

4. Keep the Prog_enable pins unchanged for at least 10 μ s after the High-voltage has been applied to ensure the Prog_enable Signature has been latched.
5. Wait until V_{CC} actually reaches 4.5 -5.5V before giving any parallel programming commands.
6. Exit Programming mode by power the device down or by bringing RESET pin to 0V.

25.7.2 Considerations for Efficient Programming

The loaded command and address are retained in the device during programming. For efficient programming, the following should be considered.

- The command needs only be loaded once when writing or reading multiple memory locations.
- Skip writing the data value 0xFF, that is the contents of the entire EEPROM (unless the EESAVE Fuse is programmed) and Flash after a Chip Erase.
- Address high byte needs only be loaded before programming or reading a new 256 word window in Flash or 256 byte EEPROM. This consideration also applies to Signature bytes reading.

25.7.3 Chip Erase

The Chip Erase will erase the Flash and EEPROM⁽¹⁾ memories plus Lock bits. The Lock bits are not reset until the program memory has been completely erased. The Fuse bits are not changed. A Chip Erase must be performed before the Flash and/or EEPROM are reprogrammed.

Note: 1. The EEPROM memory is preserved during Chip Erase if the EESAVE Fuse is programmed.
Load Command "Chip Erase"

1. Set XA1, XA0 to "10". This enables command loading.
2. Set BS1 to "0".
3. Set DATA to "1000 0000". This is the command for Chip Erase.
4. Give XTAL1 a positive pulse. This loads the command.
5. Give \overline{WR} a negative pulse. This starts the Chip Erase. RDY/ \overline{BSY} goes low.
6. Wait until RDY/ \overline{BSY} goes high before loading a new command.

25.7.4 Programming the Flash

The Flash is organized in pages, see [Table 25-11 on page 299](#). When programming the Flash, the program data is latched into a page buffer. This allows one page of program data to be programmed simultaneously. The following procedure describes how to program the entire Flash memory:

A. Load Command "Write Flash"

1. Set XA1, XA0 to "10". This enables command loading.
2. Set BS1 to "0".
3. Set DATA to "0001 0000". This is the command for Write Flash.
4. Give XTAL1 a positive pulse. This loads the command.

B. Load Address Low byte

1. Set XA1, XA0 to "00". This enables address loading.
2. Set BS1 to "0". This selects low address.
3. Set DATA = Address low byte (0x00 - 0xFF).