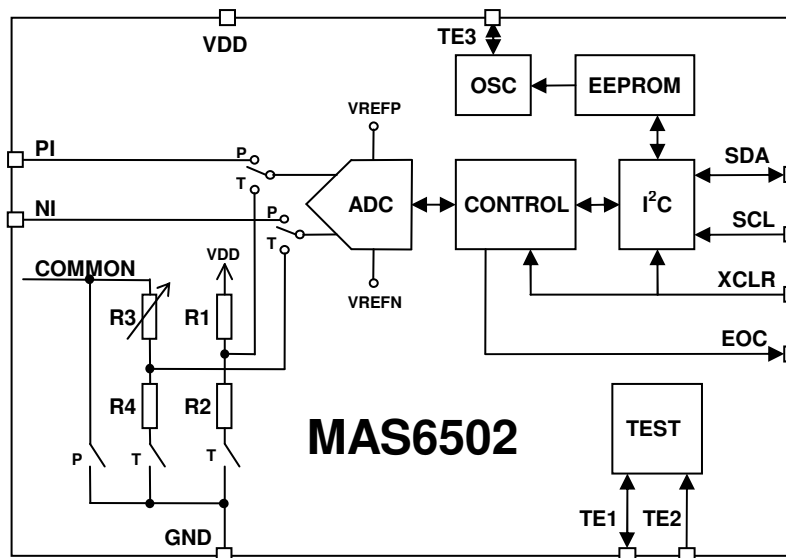


MAS6502

DATA SHEET EXTENSION

- Writing data to the EEPROM



INTRODUCTION

The MAS6502 16 bit Analog-to-Digital Converter (ADC) has a 256 bit (32 bytes) EEPROM memory. 8 bits (1 byte) have been reserved for storing internal clock oscillator trimming data leaving 248 bits (31 bytes) free for use.

This document gives instructions for writing data to the EEPROM memory.

EEPROM WRITE PROCEDURE

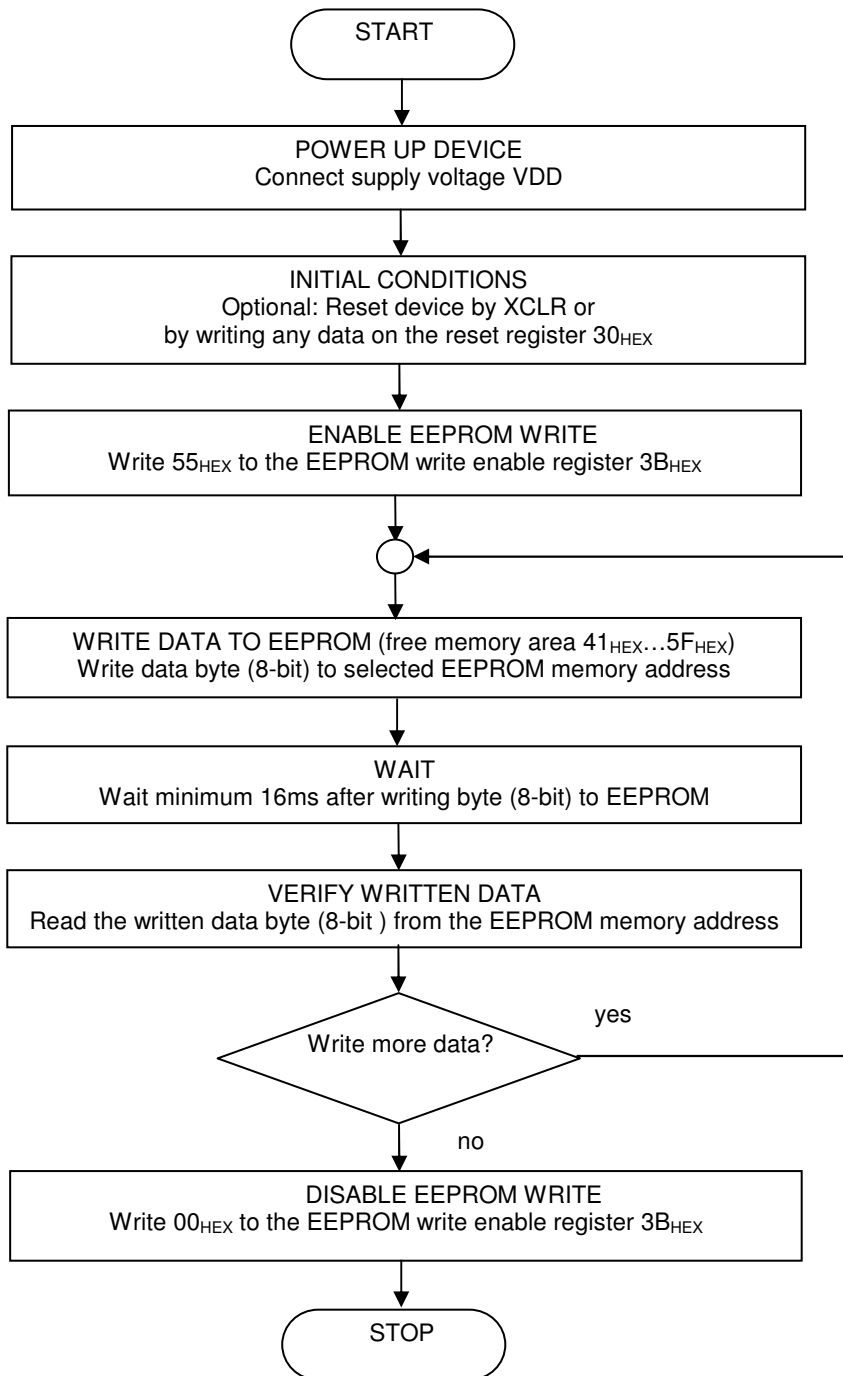


Figure 1. Flow chart for MAS6502 EEPROM write

EEPROM WRITE PROCEDURE

See figure 1 on previous page showing the EEPROM write procedure.

Make sure in the beginning of the EEPROM write procedure that the MAS6502 initial conditions are met. Connecting VDD triggers power-on-reset (POR) but to make sure the device is reset an additional reset can be given using the XCLR pin or writing any data on the reset register 30_{HEX} via I²C serial bus.

EEPROM write is enabled by writing value 55_{HEX} to EEPROM write enable register 3B_{HEX}. Any other value in this register disables the EEPROM write. The default register value after power on is 00_{HEX}.

Next the data can be written to the EEPROM memory one byte (8-bit) at a time. It is necessary to have a delay of minimum 16ms after programming each byte (8-bit). The success of each write can be verified by reading back the data (8-bit) and comparing it to the original byte (8-bit).

After all data bytes are written the EEPROM memory can be protected from write and erasing by writing 00_{HEX} to the EEPROM write enable register 3B_{HEX}.

Table 1 below shows the MAS6502 register and EEPROM data addresses. See also the MAS6502 datasheet for further details of registers, EEPROM and serial bus communication.

REGISTER AND EEPROM DATA ADDRESSES

Table 1. Register and EEPROM data addresses

| A7 | A6 | A5 | A4 | A3 | A2 | A1 | A0 | HEX (X=0) | Description | Note |
|----------|----------|----------|----------|----------|----------|----------|----------|-----------|---|----------|
| X | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | EEPROM; erase internal clock oscillator trimming, reserved! | E |
| X | 0 | 0 | A4 | A3 | A2 | A1 | A0 | 01...1F | EEPROM; erase data at address [A4:A0] | E |
| X | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | EEPROM; read or write internal clock oscillator trimming, reserved! | E |
| X | 1 | 0 | A4 | A3 | A2 | A1 | A0 | 41...5F | EEPROM; read or write data at address [A4:A0] | E |
| X | X | 1 | 1 | 0 | 0 | 0 | 0 | 30 | Reset register; contains no data, write any data for reset | R |
| X | X | 1 | 1 | 0 | 1 | 1 | 1 | 37 | Test and trim control register | R |
| X | X | 1 | 1 | 1 | 0 | 0 | 0 | 38 | Oscillator frequency control register | R |
| X | X | 1 | 1 | 1 | 0 | 0 | 1 | 39 | Data input register for EEPROM | R |
| X | X | 1 | 1 | 1 | 0 | 1 | 0 | 3A | Control register for EEPROM | R |
| X | X | 1 | 1 | 1 | 0 | 1 | 1 | 3B | Write and erase enable for EEPROM | R |
| X | X | 1 | 1 | 1 | 1 | 0 | 0 | 3C | Status register for EEPROM | R |
| X | X | 1 | 1 | 1 | 1 | 0 | 1 | 3D | MSB conversion result | R |
| X | X | 1 | 1 | 1 | 1 | 1 | 0 | 3E | LSB conversion result | R |
| X | X | 1 | 1 | 1 | 1 | 1 | 1 | 3F | ADC control register | R |

X = Don't care, E = EEPROM, R= Register

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