
AVR525: Migration from ATmega128 to ATmega128A



8-bit **AVR**[®]
Microcontrollers

1 Introduction

In order to optimize the manufacturing process and to further reduce current consumption, an optimized version of ATmega128 has been introduced.

The ATmega128A is a functionally identical, drop-in replacement for the ATmega128. 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.

ATmega128 and ATmega128A 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 ATmega128A 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 ATmega128A datasheet.

Application Note

Rev. 8166A-AVR-05/09





2 Changes in Characteristics

This section outlines major 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 datasheets.

2.1 Current Consumption

Active and Idle mode current consumption of the device has been reduced significantly. The tables below present typical current consumption figures at room temperature. All values are taken from device datasheets, unless otherwise noted.

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

Mode	Condition	ATmega128	ATmega128A	Change
Active	V _{CC} =3V, f=4 MHz	5 mA	3 mA	- 40%
	V _{CC} =5V, f=8 MHz	17 mA	9.8 mA	- 42%
Idle	V _{CC} =3V, f=4 MHz	2 mA	1 mA	- 50%
	V _{CC} =5V, f=8 MHz	8 mA	3.5 mA	- 56%

2.2 VOL Levels

Table 2-2 lists the differences in output low voltage levels.

Table 2-2. Changes to VOL levels

Symbol	Parameter	Condition	ATmega128		ATmega128A		Units
			Min	Max	Min	Max	
V _{OL}	Output Low Voltage (Ports A - G)	I _{OL} =20mA, V _{CC} =5V	-	0.7	-	0.9	V
		I _{OL} =10mA, V _{CC} =3V	-	0.5	-	0.6	V

2.3 Reset Pull-Up

Table 2-3 summarizes the differences between the reset pull-up of ATmega128 and that of ATmega128A.

Table 2-3. Reset pull-up

Symbol	ATmega128			ATmega128A			Unit
	Min	Typ	Max	Min	Typ	Max	
R _{RST}	30		60	30	60	85	kΩ

3 Summary of Changes

For a summary of changes, see the revision history at the end of the ATmega128A data sheet.



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