML
PIC18F24K20-I/ML
PIC18F24K20T-I/ML
PIC18F24K20T-I/ML015
PIC18F2510-E/ML
PIC18F2510-I/ML
PIC18F2510T-E/ML
PIC18F2510T-I/ML
PIC18F2520-E/ML
PIC18F2520-I/ML
PIC18F2520T-I/ML
PIC18F2523-E/ML
PIC18F2523-I/ML
PIC18F2523T-I/ML
PIC18F2580-E/ML
PIC18F2580-I/ML
PIC18F2580T-I/ML

PIC18F25J10-I/ML
PIC18F25J10-I/ML020
PIC18F25J10-I/MLC02
PIC18F25J10T-I/ML
PIC18F25K20-E/ML
PIC18F25K20-I/ML
PIC18F25K20T-I/ML
PIC18F26K20-E/ML
PIC18F26K20-I/ML
PIC18F26K20T-I/ML
PIC18LF1220-I/ML
PIC18LF1220T-I/ML
PIC18LF1230-I/ML
PIC18LF1320-I/ML
PIC18LF1320T-I/ML
PIC18LF1320T-I/ML021
PIC18LF1320T-I/ML023
PIC18LF1330-I/ML
PIC18LF2221-I/ML
PIC18LF2221T-I/ML
PIC18LF2321-I/ML
PIC18LF2321T-I/ML
PIC18LF2331-I/MM
PIC18LF2331T-I/MM
PIC18LF2410-I/ML
PIC18LF2410T-I/ML
PIC18LF2420-I/ML
PIC18LF2420T-I/ML
PIC18LF2420T-I/ML022
PIC18LF2423-I/ML
PIC18LF2423T-I/ML
PIC18LF2431-I/MM
PIC18LF2431T-I/MM
PIC18LF2450-I/ML
PIC18LF2450T-I/ML
PIC18LF2450T-I/ML105
PIC18LF2450T-I/ML204
PIC18LF2450T-I/ML205
PIC18LF2480-I/ML
PIC18LF2480T-I/ML
PIC18LF24J10-I/ML
PIC18LF24J10T-I/ML
PIC18LF2510-I/ML
PIC18LF2510T-I/ML
PIC18LF2520-I/ML
PIC18LF2520-I/MLC05
PIC18LF2520T-I/ML
PIC18LF2520T-I/MLC05
PIC18LF2523-I/ML
PIC18LF2523T-I/ML
PIC18LF2580-I/ML
PIC18LF2580-I/MLC01

PIC18LF2580T-I/ML
PIC18LF25J10-I/ML
PIC18LF25J10T-I/ML
PIC24FJ16GA002-E/ML
PIC24FJ16GA002-I/ML
PIC24FJ16GA002T-I/ML
PIC24FJ32GA002-E/ML
PIC24FJ32GA002-I/ML
PIC24FJ32GA002T-I/ML
PIC24FJ48GA002-E/ML
PIC24FJ48GA002-I/ML
PIC24FJ48GA002T-I/ML
PIC24FJ64GA002-E/ML
PIC24FJ64GA002-I/ML
PIC24FJ64GA002-I/MLC02
PIC24FJ64GA002T-I/ML
PIC24HJ128GP202-E/MM
PIC24HJ128GP202-I/MM
PIC24HJ128GP202T-E/MM
PIC24HJ128GP202T-I/MM
PIC24HJ128GP502-E/MM
PIC24HJ128GP502-I/MM
PIC24HJ128GP502T-E/MM
PIC24HJ128GP502T-I/MM
PIC24HJ12GP202-E/ML
PIC24HJ12GP202-I/ML
PIC24HJ12GP202T-E/ML
PIC24HJ12GP202T-I/ML
PIC24HJ32GP202-E/MM
PIC24HJ32GP202-I/MM
PIC24HJ32GP202T-E/MM
PIC24HJ32GP202T-I/MM
PIC24HJ32GP302-E/MM
PIC24HJ32GP302-I/MM
PIC24HJ32GP302T-E/MM
PIC24HJ32GP302T-I/MM
PIC24HJ64GP202-E/MM
PIC24HJ64GP202-I/MM
PIC24HJ64GP202T-E/MM
PIC24HJ64GP202T-I/MM
PIC24HJ64GP502-E/MM
PIC24HJ64GP502-I/MM
PIC24HJ64GP502T-E/MM
PIC24HJ64GP502T-I/MM