



## PCN / EOL Notification

**PCN Number: CC142904**

**Notification Date\*:** July 24, 2014

**Title:** AT24C01C to AT24C01D — 1-Kbit I<sup>2</sup>C-Compatible (Two Wire Interface) Industrial Temperature Grade (-40°C to 85°C) Serial EEPROM Process Optimization and Device Enhancement

**Product Identification:**

All package options of the Industrial Temperature Grade (-40°C to +85°C) version of the AT24C01C

**Reason for Change:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Material / Composition | <input type="checkbox"/> Manufacturing Location |
| <input type="checkbox"/> Processing / Manufacturing        | <input type="checkbox"/> Quality / Reliability  |
| <input checked="" type="checkbox"/> Design / Firmware      | <input type="checkbox"/> Logistics              |
| <input checked="" type="checkbox"/> Datasheet              | <input type="checkbox"/> Other:                 |

**Change Description:**

Atmel has redesigned and improved its Industrial Temperature Grade (-40°C to +85°C) version of the 1-Kbit I<sup>2</sup>C-compatible Serial EEPROM and optimized the associated device's process. These changes have been made to enhance device performance and robustness. As a result, the Industrial Temperature Grade version of the AT24C01C is being replaced by the AT24C01D (please note the revision letter change from "C" to "D" in the base part number — see Table 2 for a list of full catalog part numbers). The AT24C01D is pin-to-pin and functionally backward compatible to the AT24C01C with the following exceptions and enhancements.

Supply Voltage (V<sub>CC</sub>) Range

With a growing number of MCUs, SoCs, and ASICs migrating to lower supply voltages as a result of process lithography reductions, and as the electronics industry in general also moves to lower supply voltages to reduce power consumption, Atmel developed the next-generation AT24C01D to enhance performance for these lower voltage requirements. Unlike the AT24C01C devices that operate over a 1.7V to 5.5V voltage range, the AT24C01D devices have been designed to operate from a **1.7V to 3.6V** supply. As a result, the AT24C01D has significant improvements and advantages over the AT24C01C devices with respect to power consumption, endurance, and noise suppression (see Table 1 for all differences).

*For applications operating at voltage levels above 3.6V, please contact Atmel ([MemoryPCN@atmel.com](mailto:MemoryPCN@atmel.com)) for details on continued availability of the AT24C01C and to request an exception to the Last Time Buy and Last Ship dates.*

**Table 1**

Parameter/Feature	AT24C01C	AT24C01D
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, 400kHz) 1.0mA max (5.0V, 400kHz)	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, 400kHz) 3.0mA max (5.0V, 400kHz)	0.2mA typ (3.6V, 1MHz) 1.0mA max (3.6V, 1MHz)
Standby Current	1.0µA max (1.8V) 2.0µA max (2.5V) 6.0µA max (5.0V)	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 <sub>SCL</sub> = 400kHz) 0.4µs min (f <sub>SCL</sub> = 1MHz)	1.3µs min (f <sub>SCL</sub> = 400kHz) 0.5µs min (f <sub>SCL</sub> = 1MHz)
Clock Pulse Width High	0.6µs min (f <sub>SCL</sub> = 400kHz) 0.4µs min (f <sub>SCL</sub> = 1MHz)	0.6µs min (f <sub>SCL</sub> = 400kHz) 0.4µs min (f <sub>SCL</sub> = 1MHz)
Input Filter Noise Suppression	100ns max (f <sub>SCL</sub> = 400kHz) 50ns max (f <sub>SCL</sub> = 1MHz)	100ns max (f <sub>SCL</sub> = 400kHz) 100ns max (f <sub>SCL</sub> = 1MHz)
Clock Low to Data Out Valid	900ns max (f <sub>SCL</sub> = 400kHz) 550ns max (f <sub>SCL</sub> = 1MHz)	900ns max (f <sub>SCL</sub> = 400kHz) 450ns max (f <sub>SCL</sub> = 1MHz)
Bus Free Time Between Start and Stop	1.2µs min (f <sub>SCL</sub> = 400kHz) 0.5µs min (f <sub>SCL</sub> = 1MHz)	1.3µs min (f <sub>SCL</sub> = 400kHz) 0.5µs min (f <sub>SCL</sub> = 1MHz)
Input Rise Time	300ns max (f <sub>SCL</sub> = 400kHz) 300ns max (f <sub>SCL</sub> = 1MHz)	300ns max (f <sub>SCL</sub> = 400kHz) 100ns max (f <sub>SCL</sub> = 1MHz)
Input Fall Time	300ns max (f <sub>SCL</sub> = 400kHz) 100ns max (f <sub>SCL</sub> = 1MHz)	300ns max (f <sub>SCL</sub> = 400kHz) 100ns max (f <sub>SCL</sub> = 1MHz)
Write Cycle Time	5ms max	5ms max
Page Write Size	8 bytes max	8 bytes max
Full Array Hardware Write Protect	Yes	Yes

**Identification Method to Distinguish Change:**

The revision letter in the base part number changes from “C” to “D”. New devices use the catalog part number AT24C01D, and Table 2 lists the full catalog part number combinations for each package option. Please refer to datasheet for part marking schemes for each package type.

**Table 2**

Note: Standard datasheet offerings are listed in the table; however, this PCN also applies to all special CAN (customer specific) part numbers that are not listed in the table.

EOL Part Number	Replacement Part Number	Package	Carrier Type
AT24C01C-PUM	AT24C01D-PUM <sup>(1)(2)</sup>	PDIP	Bulk
AT24C01C-SSHM-B	AT24C01D-SSHM-B	SOIC	Bulk
AT24C01C-SSHM-T	AT24C01D-SSHM-T	SOIC	Tape & Reel (4K/reel)
AT24C01C-XHM-B	AT24C01D-XHM-B	TSSOP	Bulk
AT24C01C-XHM-T	AT24C01D-XHM-T	TSSOP	Tape & Reel (5K/reel)
AT24C01C-MAHM-T	AT24C01D-MAHM-T	UDFN	Tape & Reel (5K/reel)
AT24C01C-STUM-T	AT24C01D-STUM-T	SOT23	Tape & Reel (5K/reel)
AT24C01C-CUM-T	AT24C01D-CUM-T <sup>(2)</sup>	VFBGA	Tape & Reel (5K/reel)
AT24C01C-WWU11M	AT24C01D-WWU11M	Wafer Sales	
AT24C01C-WWU27M	AT24C01D-WWU27M	Wafer Sales	

Note 1: Contact Atmel regarding general PDIP availability.

Note 2: Please contact your local Atmel Sales Representative to obtain samples.

<b>Qualification Data:</b>	<input type="checkbox"/> Available	<input checked="" type="checkbox"/> Will be available: July 30, 2014	<input type="checkbox"/> N/A
<b>Samples:</b>	<input checked="" type="checkbox"/> Available now. Please contact Atmel Sales to submit Sample Request Form (samples in tape format only)	<input checked="" type="checkbox"/> Will be available online at Atmel Sample Center ( <a href="http://www.atmel.com/samples">www.atmel.com/samples</a> ): July 18, 2014 (tape format only) August 15, 2014 (bulk format)	<input type="checkbox"/> N/A

**Quantifiable Impact on Quality & Reliability:**

No impact. Form, fit, and function over the 1.7V to 3.6V range remains unchanged.

**Forecasted Availability Date:** July 3, 2014

**Last Time Buy Date:** January 23, 2015

**Last Ship Date:** July 23, 2015

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

**Atmel Contact:** Please contact your Atmel Sales Representative or Distributor for additional information (when replying via e-mail please include the PCN number in subject line).

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