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# AVR526: Migrating from ATtiny24/44/84 to ATtiny24A/44A/84A



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## 1 Introduction

In order to optimize the manufacturing process and to further reduce current consumption, an optimized version of ATtiny24/44/84 has been introduced.

The ATtiny24A/44A/84A is a functionally identical, drop-in replacement for the ATtiny24/44/84. All devices are subject to the same qualification process and same set of production tests, but as the manufacturing process is not the same some electrical characteristics differ.

ATtiny24/44/84 and ATtiny24A/44A/84A have separate datasheets. This application note outlines the differences between the two devices and the datasheets. There is also a detailed change log to assist the user at the end of the ATtiny24A/44A/84A datasheet. Remember to always use the latest revision of the device datasheet.

Minor differences in typical characteristics are not discussed in this document as long as the low and high limits remain the same. For detailed information about the typical characteristics, see sections "Electrical Characteristics" and "Typical Characteristics" of the device datasheets.

**Note:** This application note serves as a guide to ease migration. For complete device details, always refer to the most recent version of the ATtiny24A/44A/84A data sheet.

## Application Note

Rev. 8187B-AVR-03/11





## 2 Changes in Characteristics

This section outlines such differences in characteristics that may have an effect on the application in which the device is used. For detailed information, refer to the most recent version of the device data sheets.

### 2.1 Current Consumption

Active and Idle mode current consumption of the device have been reduced. The table below present typical current consumption figures at room temperature. All values are taken from device datasheets.

**Table 2-1.** Typical Current Consumption of Device at Room Temperature

Mode	Condition	ATtiny24/44/84	ATtiny24A/44A/84A	Change
Active	$V_{CC} = 2V, f = 1 \text{ MHz}$	0.33 mA	0.25 mA	- 24%
	$V_{CC} = 3V, f = 4 \text{ MHz}$	1.6 mA	1.2 mA	- 25%
	$V_{CC} = 5V, f = 8 \text{ MHz}$	5.0 mA	4.4 mA	- 12%
Idle	$V_{CC} = 2V, f = 1 \text{ MHz}$	0.11 mA	0.04 mA	- 64%
	$V_{CC} = 3V, f = 4 \text{ MHz}$	0.40 mA	0.25 mA	- 38%
	$V_{CC} = 5V, f = 8 \text{ MHz}$	1.5 mA	1.3 mA	- 13%

### 2.2 Reset

The table below summarizes the differences between the reset circuitry of ATtiny24/44/84 and that of ATtiny24A/44A/84A. Note, that early revisions of ATtiny24/44/84 were equipped with a Standard Power-On Reset, while later revisions included an Enhanced Power-On Reset circuit.

**Table 2-2.** Power-On Reset

Symbol	ATtiny24/44/84 with Standard POR <sup>(1)</sup>			ATtiny24A/44A/84A			Unit
	ATtiny24/44/84 with Enhanced POR <sup>(1)</sup>						
	Min	Typ	Max	Min	Typ	Max	
$V_{POR}$	0.7	1.0	1.4	1.1	1.4	1.6	V
$V_{POA}$	0.05	0.9	1.3	0.6	1.3	1.6	V
$SR_{ON}$	0.01	-	4.5	0.01	-	-	V/ms

Notes: 1. See ATtiny24/44/84 datasheet for revision information.

## 3 Datasheet Changes

For a summary of changes, see the revision history at the end of the ATtiny24A/44A/84A data sheet.



## Headquarters

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**Atmel Corporation**  
2325 Orchard Parkway  
San Jose, CA 95131  
USA  
Tel: (+1)(408) 441-0311  
Fax: (+1)(408) 487-2600  
[www.atmel.com](http://www.atmel.com)

## International

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**Atmel Asia Limited**  
Unit 1-5 & 16, 19/F  
BEA Tower, Millennium City 5  
418 Kwun Tong Road  
Kwun Tong, Kowloon  
HONG KONG  
Tel: (+852) 2245-6100  
Fax: (+852) 2722-1369

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**Atmel Munich GmbH**  
Business Campus  
Parking 4  
D-85748 Garching b. Munich  
GERMANY  
Tel: (+49) 89-31970-0  
Fax: (+49) 89-3194621

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**Atmel Japan**  
9F, Tonetsu Shinkawa Bldg.  
1-24-8 Shinkawa  
Chuo-ku, Tokyo 104-0033  
JAPAN  
Tel: (+81)(3) 3523-3551  
Fax: (+81)(3) 3523-7581

## Product Contact

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**Web Site**  
[www.atmel.com](http://www.atmel.com)

**Technical Support**  
[avr@atmel.com](mailto:avr@atmel.com)

**Sales Contact**  
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