



**Date:** 14 Mar 2012

**Product Category:** 32-bit PIC Microcontrollers

**Device Family:**  

**Notification subject:** CCB 1033.03 Final Notice: Qualification of YPAA and TDAA masks without polyimide process.

**Notification text:** PCN Status:  
Final notification

Microchip Parts Affected:  
See attachments of affected catalog part numbers (CPN) labeled as...  
PCN\_CYER-22RLMM034\_Affected\_CPN.xls  
PCN\_CYER-22RLMM034\_Affected\_CPN.pdf

Description of Change:  
Qualification of YPAA and TDAA masks without polyimide process.

Impacts to Data Sheet:  
None

Reason for Change:  
To Improve Productivity

Change Implementation Status:  
In Progress

Estimated First Ship Date:  
April 13, 2012 (date code: 1215)

NOTE: Please be advised that during the transition period customers may receive pre and post change parts, due to existing inventory of the pre changed parts.

Markings to Distinguish Revised from Unrevised Devices:  
Traceability code

Revision History:

March 4, 2011: Issued initial notification.

March 14, 2012: Issued final notification. Revised estimated first ship date from 9/1/2011 to 4/13/2012.  
Attached qualification data.

**Attachment(s):**

[PCN\\_CYER-22RLMM034\\_Affected\\_CPN.xls](#) [PCN\\_CYER-22RLMM034\\_Affected\\_CPN.pdf](#)  
[PCN\\_CYER-22RLMM034\\_Qual Data.pdf](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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## Product Change Notification - CYER-22RLMM034

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PCN_CYER-22RLMM034
CATALOG_PART_NBR
PIC32MX320F032H-40I/MR
PIC32MX320F032H-40I/PT
PIC32MX320F032HT-40I/MR
PIC32MX320F032HT-40I/PT
PIC32MX320F064H-40I/MR
PIC32MX320F064H-40I/PT
PIC32MX320F064H-80I/MR
PIC32MX320F064H-80I/PT
PIC32MX320F064HT-40I/MR
PIC32MX320F064HT-40I/PT
PIC32MX320F064HT-80I/MR
PIC32MX320F064HT-80I/PT
PIC32MX320F128H-80I/MR
PIC32MX320F128H-80I/PT
PIC32MX320F128HT-80I/MR
PIC32MX320F128HT-80I/PT
PIC32MX320F128L-80I/BG
PIC32MX320F128L-80I/PT
PIC32MX320F128LT-80I/BG
PIC32MX320F128LT-80I/PT
PIC32MX340F128H-80I/MR
PIC32MX340F128H-80I/PT
PIC32MX340F128HT-80I/MR
PIC32MX340F128HT-80I/PT
PIC32MX340F128L-80I/BG
PIC32MX340F128L-80I/PT
PIC32MX340F128LT-80I/BG
PIC32MX340F128LT-80I/PT
PIC32MX340F256H-80I/MR
PIC32MX340F256H-80I/PT
PIC32MX340F256HT-80I/MR
PIC32MX340F256HT-80I/MR022
PIC32MX340F256HT-80I/PT
PIC32MX340F512H-80I/MR
PIC32MX340F512H-80I/PT
PIC32MX340F512HT-80I/MR
PIC32MX340F512HT-80I/PT
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PIC32MX360F256L-80I/PT
PIC32MX360F256LT-80I/BG
PIC32MX360F256LT-80I/PT
PIC32MX360F512L-80I/BG
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PIC32MX360F512LT-80I/PT
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PIC32MX440F128H-80I/PT
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PIC32MX440F128HT-80I/PT
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PIC32MX440F256HT-80I/MR
PIC32MX440F256HT-80I/PT
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PIC32MX440F512H-80I/PT
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PIC32MX440F512HT-80I/PT
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PIC32MX460F256LT-80I/BG
PIC32MX460F256LT-80I/PT
PIC32MX460F512L-80I/BG
PIC32MX460F512L-80I/PT
PIC32MX460F512LT-80I/BG
PIC32MX460F512LT-80I/PT
PIC32MX575F256H-80I/MR
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PIC32MX575F256LT-80I/PT
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PIC32MX775F256L-80I/PF
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PIC32MX775F512LT-80I/BG
PIC32MX775F512LT-80I/PF
PIC32MX775F512LT-80I/PT
PIC32MX795F512H-80I/MR
PIC32MX795F512H-80I/PT
PIC32MX795F512HT-80I/MR
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PIC32MX795F512L-80I/BG
PIC32MX795F512L-80I/PF
PIC32MX795F512L-80I/PT
PIC32MX795F512LT-80I/BG

PIC32MX795F512LT-80I/PF
PIC32MX795F512LT-80I/PT
PIC32MX795F512LT-80I/PTE21

Parts Affected

PIC32MX320F032H  
PIC32MX320F064H  
PIC32MX320F128H  
PIC32MX320F128L  
PIC32MX340F128H  
PIC32MX340F128L  
PIC32MX340F256H  
PIC32MX340F512H  
PIC32MX360F256L  
PIC32MX360F512L  
PIC32MX420F032H  
PIC32MX440F128H  
PIC32MX440F128L  
PIC32MX440F256H  
PIC32MX440F512H  
PIC32MX460F256L  
PIC32MX460F512L  
PIC32MX575F256H  
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PIC32MX575F512L  
PIC32MX675F256H  
PIC32MX675F256L  
PIC32MX675F512H  
PIC32MX675F512L  
PIC32MX695F512H  
PIC32MX695F512L  
PIC32MX775F256H  
PIC32MX775F256L  
PIC32MX775F512H  
PIC32MX775F512L  
PIC32MX795F512H  
PIC32MX795F512L



**MICROCHIP**

**QUALIFICATION DATA**

**PCN #: CYER-22RLMM034**

**Date:  
March 9, 2012**

**Qualification of YPAA and TDAA masks without  
polyimide process**

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<http://www.microchip.com>



### Test Conditions

Tests are performed in accordance with Microchip specification QCI-39000, "Worldwide Quality Conformance Requirements". The various conditions are listed below.

TEST	METHOD	CONDITION	SAMPLE SIZE RUN	CRITERIA
Early Life Failure Rate (ELFR)	AEC-Q100	150°C, 24 Hrs. Electrical Test at -40°C, +25°C, +85°C or +125°C	2100 (5 lots)	0/300 per lot 3 Lots
High Temperature Operating Life / Dynamic Life Test	MIL-STD 883 Method 1005	150°C, 408 Hrs Electrical Test at -40°C, +25°C and +85°C or +125°C	1541 (5 lots)	0/200 per lot 3 Lots
Endurance Cycling and High Temperature Storage Life / Retention Bake	MIL-STD 883 Method 1033	1K/10K/20K Program Memory E/W cycles at 25°C Electrical Test at +25°C and +85°C or +125°C 175°C, 504 Hrs Electrical Test at +25°C and +85°C or +125°C	569 (5 lots)	0/77 per lot 3 Lots
Endurance Cycling and High Temperature Operating Life (EDR HTOL)	JESD22A-108	1K/10K/20K Program Memory E/W cycles at 25°C Electrical Test at +25°C and +85°C or +125°C 150°C, 408 Hrs Electrical Test at -40°C, +25°C and +85°C or +125°C	369 ( 4 lots)	0/77 per lot 3 Lots
Preconditioning	Jedec-STD-020C	150°C Bake for 24 hours. 85°C/85% R.H. for 168hrs Convection Reflow 260°C for 3 cycles Electrical Test at +25°C and +85°C or +125°C	3858 ( 12 lots)	0/all surface mount devices
Temperature Cycling	JESD22-A104	-65°C to 150°C/500 cycles Electrical Test at +25°C and +85°C or +125°C	985 (12 lots)	3 Lots 0/77
UFAST	JESD22-A118	130°C/85%/96hrs Electrical Test at +25°C and +85°C or +125°C	983 ( 12 lots)	3 Lots 0/77
HAST	JESD22-A110	130°C/85%/96hrs Electrical Test @ 25°C and 85°C or +125°C	983 ( 12 lots)	3 Lots 0/77

### Die Level Results

The results of die level testing are shown below.

#### EARLY FAILURE RATE TESTING AT 150°C

	24 Hours
Lot 1	0/331
Lot 2	0/810
Lot 3	0/325
Lot 4	0/324
Lot 5	0/310

#### DYNAMIC LIFE TESTING AT 150°C

	408 Hours
Lot 1	0/238
Lot 2	0/648
Lot 3	0/209
Lot 4	0/236
Lot 5	0/210

Activation Energy	0.7 eV
Derated Temperature	55°C

	Infant Mortality	Total Life	MTTF (Years)
Device Hours	50,400	642,144	N/A
Fit Rate - 50% Confidence	53	4	27,398
Fit Rate - 60% Confidence	70	6	20,721
Fit Rate - 90% Confidence	176	14	8,248

	Best Estimated Failure Rate (%/KHR)
Infant Mortality	0.0053
Total Life	0.0004

#### ENDURANCE CYCLING AT 25°C AND BAKE AT 175°C

	10K E/W cycles Program Memory Cycles	1K E/W cycles Program Memory Cycles	20K E/W cycles Program Memory Cycles	96 Hours	504 Hours
Lot 1	0/88	N/A	N/A	0/88	0/88
Lot 2	0/252	N/A	N/A	0/252	0/252
Lot 3	N/A	0/88 <sup>1</sup>	N/A	0/85	0/85
Lot 4	N/A	0/88	N/A	0/88	0/88
Lot 5	N/A	N/A	0/56	0/56	0/56

<sup>1</sup> One failing device passed after re-test an additional two good units were removed to aid failure analysis.

**ENDURANCE CYCLING AT 25°C AND DYNAMIC LIFE TEST AT 150°C**

	10K E/W cycles Program Memory Cycles	1K E/W cycles Program Memory Cycles	20K E/W cycles Program Memory Cycles	96 Hours	408 Hours
Lot 1	0/88	N/A	N/A	0/88	0/87 <sup>1</sup>
Lot 2	0/119	N/A	N/A	0/108 <sup>2</sup>	0/108
Lot 3	N/A	0/88	N/A	0/88	0/87 <sup>1</sup>
Lot 4	N/A	0/88 <sup>1</sup>	N/A	0/87	0/87

<sup>1</sup> One device was removed due to visual/mechanical damage during post testing

<sup>2</sup> Sample size was reduced due to Burn-In socket limitations

**Package Reliability Results**
**PRECONDITIONING**

Lot 7	0/305
Lot 8	0/306
Lot 9	0/306
Lot 10	0/306
Lot 11	0/306
Lot 12	0/353
Lot 13	0/352
Lot 14	0/353
Lot 15	0/353
Lot 16	0/306
Lot 17	0/306
Lot 18	0/306

**TEMPERATURE CYCLE**

	500 cycles
Lot 7	0/82
Lot 8	0/82
Lot 9	0/82
Lot 10	0/82
Lot 11	0/82
Lot 12	0/82
Lot 13	0/81
Lot 14	0/82
Lot 15	0/82
Lot 16	0/84
Lot 17	0/82
Lot 18	0/82



**HAST**

	96 Hours
Lot 7	0/82
Lot 8	0/82
Lot 9	0/82
Lot 10	0/82
Lot 11	0/82
Lot 12	0/82
Lot 13	0/82
Lot 14	0/82
Lot 15	0/82
Lot 16	0/81
Lot 17	0/82
Lot 18	0/82

**UHAST**

	96 Hours
Lot 7	0/82
Lot 8	0/82
Lot 9	0/82
Lot 10	0/82
Lot 11	0/81
Lot 12	0/82
Lot 13	0/82
Lot 14	0/82
Lot 15	0/82
Lot 16	0/82
Lot 17	0/82
Lot 18	0/82