



MICROCHIP

AN664

Converting from 93xx46 Devices to 93xx46A/B Devices

DESCRIPTION

This application note details the process of converting from 93C06, 93C46 and 93LC46 type devices to 93C46B, 93LC46A, and 93LC46B devices. The new 93xx46A/B devices include improved data polling operation and are available in the small 8 pin TSSOP package. The new devices also offer fixed device organization. For example the "A" suffix on the 93LC46A part number indicates that the device is organized as x8 only. The "B" suffix indicates that the 93LC46B is organized as x16 only.

The new devices also incorporate power protection circuitry that adds extra data protection when powering down the device. The 93C46B is designed to function as a 4.5V - 5.5V part. An internal voltage detect circuit prevents write operations below nominally 3.8 volts. The 93LC46A and 93LC46B devices have an internal voltage detect that inhibits writes below 2.2V nominally.

In the table below the operation parameters of the old and new devices are outlined.

Part Number	Organization	Operating Range
93C46	x16 only	4.5V - 5.5V
93LC46	x8 or x16	2.0V - 6.0V
93LC46B	x16 only	2.0V - 6.0V
93AA46	x8 or x16	1.8V - 6.0V
93C46B New	x16 only	4.5V - 5.5V
93LC46A New	x8 only	2.5V - 6.0V
93LC46B New	x16 only	2.5V - 6.0V

The following product conversion decision tree will assist in converting to the new 93xx46A/B products. In order to properly convert to new products two items need to be known about the existing application, the operating voltage of the system and whether the memory is organized as x8 or x16. Once that information is known then the decision tree will assist in determining what the new product should be. The product selection is also available in tabular form on page 2.

PRODUCT CONVERSION DECISION TREE

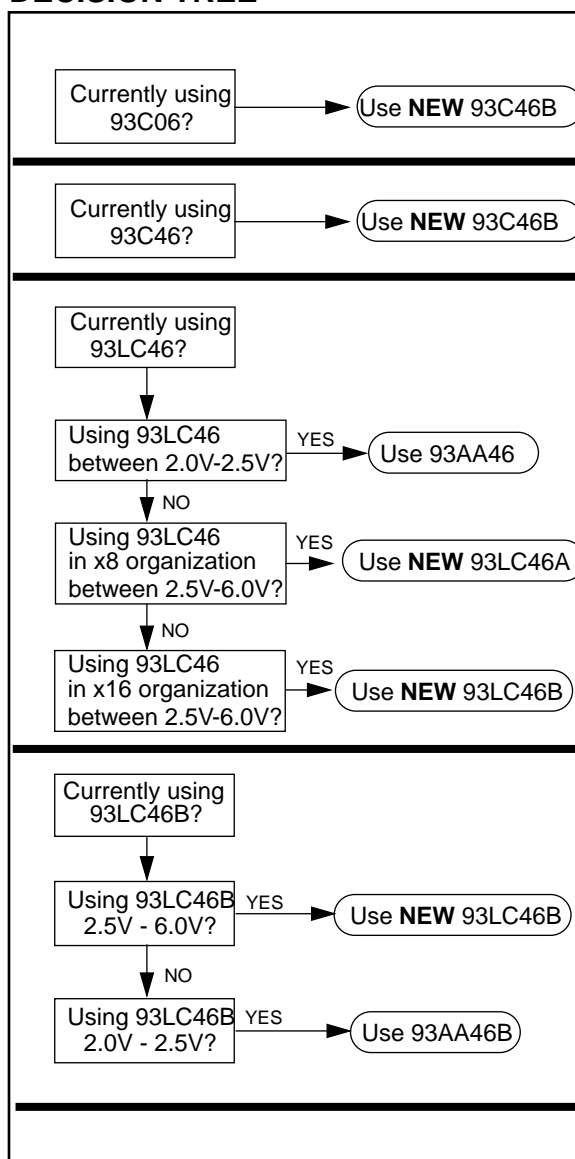
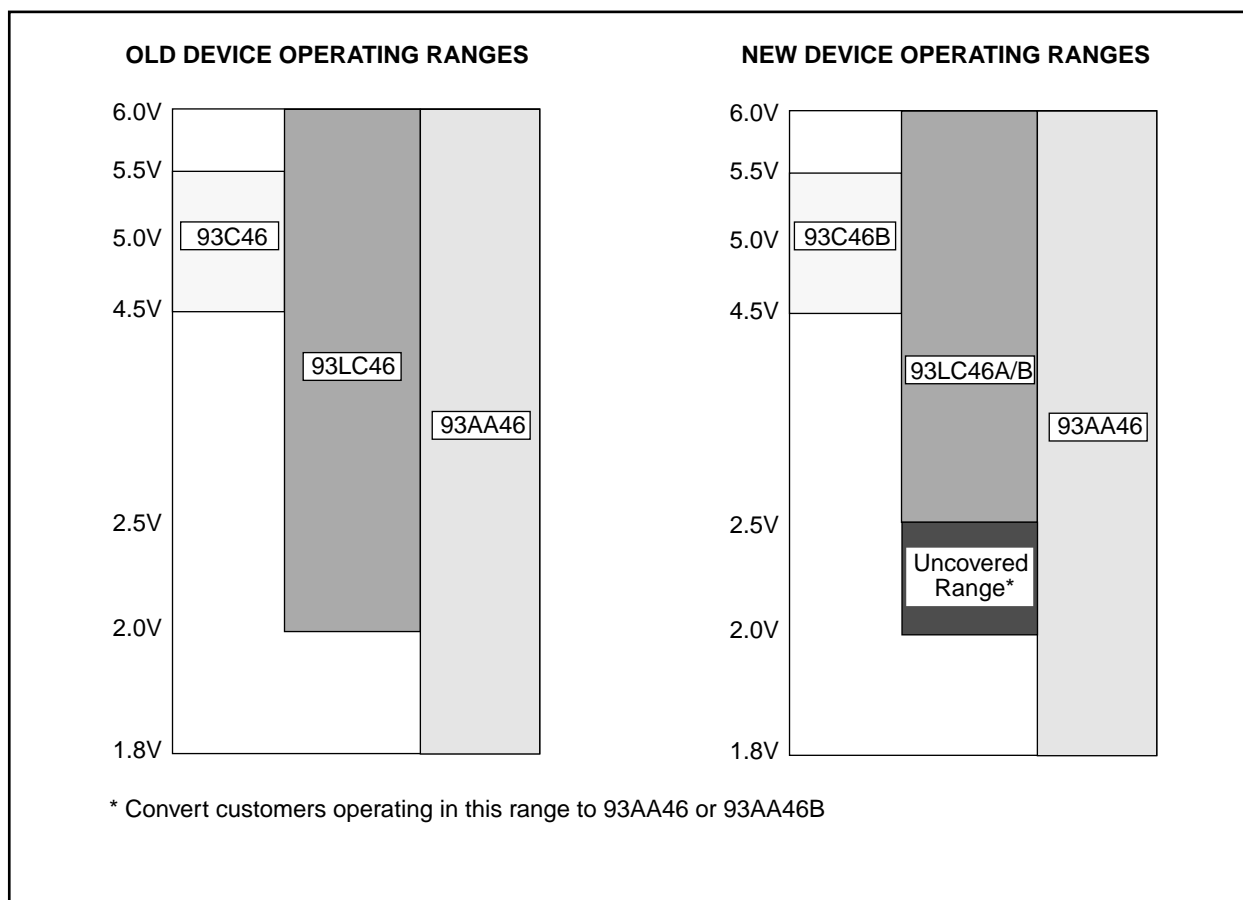


TABLE 1 PRODUCT CONVERSION TABLE

Part number currently being used	Voltage Range	Organization	New part number to be used
93C06	All	All	NEW 93C46B
93C46	All	All	NEW 93C46B
93LC46	2.5V - 6.0V	x8	NEW 93LC46A
93LC46	2.5V - 6.0V	x16	NEW 93LC46B
93LC46	2.0V - 2.5V	All	93AA46
93LC46B	2.5V - 6.0V	All	NEW 93LC46B
93LC46B	2.0V - 6.0V	All	93AA46B

VOLTAGE OPERATION GRAPHS

The following two graphs show the operating voltages of the current 93xx46 devices and the **NEW** 93xx46A/B devices. From the graphs it can be seen that there is a voltage range covered by the existing devices that is not covered by the new devices. The continued production of the 93AA46 device ensures that anyone currently operating in the voltage range not covered by the new 93xx46A/B devices will have a conversion solution.



NOTES:

Note the following details of the code protection feature on PICmicro® MCUs.

- The PICmicro family meets the specifications contained in the Microchip Data Sheet.
- Microchip believes that its family of PICmicro microcontrollers is one of the most secure products of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the PICmicro microcontroller in a manner outside the operating specifications contained in the data sheet. The person doing so may be engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as “unbreakable”.
- Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our product.

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