

## Errata

- Fuses and Programming Mode
- Incorrect Channel Change in Free Running Mode
- Bandgap Reference Stabilizing Time
- Brown-out Detection Level
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### 6. Fuses and Programming Mode

After programming the fuses in Serial Programming mode, it is not possible to program the Flash or EEPROM. If leaving programming mode, it is not possible to re-enter programming mode.

#### Problem Fix/Workaround

Power the part down and backup again after programming the fuses or leaving programming mode.

### 5. Incorrect Channel Change in Free Running Mode

If the ADC operates in Free Running mode and channels are changed by writing to ADMUX, shortly after the ADC Interrupt Flag (ADIF in ADCSR) is set, the new setting in ADMUX may affect the ongoing conversion.

#### Problem Fix/Workaround

Use Single Conversion mode when scanning channels, or avoid changing ADMUX until at least 0.5 ADC clock cycles after ADIF goes high.

### 4. Bandgap Reference Stabilizing Time

The time for the internal voltage reference for the Analog Comparator to stabilize is longer than specified. The stabilizing period starts after the bandgap reference has been selected, and can go on for as much as 10 seconds.

#### Problem Fix/Workaround

The Band-gap reference will be stable immediately if the internal Brown-out Detector is enabled.

### 3. Brown-out Detection Level

The Brown-out Detection level can increase when there is heavy I/O-activity on the device. The increase can be significant when some of the I/O pins are driving heavy loads.

#### Problem Fix/Workaround

Select a  $V_{CC}$  well above the Brown-out Detection level.  
Avoid loading I/O ports with high capacitive or resistive loads.

### 2. Serial Programming at Voltages below 2.9V

At voltages below 2.9V, serial programming might fail.

#### Problem Fix/Workaround

Keep  $V_{CC}$  at 2.9V or higher during In-System Programming.



8-bit **AVR**<sup>®</sup>  
Microcontroller  
with 4K Bytes  
In-System  
Programmable  
Flash

**AT90S/LS4433**  
**Rev. C/D/E/F**  
**Errata Sheet**





## 1. **UART Loses Synchronization if RXD Line is Low when UART Receive is Disabled**

The UART will detect a UART start bit and start reception even if the UART is not enabled. If this occurs, the first byte after reenabling the UART will be corrupted.

### **Problem Fix/Workaround**

Make sure that the RX line is high at start-up and when the UART is disabled. An external RS232-level converter keeps the line high during start-up.



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