

Product / Process Change Notification SPOL-7JMRVC

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The information below reflects a change that is being implemented.

Notice Date: 09/19/2008

Product Category: Linear Devices; Mixed Signal Devices; Power Management; Thermal Management; LIN Communication; 24xxx; 25xxx; 93xxx; PIC10xxx; PIC12xxx; RFID; SDP

Notification Subject: CCB#837: Qualification of E500 Mold Compound and 84-1LMISR4 Die Attach Epoxy for 8L PDIP Package at MMS Assembly

Notification Body:

PCN Status:
Final Notification

Microchip Part#s Affected (please see the link for these files at the end of this PCN):
[CCB 837_Microchip Catalog Part#s Affected.xls](#)
[CCB 837_Microchip Catalog Part#s Affected.pdf](#)

Description of Change:
Change in bill of materials

Pre-Change:
Mold Compound: EME6600CR
Die Attach Epoxy: 8390A

Post-Change:
Mold Compound: E500
Die Attach Epoxy: 84-1LMISR4

Impacts to Data Sheet:
None

Reason for Change:
To improve manufacturability

Change Implementation Status:
In progress

Estimated Change Implementation Date(s):
October 15, 2008 (Date Code: 0842)

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

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

Attachment(s):

CCB 837_Microchip Catalog Part#s Affected.xls CCB 837_Microchip Catalog Part#s Affected.pdf

PCN_SPOL-7JMRVC_8L PDIP_MMS_CCB837_Qual Report.pdf

Microchip Catalog Part#s Affected

24AA00-I/PROC
24AA00/PROC
24AA01-I/PDK
24AA02-I/P
24AA02-I/PRVB
24AA02-I/PRVC
24AA02/P
24AA02/PRVB
24AA02/PRVC
24AA04-I/PRVC
24AA04/PRVC
24AA08-I/P
24AA08/P
24AA08H-I/P
24AA128-I/P
24AA16-I/P
24AA16-I/PDK
24AA16-I/PRVD
24AA16/P
24AA16/PRVD
24AA256-I/P
24AA256-I/PG
24AA32/P
24AA32A-I/P
24AA512-I/P
24AA512-I/PDK
24AA64-I/P
24AA64-I/PG
24AA64/P
24AA65/P
24C00-E/P
24C00-I/P
24C00/P
24C32-I/P
24C32/P
24C32E/P
24C65-E/P
24C65-I/P
24C65/P
24LC00-I/PROC
24LC00/PA35
24LC00/PROC
24LC01B-E/P
24LC01B-I/P
24LC01B-I/PG
24LC01B-I/PNR
24LC01B-I/PPB
24LC01B-I/PROC
24LC01B/P
24LC01B/PROC
24LC02B-E/P

24LC02B-E/PRVC
24LC02B-I/P
24LC02B-I/PNR
24LC02B-I/PROCRVB
24LC02B-I/PRVB
24LC02B-I/PRVC
24LC02B/P
24LC02B/PA22
24LC02B/PA23
24LC02B/PA32
24LC02B/PA33RVB
24LC02B/PROCRVB
24LC02B/PROCRVC
24LC02B/PRVB
24LC02B/PRVC
24LC04B-E/PRVC
24LC04B-I/PPB
24LC04B-I/PROC
24LC04B-I/PROCRVC
24LC04B-I/PRVC
24LC04B/PA28
24LC04B/PROC
24LC04B/PROCRVC
24LC04B/PRVC
24LC08B-E/P
24LC08B-I/P
24LC08B-I/PA45
24LC08B-I/PNR
24LC08B/P
24LC08BH-E/P
24LC08BH-I/P
24LC128-E/P
24LC128-I/P
24LC128-I/PA22
24LC16B-E/P
24LC16B-E/PRVD
24LC16B-I/P
24LC16B-I/PA21
24LC16B-I/PA45
24LC16B-I/PNR
24LC16B-I/PROCRVD
24LC16B-I/PRVD
24LC16B/P
24LC16B/PROC
24LC16B/PROCRVD
24LC16B/PRVD
24LC21-I/P
24LC21-I/PROC
24LC21/P
24LC21/PROC
24LC211-I/P
24LC211/P

24LC211/PB25
24LC211/PB26
24LC211/PB40
24LC21A-I/P
24LC21A-I/PG
24LC21A-I/PROC
24LC21A/P
24LC21A/PB27
24LC21A/PROC
24LC256-E/P
24LC256-I/P
24LC256-I/PG
24LC32-I/P
24LC32/P
24LC32/PE41
24LC32A-E/P
24LC32A-I/P
24LC32A-I/PROC
24LC32A-I/PROCRVB
24LC32A/P
24LC32A/PROCRVB
24LC512-E/P
24LC512-I/P
24LC64-E/P
24LC64-I/P
24LC64-I/P100
24LC64-I/PG
24LC65-I/P
24LC65/P
24LC65/PB40
24LCS21-I/P
24LCS21-I/PA40
24LCS21/P
24LCS21A-I/P
24LCS21A-I/PG
24LCS21A-I/PROC
24LCS21A/P
24LCS21A/PROC
25AA040-I/PDK
25AA080-I/P
25AA080-I/PB62
25AA080/P
25AA080/PB61
25AA080B-I/PDK
25AA128-I/P
25AA160-I/PB62
25AA160-I/PG
25AA160/PB61
25AA256-I/P
25AA320A-I/P
25AA640-I/PDK
25AA640A-I/P

25C080-E/P
25C080-E/PC75
25C080-I/P
25C080-I/PC62
25C080/P
25C080/PC61
25C160-E/PC75
25C160-I/PC62
25C160/PC61
25C320-E/P
25C320-I/PROC
25LC080-I/P
25LC080-I/PA62
25LC080/P
25LC080/PA61
25LC128-E/P
25LC128-I/P
25LC160-I/PA62
25LC160/PA61
25LC256-E/P
25LC256-I/P
25LC320-I/PROC
25LC320-I/PROCRVA
25LC320-I/PRVA
25LC320A-E/P
25LC320A-I/P
25LC640A-E/P
25LC640A-I/P
93AA46B-I/P
93AA46B-I/PDK
93AA66A-I/P
93AA66B-I/P
93AA66C-I/P
93AA66C-I/PDK
93AA86C-I/PDK
93C46A-E/PRVA
93C46A-I/PRVA
93C46B-E/P
93C46B-E/PPB
93C46B-E/PRVA
93C46B-I/P
93C46B-I/PPBRVA
93C46B/P
93C46B/PROC
93C46B/PROCRVA
93C46B/PRVA
93C56A-E/PRVA
93C56B-E/PRVA
93C66A-E/P
93C66A-E/PRVA
93C66A-I/P
93C66B-E/P

93C66B-E/PRVA
93C66B-I/P
93C66C-E/P
93C66C-I/P
93LC46-I/PB25
93LC46-I/PG
93LC46-I/PPB
93LC46-I/PROC
93LC46/P400
93LC46/PB25
93LC46/PB26
93LC46/PROC
93LC46A-I/PROC
93LC46A-I/PROCRVA
93LC46A-I/PRVA
93LC46A/PROC
93LC46A/PROCRVA
93LC46A/PRVA
93LC46B-E/P
93LC46B-I/P
93LC46B-I/P400
93LC46B-I/PD32
93LC46B-I/PROC
93LC46B-I/PROCRVA
93LC46B-I/PRVA
93LC46B/P
93LC46B/P400
93LC46B/PA26
93LC46B/PD32
93LC46B/PROC
93LC46B/PRVA
93LC46C-I/PROC
93LC56/PA21
93LC56A-I/PRVA
93LC56A/PRVA
93LC56B-I/PC22
93LC56B-I/PRVA
93LC56B/PC22
93LC66-I/PPB
93LC66/PB40
93LC66/PROC
93LC66A-E/P
93LC66A-I/P
93LC66A-I/PRVA
93LC66A/P
93LC66A/PRVA
93LC66B-E/P
93LC66B-I/P
93LC66B-I/PD22
93LC66B-I/PROC
93LC66B-I/PROCRVA
93LC66B-I/PRVA

93LC66B/P
93LC66B/PD22
93LC66B/PROC
93LC66B/PROCRVA
93LC66B/PRVA
93LC66C-E/P
93LC66C-I/P
93LC86/PA22
GEN321-I/P001
GEN321-I/P004
HA2283-I/P
MCP1403-E/P
MCP1404-E/P
MCP1405-E/P
MCP1406-E/P
MCP1407-E/P
MCP1525-I/P
MCP2021-330E/P
MCP2021-500E/P
MCP4011-103E/P
MCP4011-202E/P
MCP4011-502E/P
MCP4011-503E/P
MCP41010-E/P
MCP41010-I/P
MCP4131-103E/P
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MCP4131-502E/P
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MCP4132-103E/P
MCP4132-104E/P
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MCP4162-503E/P
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MCP4822-E/P
MCP4921-E/P
MCP6002-E/P
MCP6002-I/P
MCP601-E/P
MCP601-I/P
MCP602-E/P
MCP602-I/P
MCP603-E/P
MCP603-I/P
MCP603-I/PBAA
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MCP6041-I/P
MCP6041-I/PAAA
MCP6042-E/P
MCP6042-I/P
MCP6042-I/PAAA
MCP6043-E/P
MCP6043-I/P
MCP607-I/PG
MCP6271-E/P
MCP6272-E/P
MCP6283-E/P
MCP6546-E/P
MCP6546-I/P
MCP6548-E/P
MCP6548-I/P
MCRF450/P
PIC10F200-E/P
PIC10F200-E/P028
PIC10F200-I/P
PIC10F200-I/P068
PIC10F202-E/P
PIC10F202-I/P
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PIC10F202-I/P074
PIC10F204-I/P030
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PIC10F206-I/P024
PIC10F220-E/P
PIC10F220-I/P
PIC10F222-E/P
PIC10F222-I/P
PIC10F222-I/P025

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PIC10F222-I/P027
PIC12C508A-04/P
PIC12C508A-04/P037
PIC12C508A-04/P072
PIC12C508A-04/P108
PIC12C508A-04/P150
PIC12C508A-04/P213
PIC12C508A-04/PC05
PIC12C508A-04/PC06
PIC12C508A-04/PNROC
PIC12C508A-04E/P
PIC12C508A-04I/P
PIC12C508A-04I/P020
PIC12C508A-04I/P085
PIC12C508A-04I/P114
PIC12C508A-04I/P133
PIC12C508A-04I/P151
PIC12C508A-04I/P154
PIC12C508A-04I/P157
PIC12C508A-04I/P158
PIC12C508A-04I/P176
PIC12C508A-04I/P200
PIC12C508A-04I/P201
PIC12C508A-04I/P202
PIC12C508A-04I/P206
PIC12C508A-04I/P212
PIC12C508A-04I/P214
PIC12C508A-04I/P217
PIC12C509A-04/P
PIC12C509A-04E/P
PIC12C509A-04I/P
PIC12C509A-04I/P053
PIC12C509A-04I/P090
PIC12C671-04/P
PIC12C671-04E/P
PIC12C671-04I/P
PIC12C671-04I/P046
PIC12C671-10/P
PIC12C671-10E/P
PIC12C671-10I/P
PIC12C672-04/P
PIC12C672-04E/P
PIC12C672-04I/P
PIC12C672-10/P
PIC12C672-10E/P
PIC12C672-10I/P
PIC12F508-E/P
PIC12F508-I/P
PIC12F509-I/P043
PIC12F509-I/PC02
PIC12F510-E/P

PIC12F510-I/P
PIC12F510-I/P020
PIC12F510-I/P021
PIC12F510-I/P022
PIC12F510-I/P030
PIC12F510-I/P031
PIC12F510-I/PC01
PIC12F519-E/P
PIC12F519-I/P
PIC12F615-E/P
PIC12F615-I/P
PIC12F629-C/P
PIC12F629-E/P
PIC12F629-I/P
PIC12F629-I/P024
PIC12F629-I/P092
PIC12F629-I/P178
PIC12F629-I/P187
PIC12F629-I/P189
PIC12F629-I/PC06
PIC12F629-I/PC16
PIC12F675-C/P
PIC12F675-E/P
PIC12F675-I/P
PIC12F675-I/P046
PIC12F675-I/P047
PIC12F675-I/P058
PIC12F675-I/P061
PIC12F675-I/P078
PIC12F675-I/P094
PIC12F675-I/P103
PIC12F675-I/P113
PIC12F675-I/P114
PIC12F675-I/P115
PIC12F675-I/P127
PIC12F683-E/P
PIC12F683-I/P
PIC12F683-I/P021
PIC12F683-I/P024
PIC12F683-I/P046
PIC12F683-I/P047
PIC12F683-I/P048
PIC12HV615-E/P
PIC12HV615-I/P
PIC12LC508A-04/P
PIC12LC508A-04I/P
PIC12LC509A-04/P
PIC12LC509A-04/P098
PIC12LC509A-04/P111
PIC12LC509A-04/P125
PIC12LC509A-04/PG097
PIC12LC509A-04/PG107

PIC12LC509A-04/PGC60
PIC12LC509A-04I/P
PIC12LC671-04/P
PIC12LC671-04I/P
PIC12LC672-04/P
PIC12LC672-04I/P
TC1025CEPA
TC1427CPAG
TC428CPA203
TC428CPAG
TC428CPAROC
TC4404CPA
TC4404EPA
TC4421CPAPB
TC4422CPA
TC4422EPA
TC4422VPA
TC4423AVPA
TC4424AVPA
TC4424EPAG
TC4425AVPA
TC4427CPAG
TC4427EPAG
TC620CCPA
TC620CEPA
TC620HCPA
TC620HEPA
TC623CCPA
TC623CEPA
TC682CPA
TC682EPA



MICROCHIP

QUALIFICATION REPORT
RELIABILITY LABORATORY

Q08116
CCB# 837
PCN# SPOL-7JMRVC

Date
August 21, 2008

8L PDIP (.300") Package Qualification using E500 Mold Compound and
84-1LMISR4 Die Attach Epoxy for MMS Assembly

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MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	To qualify 8L PDIP (.300") with E500 mold compound and 84-1LMISR4 die attach epoxy at MMS assembly
CN	BC081416
QUAL ID	Q08116
MP CODE	C5AC27C4XA00
Part No.	24LC256-I/P
Bonding No.	A-019094 Rev. C (Temporary bonding)
<u>Package</u>	
Type	8L PDIP
Package size	300 mils
Die thickness	15 mils
Die size	105.60 x 78.30 mils
<u>Lead Frame</u>	
Paddle size	100 x 140 mils
Material	CDA194 / Sumsung Techwin (STW), Korea
Surface	Ag spot plating
Process	Stamped
Lead Lock	Yes
Part Number	FB0111
<u>Die attach material</u>	
Epoxy	84-1LMISR4 / Ablestik (China)
Wire	Au wire 0.9 mil / Heraeus (China)
Mold Compound	E500 / Sumitomo (China)
Plating Composition	Matte Tin



MICROCHIP PACKAGE QUALIFICATION REPORT

Assembly Yield

Lot No.	WF No.	Date Code
ATES091300008	GRSM408491460.300	0826EJP
ATES091300009	GRSM408491460.300	0826EJR
ATES091300010	GRSM408491460.300	0826EJS

Result Pass Fail _____

8L PDIP (.300") using BOM E500 Mold Compound and 84-1LMISR4 Epoxy assembled by MMS pass reliability test per QCI-39000.

Prepared By: Thinnapol N. **Date:** August 21, 2008 **(Reliability Engineer)**

Approved By: Surasit P. **Date:** August 21, 2008 **(Reliability Manager)**

PACKAGE QUALIFICATION REPORT

Qual Report : Q08116

Test Number (Reference)	Test Condition	Microchip Spec	Qty. (Acc.)	Date in	Date Out	Def/SS.	Result	Remarks
Electrical Test	Electrical Test :+25°C and 85°C System: NEXTTEST_PT	S12/14/16 (PDC)	693(0)	07/23/08	07/26/08	693		Good Devices
Temp Cycle	Stress Condition: -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H Inspection: External crack inspection all units under 40X Optical magnification Electrical Test: +85°C System: NEXTTEST_PT Bond Strength: Bond Shear (17.40 grams) Wire Pull (> 3 grams)	PI-91020B		07/24/08	08/05/08	231		
		QCI-33003	30(0)	08/05/08	08/05/08	0/30		
		S12/14/16 (PDC)	231(0)	08/05/08	08/05/08	0/231	Pass	77 units / lot
		QCI-91022	15 (0)	08/06/08	08/06/08	0/15	Pass	(See attachment 1)
			15 (0)	08/06/08	08/06/08	0/15	Pass	Wire pull & bond shear after Temp Cycle
Pressure Cooker	Stress Condition: +121°C, 100% RH, 15 PSI, 96 hrs. System: TABAI ESPEC TPC-421 Electrical Test: +25°C System: NEXTTEST_PT	PI-92013B		07/26/08	07/31/08	231		
		S12/14/16 (PDC)	231(0)	07/31/08	08/03/08	0/231	Pass	77 units / lot

PACKAGE QUALIFICATION REPORT

Qual Report : Q08116

Test Number (Reference)	Test Condition	Microchip Spec	Qty. (Acc.)	Date in	Date Out	Def/SS.	Result	Remarks
HAST	Stress Condition: +130 °C/85%RH, 96 hrs. System: HAST 6000X	PI-92010B		07/30/08	08/04/08	231		
	Electrical Test: +25 °C and 85 °C System: NEXTTEST_PT	S12/14/16 (PDC)	231(0)	08/04/08	08/05/08	0/231	Pass	77 units / lot
Bond Strength Data Assembly	Bond Shear (17.40 grams)	QCI-91022	30 (0) bonds Cpk>1.33	-	-	0/30 Cpk=3.22	Pass	(See attachment 2) Wire pull & bond shear data assembly
	Wire Pull (> 3 grams)		30 (0) wires Cpk>1.33	-	-	0/30 Cpk=1.32	Pass	

Cpk 1.33 is required for Q-100 qual only.

Attachment 1

Wire Pull & Ball Shear (Q08116) After T/C 500 Cycles.													
Sub group	Wire Pull Strength (Grams)						Sub group	Ball Shear Strength (Grams)					
	wire1	mode	wire2	mode	wire3	mode		Ball 1	mode	Ball 2	mode	Ball 3	mode
1	7.70	5	9.70	5	6.95	5	1	37.20	2	41.00	2	36.40	2
2	7.80	5	8.55	5	7.00	5	2	42.00	2	39.80	2	34.80	2
3	8.55	5	7.65	5	10.70	5	3	39.60	2	36.80	2	35.40	2
4	8.25	5	7.80	5	8.10	5	4	36.00	2	38.20	2	35.00	2
5	8.10	5	8.10	5	8.30	5	5	41.60	2	32.60	2	36.20	2
MIN.	6.95						MIN.	32.60					
MAX	10.70						MAX	42.00					
AVG.	8.22						AVG.	37.51					
STD.	0.95						STD.	2.77					
Cpk.	1.83						Cpk.	2.42					
SPEC	3.00						SPEC	17.40					

WIRE PULL FAILURE MODE CRITERIA

MODE 1 = LIFTED WELD <Reject>
 MODE 2 = LIFTED BALL <Reject>
 MODE 3 = BROKEN AT MID-SPAN
 MODE 4 = BROKEN AT WELD
 MODE 5 = BROKEN AT BALL-NECK
 MODE 6 = CRATERING <Reject>

BALL SHEAR FAILURE MODE CRITERIA

MODE 1 = BALL LIFT <Reject>
 MODE 2 = BALL SHEAR
 MODE 3 = BALL PAD LIFT
 MODE 4 = CRATERING <Reject>

Note: Average ball diameter = 2.82 Mils

Attachment 2

Wire Pull & Ball Shear Strength 8L PDIP Data Assembly

REL #Q08116 CN#BC081416

C5AC27C4XA00 WF#GRSM408491460.300

Sub group	Wire Pull Strength (Grams)						Sub group	Ball Shear Strength (Grams)					
	wire1	mode	wire2	mode	wire3	mode		Ball 1	mode	Ball 2	mode	Ball 3	mode
1	7.60	5	5.90	5	5.60	5	1	33.90	2	34.50	2	37.50	2
2	7.40	5	5.40	5	6.20	5	2	33.40	2	35.60	2	33.60	2
3	5.40	5	6.10	5	6.90	5	3	35.10	2	35.10	2	34.40	2
4	5.90	5	6.20	5	7.40	5	4	32.70	2	31.90	2	32.00	2
5	6.60	5	6.40	5	7.40	5	5	32.60	2	32.00	2	31.90	2
6	7.10	5	5.80	5	5.80	5	6	34.00	2	32.50	2	33.50	2
7	6.10	5	7.40	5	9.00	5	7	36.30	2	33.30	2	33.00	2
8	7.60	5	5.40	5	6.50	5	8	34.50	2	33.40	2	35.80	2
9	6.80	5	5.90	5	5.80	5	9	32.00	2	31.90	2	33.40	2
10	5.10	5	6.90	5	6.30	5	10	38.00	2	31.30	2	32.90	2
MIN.	5.10						MIN.	31.30					
MAX.	9.00						MAX.	38.00					
AVG.	6.46						AVG.	33.73					
STD.	0.87						STD.	1.69					
Cpk.	1.32						Cpk.	3.22					
SPEC	3.00						SPEC	17.40					

WIRE PULL FAILURE MODE CRITERIA

MODE 1 = LIFTED WELD <Reject>
 MODE 2 = LIFTED BALL <Reject>
 MODE 3 = BROKEN AT MID-SPAN
 MODE 4 = BROKEN AT WELD
 MODE 5 = BROKEN AT BALL-NECK
 MODE 6 = CRATERING <Reject>

BALL SHEAR FAILURE MODE CRITERIA

MODE 1 = BALL LIFT <Reject>
 MODE 2 = BALL SHEAR
 MODE 3 = BALL PAD LIFT
 MODE 4 = CRATERING <Reject>

Attachment 3

Ball Diameter			
	Q08116-01	Q08116-02	Q08116-03
Item	ATES091300008	ATES091300009	ATES091300010
	Mils	Mils	Mils
1	2.80	2.80	2.80
2	2.80	2.90	2.80
3	2.80	2.80	2.80
4	2.90	2.80	2.80
5	2.90	2.80	2.80
6	2.90	2.80	2.80
7	2.80	2.80	2.80
8	2.80	2.90	2.80
9	2.80	2.80	2.80
10	2.80	3.00	2.80
		MIN	2.80
		MAX	3.00
		Average	2.82
		STD	0.05