



Product Change Notification - LIAL-08IUQV247

Date:

18 Jan 2020

Product Category:

8-bit Microcontrollers; Capacitive Touch Sensors

Affected CPNs:**Notification subject:**

CCB 4039 Initial Notice: Qualification of Microchip Technology Gresham Fab 4 (GRTM) as an additional fabrication site for selected Atmel products.

Notification text:**PCN Status:**

Initial notification.

PCN Type:

Manufacturing Change

Microchip Parts Affected:

Please open one of the icons found in the Affected CPNs section above.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

Description of Change:

Qualification of Microchip Technology Gresham Fab 4 (GRTM) as an additional fabrication site for selected Atmel products.

Pre Change:

Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6 inch wafer

Post Change:

Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6inch wafer or Fabricated at Microchip Technology Gresham Fab 4 (GRTM) using 8inch wafer.

Pre and Post Change Summary:

	Pre Change	Post Change	
Fabrication Supplier and Location	Microchip Technology Colorado - Fab 5 (MCSO)	Microchip Technology Colorado - Fab 5 (MCSO)	Microchip Technology Gresham Fab 4 (GRTM)
Wafer Diameter	6 inches	6 inches	8 inches
Die size	No change	No change	No change
Quality Certification	ISO9001/TS16949 or IATF16949	ISO9001/TS16949 or IATF16949	ISO9001/TS16949 or IATF16949

Impacts to Data Sheet:

None

Change Impact:



None

Reason for Change:

To improve manufacturability and on-time delivery performance by qualifying a second fabrication source Microchip Technology Gresham Fab 4 (GRTM)

Change Implementation Status:

In Progress

Estimated Qualification Completion Date:

June 2020

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:

	January 2020					-->	June 2020				
Workweek	01	02	03	04	05		23	24	25	26	27
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:

January 18, 2020: 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.

Attachment(s):

[PCN_LIAL-08IUQV247_Qual Plan.pdf](#)

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

Terms and Conditions:

If you wish to [receive Microchip PCNs via email](#) please register for our PCN email service at our [PCN home page](#) select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the [PCN FAQ](#) section.

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.



QUALIFICATION PLAN SUMMARY

PCN #: LIAL-08IUQV247

**Date:
January 8, 2020**

**Qualification of Microchip Technology Gresham – Fab 4
(GRTM) as an additional fabrication site for selected Atmel
products.**

Purpose: Qualification of Microchip Technology Gresham Fab 4 (GRTM) as an additional fabrication site for selected Atmel products.

CCB No: 4039

Die Qualification Plan: 3 lots per QCI-39000

Test / Evaluation	Test Conditions / Parameters
Operating (Dynamic) Life	<ul style="list-style-type: none"> • 150°C for 408 hrs at Vdd max
High Temp. Retention Bake (DLT) / High Temperature Operating Life (HTOL)	<ul style="list-style-type: none"> • 504 hrs @ 175°C.
Endurance Cycling	<ul style="list-style-type: none"> • 10,000 flash Erase/Write cycles at 85°C • 100,000 EEPROM Erase/Write cycles at 85°C
ESD HBM	<ul style="list-style-type: none"> • Tested at 500V, 1000V, and 2000V
Latch-up	<ul style="list-style-type: none"> • Should meet a minimum of +/- 105mA injection on I/O pins with a clamp of 1.5 x VMax on the positive injection and 0.5 x VMax on the negative injection. Power supply pin shall be stressed at 1.5 x VMax with a 200mA clamp.
Electrical Validation	<ul style="list-style-type: none"> • 30 units from one wafer lot. Datalog parameters at room, hot and cold at vcc min/max and frequency min/max. Collection of this data may be done as part of any qualification test's pre or post functional testing or from a separate group of parts"

Package Qualification Plan

<u>Miscellaneous</u>	Assembly site	MMT
	BD Number	A-064764 / A
	MP Code (MPC)	35473YRXBC01
	Part Number (CPN)	ATMega328P-15MZ
	MSL information	MSL-1/260
	Assembly Shipping Media (T/R, Tube/Tray)	T/R
	Base Quantity Multiple (BQM)	5000
	Reliability Site	MPHIL
	CCB No.	4039
<u>Lead-Frame</u>	Paddle size	150x150 mils
	Material	C194
	DAP Surface Prep	Bare CU
	Treatment	None
	Process	Saw Singulated
	Part Number	10103202
	Lead Plating	Matte Tin
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	3280
	Conductive	Yes
<u>Mold Compound</u>	Part Number	G700LTD
<u>PKG</u>	PKG Type	VQFN
	Pin/Ball Count	32
	PKG width/size	5x5x0.9mm

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	Test Site	Special Instructions
Standard Pb-free Solderability	J-STD-002; 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. SnPb solderability (backward solderability- SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes.
Backward Solderability	J-STD-002 ;Perform 8 hours steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD.	22	5	1	27	> 95% lead coverage	5	MTAI	
Wire Bond Pull - WBP	Mil. Std. 883-2011	5	0	3	15	0 fails after TC	5	MMT/MTAI	30 bonds from a minimum of 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	3	15	0	5	MMT/MTAI	30 bonds from a minimum of 5 devices.
Wire Sweep		5	0	3	15	0		MMT	Required for any reduction in wire bond thickness.
Die Shear	Mil. Std. 883-2011	5	0	3	15	0			
Physical Dimensions	Measure per JESD22 B100 and B108	10	0	3	30	0	5	MMT	
External Visual	Mil. Std. 883-2009/2010	All devices prior to submission for qualification testing	0	3	ALL	0	5	MMT/ MTAI	

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	Test Site	Special Instructions
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-020E for package type; Electrical test pre and post stress at +25°C MSL1/MSL3 @ 260°C	231	15	3	738	0	15	MTAI Post test: ASEM	Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
Biased HAST	+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.	77	5	3	246	0	10	MTAI Post test: ASEM	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Unbiased HAST	+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.	77	5	3	246	0	10	MTAI Post test: ASEM	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 hot temp; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress.	77	5	3	246	0	15	MTAI Post test: ASEM	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.

LIAL-08IUQV247 - CCB 4039 Initial Notice: Qualification of Microchip Technology Gresham Fab 4 (GRTM) as an

Affected Catalog Part Numbers(CPN)

ATMEGA1284P-PU
ATMEGA1284-PU
ATMEGA1284P-MU
ATMEGA1284-MU
ATMEGA1284P-AU
ATMEGA1284-AU
ATMEGA1284P-MUR
ATMEGA1284-MUR
ATMEGA1284P-AUR
ATMEGA1284-AUR
ATTINY88-PU
ATTINY88-MMU
ATTINY88-MMH
ATTINY88-MU
ATTINY88-AU
ATTINY88-MMUR
ATTINY88-MMHR
ATTINY88-MUR
AT42QT1110-MUR
AT42QT2100-MUR
ATTINY88-MURA1
ATTINY88-AUR
AT42QT1110-AUR
ATMEGA128-16MU
ATMEGA128A-MU
ATMEGA128A-AUA2
ATMEGA128L-8AU
ATMEGA128A-AU
ATMEGA128-16AU
ATMEGA128A-AU-HCM
ATMEGA128L-8MN
ATMEGA128A-MN
ATMEGA128-16MN
ATMEGA128-16AN
ATMEGA128A-AN
ATMEGA128-16MNR
ATMEGA128L-8MNR
ATMEGA128A-MNR
ATMEGA128-16ANR
ATMEGA128L-8ANR
ATMEGA128A-ANR
ATMEGA128A-MUR

ATMEGA128L-8MUR
ATMEGA128-16MUR
ATMEGA128A-AUR
ATMEGA128L-8AUR
ATMEGA128L-8AURA6
ATMEGA128-16AURA0
ATMEGA128-16AUR
ATMEGA324PA-CU
ATMEGA324A-CU
ATMEGA324A-PU
ATMEGA324PA-PU
ATMEGA324A-MCH
ATMEGA324PA-MCH
ATMEGA324PA-MU
ATMEGA324A-MU
ATMEGA324PA-AU
ATMEGA324A-AU
ATMEGA324PA-AUA1
ATMEGA324PA-PN
ATMEGA324PA-MN
ATMEGA324PA-AN
ATMEGA324PA-MNR
ATMEGA324PA-ANR
ATMEGA324PA-MCHR
AT42QT5480-MUR
AT42QT18C15-MUR
ATMEGA324PA-MUR
ATMEGA324A-MUR
ATMEGA324PA-MURA2
ATMEGA324PA-AUR
ATMEGA324A-AUR
ATMEGA324A-AURA3
ATTINY43U-SU
ATTINY43U-MU
ATTINY43U-SUR
ATTINY43U-MUR
ATTINY13A-SF
ATTINY13A-MMF
ATTINY13A-SSH
ATTINY13A-SH
ATTINY13A-SSU
ATTINY13A-SU
ATTINY13A-PU
ATTINY13A-MMU
ATTINY13A-MU
ATTINY13A-SS7
ATTINY13A-SN

ATTINY13A-SS7RA3
ATTINY13A-SS7R
ATTINY13A-SNR
ATTINY13A-SSHRA3
ATTINY13A-SSHR
ATTINY13A-SHR
ATTINY13A-SSUR
ATTINY13A-SSURA4
ATTINY13A-SUR
ATTINY13A-SURA4
ATTINY13A-MMURA0
ATTINY13A-MMUR
ATTINY13A-MUR
ATTINY13A-SFR
ATTINY13A-SFRA5
ATTINY13A-MMFR
ATMEGA16A-PU
ATMEGA16L-8PU
ATMEGA16L-8MU
ATMEGA16-16MU
ATMEGA16A-MU
ATMEGA16A-AU
ATMEGA16-16AU
ATMEGA16-16AUA2
AT42QT2640-AU
AT42QT1481-AU
ATMEGA16L-8AU
AT42QT1481-AN
AT42QT1481-ANR
ATMEGA16A-MUR
ATMEGA16L-8MUR
ATMEGA16-16MUR
ATMEGA16A-AUR
ATMEGA16L-8AURA1
ATMEGA16-16AUR
ATMEGA16L-8AUR
AT42QT2640-AUR
AT42QT1481-AUR
ATMEGA16A-AURA8
ATMEGA32A-PU
ATMEGA32A-MU
ATMEGA32-16MU
ATMEGA32A-AU
ATMEGA32-16AU
ATMEGA32L-8AU
ATMEGA32A-PN
ATMEGA32A-MN

ATMEGA32A-AN
ATMEGA32A-MNR
ATMEGA32A-ANR
ATMEGA32A-MUR
ATMEGA32L-8MUR
ATMEGA32-16MUR
ATMEGA32A-AUR
ATMEGA32A-AURA5
ATMEGA32A-AUR626
ATMEGA32L-8AUR
ATMEGA32-16AUR
ATMEGA64A-MU
ATMEGA64-16MU
ATMEGA64L-8MU
ATMEGA64A-AU
ATMEGA64-16AU
ATMEGA64L-8AU
ATMEGA64-16AUA0
ATMEGA64A-MN
ATMEGA64A-AN
ATMEGA64A-ANR
ATMEGA64A-MUR
ATMEGA64-16MUR
ATMEGA64L-8MUR
ATMEGA64A-AUR
ATMEGA64-16AUR
ATMEGA64L-8AUR
ATMEGA64-16AURA0
ATTINY261A-MF
ATTINY261A-XU
ATTINY261A-SU
ATTINY261A-PU
ATTINY261A-MU
ATTINY261A-MN
ATTINY261A-MNR
ATTINY261A-XUR
ATTINY261A-SUR
ATTINY261A-MUR
ATTINY261A-MFR
ATTINY261A-MFRA0
ATTINY48-PU
AT42QT20C07-MMU
ATTINY48-MMU
ATTINY48-MMH
ATTINY48-MU
ATTINY48-AU
ATTINY48-AU907

ATTINY48-MMUR
ATTINY48-MMHR
ATTINY48-MUR522
ATTINY48-MUR547
ATTINY48-MUR
ATTINY48-AUR
ATMEGA88A-PU
ATMEGA88PA-PU
ATMEGA88PA-MMH
ATMEGA88A-MMH
ATMEGA88A-MU
ATMEGA88PA-MU
ATMEGA88PA-AU
ATMEGA88A-AU
ATMEGA88PA-AUA6
ATMEGA88PA-AUA5
ATMEGA88PA-PN
ATMEGA88PA-MMN
ATMEGA88PA-MN
ATMEGA88PA-AN
ATMEGA88PA-MMNR
ATMEGA88PA-MNR
ATMEGA88PA-ANR
ATMEGA88PA-MMUR
ATMEGA88PA-MMHR
ATMEGA88A-MMHR
ATMEGA88A-MUR
ATMEGA88PA-MUR
ATMEGA88PA-MURA6
ATMEGA88PA-MURA06
ATMEGA88PA-AUR
ATMEGA88PA-AURA3
ATMEGA88A-AUR
ATMEGA168A-PU
ATMEGA168PA-PU
ATMEGA168PA-MMH
ATMEGA168A-MMH
ATMEGA168PA-MU
ATMEGA168A-MU
ATMEGA168PA-MUA1
ATMEGA168PA-AU
ATMEGA168A-AU
ATMEGA168PA-AUA1
ATMEGA168PA-PN
ATMEGA168PA-MN
ATMEGA168PA-AN
ATMEGA168PA-MNR

ATMEGA168PA-ANR
ATMEGA168PA-MMHR
ATMEGA168A-MMHR
ATMEGA168PA-MUR
ATMEGA168A-MUR
ATMEGA168PA-MURA1
ATMEGA168PA-MUR431
ATMEGA168PA-AUR
ATMEGA168A-AUR
ATTINY861A-XU
ATTINY861A-SU
ATTINY861A-SUA0
ATTINY861A-PU
ATTINY861A-MU
ATTINY861A-XUR
ATTINY861A-SUR
ATTINY861A-SURAO
ATTINY861A-MUR
ATTINY44A-SSF
ATTINY44A-MF
ATTINY44A-CCU
ATTINY44A-PU
ATTINY44A-SSU
ATTINY44A-MMH
ATTINY44A-MU
ATTINY44A-SSN
ATTINY44A-SSNR
ATTINY44A-CCUR
ATTINY44A-SSUR
ATTINY44A-SSUR625
ATTINY44A-SSURB09
ATTINY44A-SSURAO
ATTINY44A-SSUR569
AT42QT1040-MMHR
ATTINY44A-MMHR
ATTINY44A-MUR
ATTINY44A-MUR861
ATTINY44A-SSFRP01
ATTINY44A-SSFR
ATTINY44A-SSFRA1
ATTINY44A-MFR
ATTINY44A-MFRA0
ATMEGA8L-8PU
ATMEGA8A-PU
ATMEGA8L-8PU096
ATMEGA8-16PU
ATMEGA8A-MU

ATMEGA8-16MU
ATMEGA8L-8MU
ATMEGA8A-AU
ATMEGA8L-8AUBAX
ATMEGA8L-8AUA1
ATMEGA8A-AU744
ATMEGA8L-8AU
ATMEGA8-16AU
ATMEGA8A-AU-HCM
ATMEGA8A-PN
ATMEGA8A-MN
ATMEGA8A-AN
ATMEGA8A-MNR
ATMEGA8A-ANR
ATMEGA8L-8MURA5
ATMEGA8-16MUR
ATMEGA8L-8MUR
ATMEGA8A-MURA7
ATMEGA8A-MUR
ATMEGA8A-AUR
ATMEGA8L-8AURA5
ATMEGA8-16AUR
ATMEGA8L-8AUR
ATTINY10-TSHR
AT42QT1010-TSHR
AT42QT1011-TSHR
AT42QT1012-TSHR
ATTINY5-TSHR844
ATTINY4-TSHR
ATTINY4-TSHR485
ATTINY4-TSHR685
ATTINY10-TSHR867
ATTINY5-TSHR
ATTINY9-TSHR
ATTINY5-TSHR992
ATTINY4-TSHRA92
ATTINY4-TSHRB55
ATTINY10-MAHR
AT42QT1011-MAHR
AT42QT1012-MAHR
AT42QT1010-MAHR
ATTINY4-MAHR
ATTINY5-MAHR
ATTINY9-MAHR
ATTINY5-MAHRB50
ATTINY5-MAHRA0
ATTINY10-TS8R

ATTINY10-TS8R526
ATTINY4-TS8R
ATTINY5-TS8R
ATTINY9-TS8R
ATTINY10-TS8RB67
ATTINY10-TS8RB68
ATTINY24A-SSF
ATTINY24A-MM8
ATTINY24A-MF
ATTINY24A-CCU
ATTINY24A-PU
ATTINY24A-SSU
ATTINY24A-SSUB65
ATTINY24A-MMH
ATTINY24A-MU
ATTINY24A-SSN
ATTINY24A-SSNR
ATTINY24A-CCUR
ATTINY24A-SSUR
ATTINY24A-SSUR880
ATTINY24A-SSURAO
ATTINY24A-SSURB65
ATTINY24A-MMHR
ATTINY24A-MUR
ATTINY24A-MURAO
ATTINY24A-SSFR
ATTINY24A-MM8R
ATTINY24A-MFR
ATTINY461A-XU
ATTINY461A-SU
ATTINY461A-PU
ATTINY461A-MU
ATTINY461A-XUR
ATTINY461A-SUR
ATTINY461A-SUR565
ATTINY461A-MUR
ATMEGA328P-W-NG
ATMEGA328P-PU
ATMEGA328-PU
ATMEGA328P-MMH
ATMEGA328-MMH
ATMEGA328P-MU
ATMEGA328-MU
ATMEGA328-AU
ATMEGA328P-AU
ATMEGA328P-PN
ATMEGA328P-MN

ATMEGA328P-AN
ATMEGA328P-MNR
ATMEGA328P-ANR
ATMEGA328P-MMHR
ATMEGA328-MMHR
ATMEGA328P-MUR
ATMEGA328-MUR
ATMEGA328-AUR
ATMEGA328P-AUR
ATMEGA328P-AURAO
ATMEGA164A-CU
ATMEGA164PA-CU
ATMEGA164A-PU
ATMEGA164PA-PU
ATMEGA164A-MCH
ATMEGA164PA-MCH
ATMEGA164A-MU
ATMEGA164PA-MU
ATMEGA164PA-AU
ATMEGA164A-AU
ATMEGA164A-AUA2
ATMEGA164PA-MN
ATMEGA164PA-AN
ATMEGA164PA-MNR
ATMEGA164PA-ANR
ATMEGA164A-CUR
ATMEGA164PA-CUR
ATMEGA164A-MCHR
ATMEGA164PA-MCHR
ATMEGA164A-MUR
ATMEGA164PA-MUR
ATMEGA164PA-AUR
ATMEGA164A-AUR
ATMEGA164A-AURA2
ATMEGA48A-PU
ATMEGA48PA-PU
ATMEGA48PA-MMH
ATMEGA48A-MMH
ATMEGA48A-MU
ATMEGA48PA-MU
ATMEGA48A-AU
ATMEGA48PA-AU
ATMEGA48PA-AUA8
ATMEGA48PA-PN
ATMEGA48PA-MMN
ATMEGA48PA-MN
ATMEGA48PA-AN

ATMEGA48PA-MMNR
ATMEGA48PA-MNR
ATMEGA48PA-ANR
ATMEGA48PA-MMHR
ATMEGA48A-MMHR
ATMEGA48PA-MMHRA1
ATMEGA48A-MUR
ATMEGA48PA-MUR
ATMEGA48A-AUR
ATMEGA48PA-AUR
ATMEGA48PA-AURA9
ATMEGA48PA-AURB0
ATTINY2313A-SU
ATTINY2313A-PU
ATTINY2313A-MMH
ATTINY2313A-MU
ATTINY2313A-SUR
ATTINY2313A-MMHR
ATTINY2313A-MUR
ATTINY4313-SU
ATTINY4313-PU
ATTINY4313-MMH
ATTINY4313-MU
ATTINY4313-SUR
ATTINY4313-MMHR
ATTINY4313-MUR
ATMEGA644A-PU
ATMEGA644PA-PU
ATMEGA644PA-MU
ATMEGA644A-MU
ATMEGA644A-AU
ATMEGA644PA-AU
ATMEGA644PA-MN
ATMEGA644PA-AN
ATMEGA644PA-MNR
ATMEGA644PA-ANR
ATMEGA644PA-MUR
ATMEGA644A-MUR
ATMEGA644A-AUR
ATMEGA644PA-AUR
ATTINY20-CCU
ATTINY20-SSU
ATTINY20-XU
ATTINY20-MMH
AT42QT1050-MMH
ATTINY20-CCUR
ATTINY20-SSURB47

ATTINY20-SSUR
AT42QT1070-SSUR
AT42QT1070-SSUR852
ATTINY20-SSUR704
ATTINY20-SSUR892
ATTINY20-SSUR988
ATTINY20-SSURA01
ATTINY20-SSURA87
ATTINY20-XUR
AT42QT1050-UUR
ATTINY20-UUR
AT42QT1070-MMHR
ATTINY20-MMHR
AT42QT1050-MMHR
ATTINY20-MMHRA0
ATTINY40-XU
AT42QT2120-XU
ATTINY40-SU
AT42QT2120-SU
AT42QT2120-MMH
ATTINY40-MMH
ATTINY40-XUR
AT42QT2120-XUR
ATTINY40-SUR
AT42QT2120-SUR
AT42QT2120-MMHR
ATTINY40-MMHR
ATTINY40-MMHRA0
ATTINY84A-W
ATTINY84A-SSF
ATTINY84A-SSFRA1
ATTINY84A-MF
ATTINY84A-CCU
ATTINY84A-PU
ATTINY84A-SSU
ATTINY84A-SSU710
ATTINY84A-MMH
ATTINY84A-MU
ATTINY84A-CCUR
ATTINY84A-SSUR
ATTINY84A-MMHR
ATTINY84A-MMHR651
ATTINY84A-MMHR690
ATTINY84A-MMHR989
ATTINY84A-MMHRA02
ATTINY84A-MMHRB81
ATTINY84A-MUR

ATTINY84A-SSFRP01
ATTINY84A-SSFR
ATTINY84A-SSFRA0
ATTINY84A-SSFA1
ATTINY84A-MFR
ATTINY1634R-SU
ATTINY1634-SU
ATTINY1634-MU
ATTINY1634R-MU
ATTINY1634-MU874
ATTINY1634-MN
ATTINY1634-MNR
ATTINY1634R-SUR
ATTINY1634-SUR
ATTINY1634-MUR
ATTINY1634R-MUR
ATTINY828-MU
ATTINY828-AU
ATTINY828R-AU
ATTINY828-MUR
ATTINY828-AUR
ATTINY828R-AUR
ATTINY841-W
ATTINY841-SSU
ATTINY841-MMH
ATTINY841-MU
ATTINY841-SSUR
ATTINY841-MMHR
ATTINY841-MUR
ATTINY441-SSU
ATTINY441-MMH
ATTINY441-MU
ATTINY441-SSUR
ATTINY441-MMHR
ATTINY441-MMHRA0
ATTINY441-MUR
ATTINY102-SSF
ATTINY102F-SSF
ATTINY104-SSF
ATTINY102-SSN
ATTINY102F-SSN
ATTINY104-SSN
ATTINY102-SSNR
ATTINY102F-SSNR
ATTINY104-SSNR
ATTINY104F-SSNR
ATTINY102-M7R

ATTINY102F-M7R
ATTINY102-SSFR
ATTINY102F-SSFR
ATTINY104-SSFR
ATTINY104F-SSFR
ATTINY102-M8R
ATTINY102F-M8R
ATMEGA32M1-MU
ATMEGA16M1-MU
ATMEGA32M1-AU
ATMEGA16M1-AU
ATMEGA32M1-AUR
ATTINY167-W-NG
ATTINY167-XU
ATTINY87-XU
ATTINY87-SU
ATTINY167-SU
ATTINY167-MU
ATTINY87-MU
ATTINY167-MMU
ATTINY167-XUR
ATTINY87-XUR
ATTINY87-SUR
ATTINY167-SUR
ATTINY87-MUR
ATTINY167-MUR
ATTINY167-MMUR
ATTINY167-MMURB20
ATMEGA16U4-MU
ATMEGA32U4-MU
ATMEGA32U4RC-MU
ATMEGA32U4-AU
ATMEGA16U4-AU
ATMEGA32U4RC-AU
ATMEGA16U4RC-AU
ATMEGA32U4-MUR
ATMEGA16U4-MUR
ATMEGA32U4RC-MUR
ATMEGA16U4-AUR
ATMEGA32U4-AUR
ATMEGA32U4RC-AUR
AT90PWM81-16SF
AT90PWM81-16MF
AT90PWM81EP-16SN
AT90PWM81-16SN
AT90PWM81EP-16MN
AT90PWM81-16MN

AT90PWM810S-B16SNR
AT90PWM810S-B16MNR
ATMEGA64M1-MU
ATMEGA64M1-AU
ATMEGA16U2-MU
ATMEGA8U2-MU
ATMEGA16U2-AU
ATMEGA8U2-AU
ATMEGA16U2-MUR
ATMEGA8U2-MUR
ATMEGA16U2-AUR
ATMEGA8U2-AUR
ATMEGA6450P-AU
ATMEGA6450A-AU
ATMEGA6490A-AU
ATMEGA6490P-AU
ATMEGA645P-MU
ATMEGA649A-MU
ATMEGA645A-MU
ATMEGA649P-MU
ATMEGA645P-AU
ATMEGA649A-AU
ATMEGA645A-AU
ATMEGA649P-AU
ATMEGA6450A-AUR
ATMEGA6490A-AUR
ATMEGA6490P-AUR
ATMEGA6450P-AUR
ATMEGA649A-MUR
ATMEGA645P-MUR
ATMEGA645A-MUR
ATMEGA649P-MUR
ATMEGA649A-AUR
ATMEGA645A-AUR
ATMEGA645P-AUR
ATMEGA649P-AUR
ATMEGA3250PA-AU
ATMEGA3290A-AU
ATMEGA3250A-AU
ATMEGA3290PA-AU
ATMEGA329A-MU
ATMEGA329PA-MU
ATMEGA325A-MU
ATMEGA325PA-MU
ATMEGA329PA-AU
ATMEGA325A-AU
ATMEGA325PA-AU

ATMEGA329A-AU
ATMEGA325A-MN
ATMEGA325A-AN
ATMEGA325A-MNR
ATMEGA325A-ANR
ATMEGA3250PA-AUR
ATMEGA3290A-AUR
ATMEGA3250A-AUR
ATMEGA3290PA-AUR
ATMEGA329PA-MUR
ATMEGA325A-MUR
ATMEGA325PA-MUR
ATMEGA325PA-AUR
ATMEGA329A-AUR
ATMEGA329PA-AUR
ATMEGA325A-AUR
ATMEGA169PA-MCH
ATMEGA165PA-MU
ATMEGA165A-MU
ATMEGA169PA-MU
ATMEGA169A-MU
ATMEGA165PA-AU
ATMEGA169PA-AU
ATMEGA169A-AU
ATMEGA165A-AU
ATMEGA165PA-MN
ATMEGA169PA-MN
ATMEGA169PA-AN
ATMEGA169PA-MNR
ATMEGA165PA-MNR
ATMEGA169PA-ANR
ATMEGA169PA-MCHR
ATMEGA165PA-MUR
ATMEGA165A-MUR
ATMEGA169A-MUR
ATMEGA169PA-MUR
ATMEGA165PA-AUR
ATMEGA165A-AUR
ATMEGA169A-AUR
ATMEGA169PA-AUR
ATHON169A-AUR
ATMEGA32U2-MU
ATMEGA32U2-AU
ATMEGA32U2-MUR
ATMEGA32U2-AUR
AT90PWM161OS-16SF
AT90PWM161OS-16MF

AT90PWM161OS-16SN
AT90PWM161-16SN
AT90PWM161OS-16MN
AT90PWM161-16MN
AT90PWM161-16SNR
AT90PWM161OS-16SNR
AT90PWM161OS-16MNR
AT90PWM161-16MNR
AT90PWM161OS-16SFR
AT90PWM161OS-16MFR