Atmel®

PCN / EOL Notification

PCN Number: CC140605A (Revised 3/17/16) Notification Date*: February 21, 2014
See Changes in Blue Text

Title: AT24C08C to AT24C08D — 8-Kbit I2C-Compatible (Two Wire Interface) Industrial Temperature Grade (-40°C to 85°C) Serial EEPROM Process Optimization and Device Enhancement	
Note: Continued Support of 5V 1-Kbit Two-Wire Interface Industrial Temperature Grade (-40 to 85C) EEPROM device (AT24C08C)	

Product Identification:

AT24C08C (1.7 to 5.5V); AT24C08D (1.7 to 3.6V):

All Packages Industrial Temp. Grade (-40C to +85C)

Reason for Change:	☒ Material / Composition	☐ Manufacturing Location
	☐ Processing / Manufacturing	☐ Quality / Reliability
	☒ Design / Firmware	☐ Logistics
	☐ Datasheet	☐ Other:

Change Description:

Atmel launched a new low voltage (1.7V- 3.6V) variant of the I2C 2-Kbit EEPROM Industrial Grade (-40C to +85C) device AT24C08D in 2014. The new, low voltage device has significant improvements and advantages over the existing wide voltage (1.7V – 5.5V) device AT24C08C with respect to power consumption, endurance, and noise suppression. With a growing number of MCUs, SoCs, and ASICs migrating to lower supply voltages as a result of process lithography reductions, and to reduce power consumption, Atmel developed the AT24C08D to specifically work with a 1.7V to 3.6V supply.

However Atmel recognizes that some applications might still require a 5V supply voltage, so this addendum to the PCN is to confirm that Atmel will continue to support and produce the wide voltage device AT24C08C.

Therefore, **customers may continue with the AT24C08C in all applications that use 5V or 3.3V supply voltage**. However, for applications tailored towards low voltage operation (e.g. 1.8V, 3.0V, etc.), Atmel recommends customers migrate to the enhanced performance of the AT24C08D. (See table below for details of AT24C08D's low voltage enhancements.)

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Table 1

Parameter/Feature	AT24C08C	AT24C08D
Operating Voltage	1.7V to 5.5V	1.7V to 3.6V
Operating Temperature	-40°C to +85°C	-40°C to +85°C
Endurance	1,000,000 cycles (Page Mode, +25°C, 3.3V)	1,000,000 cycles (Byte or Page Mode, +25°C, 1.7V to 3.6V)
Data Retention	100 years	100 years
Supply Current, Read	0.4mA typ (5.0V, 100kHz) 1.0mA max (5.0V, 100kHz)	0.08mA typ (1.8V, 400kHz) 0.3mA max (1.8V, 400kHz) 0.15mA typ (3.6V, 1MHz) 0.5mA max (3.6V, 1MHz)
Supply Current, Write	2.0mA typ (5.0V, 100kHz) 3.0mA max (5.0V, 100kHz)	0.2mA typ (3.6V, 1MHz) 1.0mA max (3.6V, 1MHz)
Standby Current	1µA max (1.7V) 6µA max (5.5V)	0.08µA typ (1.8V) 0.4µA max (1.8V) 0.1µA typ (3.6V) 0.8µA max (3.6V)
Maximum Clock Frequency	1MHz (2.5V min.) 400kHz (1.7V min.)	1MHz (2.5V min.) 400kHz (1.7V min.)
Clock Pulse Width Low	1.2µs min (f_{SCL} = 400kHz) 0.4µs min (f_{SCL} = 1MHz)	1.3µs min (f_{SCL} = 400kHz) 0.5µs min (f_{SCL} = 1MHz)
Clock Pulse Width High	0.6µs min (f_{SCL} = 400kHz) 0.4µs min (f_{SCL} = 1MHz)	0.6µs min (f_{SCL} = 400kHz) 0.4µs min (f_{SCL} = 1MHz)
Input Filter Noise Suppression	100ns max (f_{SCL} = 400kHz) 50ns max (f_{SCL} = 1MHz)	100ns max (f_{SCL} = 400kHz) 100ns max (f_{SCL} = 1MHz)
Clock Low to Data Out Valid	900ns max (f_{SCL} = 400kHz) 550ns max (f_{SCL} = 1MHz)	900ns max (f_{SCL} = 400kHz) 450ns max (f_{SCL} = 1MHz)
Bus Free Time Between Start and Stop	1.2µs min (f_{SCL} = 400kHz) 0.5µs min (f_{SCL} = 1MHz)	1.3µs min (f_{SCL} = 400kHz) 0.5µs min (f_{SCL} = 1MHz)
Input Rise Time	300ns max (f_{SCL} = 400kHz) 300ns max (f_{SCL} = 1MHz)	300ns max (f_{SCL} = 400kHz) 100ns max (f_{SCL} = 1MHz)
Input Fall Time	300ns max (f_{SCL} = 400kHz) 100ns max (f_{SCL} = 1MHz)	300ns max (f_{SCL} = 400kHz) 100ns max (f_{SCL} = 1MHz)
Write Cycle Time	5ms max	5ms max
Page Write Size	16 bytes max	16 bytes max
Full Array Hardware Write Protect	Yes	Yes

Identification Method to Distinguish Change:

Different catalog part numbers for AT24C08C and AT24C08D exist. Please refer to the respective datasheets for part marking schemes for each package type.

Table 2

Below is a part number cross reference for the AT24C08C and AT24C08D families. Special CAN (customer specific) part numbers created for the AT24C08C that are not listed in the table below remain in production:

5.5V Part Number	3.6V Part Number	Package	Carrier Type
AT24C08C-PUM	AT24C08D-PUM	PDIP	Bulk
AT24C08C-SSHM-B	AT24C08D-SSHM-B	JEDEC SOIC	Bulk
AT24C08C-SSHM-T	AT24C08D-SSHM-T	JEDEC SOIC	T/R, 4K per reel
AT24C08C-XHM-B	AT24C08D-XHM-B	TSSOP	Bulk
AT24C08C-XHM-T	AT24C08D-XHM-T	TSSOP	T/R, 5K per reel
AT24C08C-MAHM-T	AT24C08D-MAHM-T	UDFN	T/R, 5K per reel
AT24C08C-MAHM-E	AT24C08D-MAHM-E	UDFN	T/R, 15K per reel
AT24C08C-STUM-T	AT24C08D-STUM-T	SOT23	T/R, 5K per reel
AT24C08C-CUM-T	AT24C08D-CUM-T	VFBGA	T/R, 5K per reel
AT24C08C-WWU11M	AT24C08D-WWU11M	Wafer Sales	
AT24C08C-WWU27M	AT24C08D-WWU27M	Wafer Sales	

Qualification Data:	☒ Available	☐ Will be available: (mm/dd/yr):	☐ Not Applicable
Samples:	☒ Available	☐ Will be available (mm/dd/yr):	☐ Not Applicable

Quantifiable Impact on Quality & Reliability:

No impact. AT24C08D is form, fit, and function of AT24C08C for 1.7 to 3.6V.

Forecasted Availability Date: AT24C08C – already available
AT24C08D – already available

Last Time Buy Date: ~~August 21, 2014~~

Last Ship Date: ~~February 21, 2015~~

All orders placed after the notification date are non-cancellable and non-returnable (NCNR).

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