

ERRATA SHEET

Date: June 24, 1999
Document Release: Version 1.0
Devices Affected: P87C51RA+/RB+/RC+/RD+, P89C51RC+/RD+

This errata sheet describes both the functional anomalies and any deviations from the electrical specifications known at the release of this document.

Each anomaly and deviation is assigned a number and its history tracked at the end of the document.

Functional Deviations

Deviation #1: Watchdog Timer – functional anomaly

Identification:

Product Families affected:

The following Product Families have the anomaly described above:

- RX+ family: P87C51RA+, RB+, RC+, RD+

- 89CRX+ family: P89C51RD+, 89C51RC+

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INTEGRATED CIRCUITS

The following Product Types have had this Watchdog anomaly corrected. Revision letters for corrected Product Types are:

Product Type	Package	Rev. Letter for new die (after date code)
P87C51RC+	A (PLCC 44)	A
P87C51RC+	B (PQFP 44)	A
P87C51RC+	N (PDIP 40)	B or C
P87C51RB+	A(PLCC 44)	B
P87C51RB+	B(PQFP 44)	B
P87C51RB+	N(PDIP 40)	D or E
P87C51RA+	A(PLCC 44)	A
P87C51RA+	B(PQFP 44)	A
P87C51RA+	N(PDIP 40)	B or C

The following Product Types are not scheduled to be fixed as of this note (please use Workaround described in the data sheets for these products if using the Hardware Watchdog Timer):

- P87C51RD+
- P89C51RC+, RD+ (12V ISP products)

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Description

Hardware Watchdog Timer Operation:

If allowed to Timeout, The Hardware Watchdog Timer in some versions of the RX+ family will attempt to drive the Reset Pin High and the same gate that attempts to drive the Reset Pin is used, on those parts, to drive the internal Reset circuitry of the Microcontroller.

If there is a large capacitor tied to VCC (as recommended for Power-On Reset), the internal gate will not be able to drive it and, consequently, the Microcontroller will not be Reset by the Watchdog Timer Event.

The solution, as implemented, is to change the design to take the Watchdog Reset signal to the internal circuitry before it attempts to drive the Reset pin, thus isolating the internal Reset signal from the external load.

Work-around:

Inserting a 1K series resistor from the Reset pin to the Capacitor to VCC will fix the problem and allow a proper internal Reset.

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INTEGRATED CIRCUITS

Electrical and Timing Specification Deviations

No known deviations at the release of this document.

Errata History

Problem	Type	Description	Comments
1. WDT	Functionality	- Watchdog Timer Overflow will not Reset Microcontroller if Reset Capacitor connected to Reset Pin	- Fix implemented on newer versions of RX+ family

For more information contact Philips Semiconductors, www.semiconductors.philips.com/mcu/

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