

FLASH MEMORY MODULE – BM003

OPEN SOURCE HARDWARE MODULE



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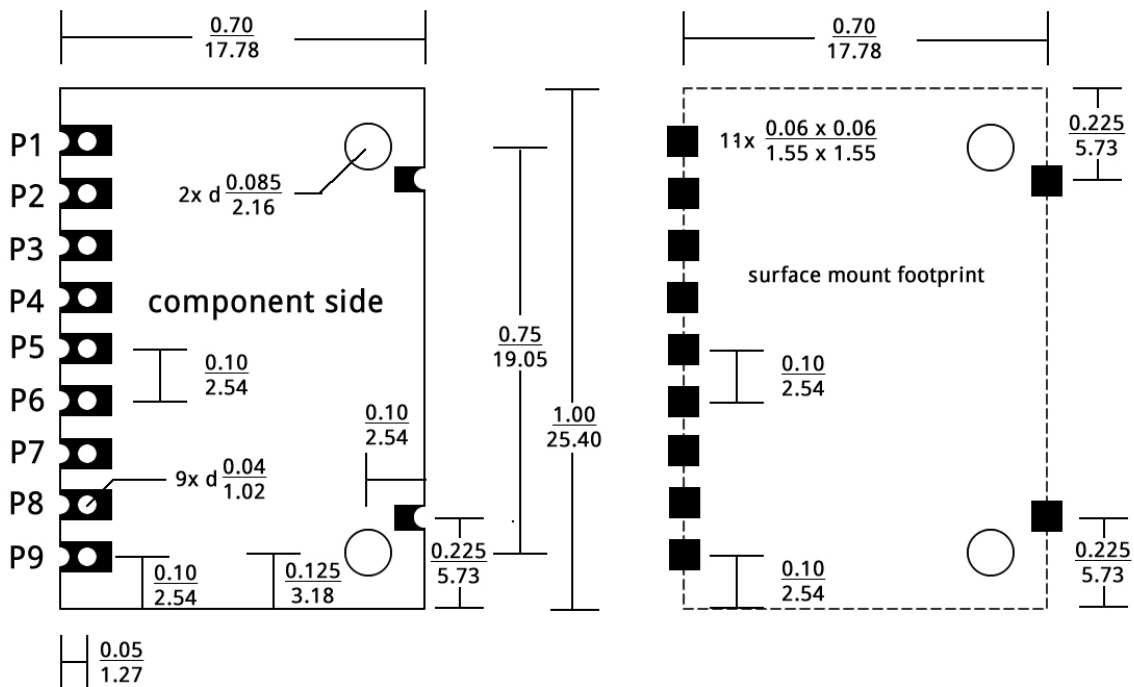
Product Description:

This breakout board carries a single Macronix MX25L6445E 64Mbit serial Flash memory. It is ideal for storing large amounts of non-volatile information, such as data logs or text files.

- Serial peripheral interface (SPI mode 0 or 3)
- SPI compatible with 3.3V or 5V inputs/outputs
- 100,000 erase/write cycles
- 20 year data retention

Dimensions:

9-pin SIP Mechanical Dimensions inches
mm



Specifications:

| Characteristic | Min | Typ | Max | Unit | Notes |
|-------------------------------|-----|-----|-----|------|---------------------------------|
| Operating voltage | 5 | | 24 | V | Onboard regulator provides 3.3V |
| Operating current | 5 | | 30 | mA | |
| Byte program time | | 9 | 300 | µS | |
| Page program cycle time | | 1.4 | 5 | mS | |
| Sector erase cycle time(4KB) | | 60 | 300 | mS | |
| Block erase cycle time (64KB) | | 0.7 | 2 | S | |
| Chip erase cycle time | | 50 | 80 | S | |
| Operating temperature | -40 | | 85 | °C | |

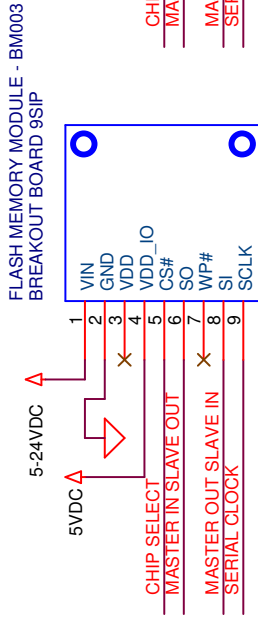
Pin Functions and Notes

| # | Name | Maximum Voltage | Notes |
|---|--------|-----------------|--|
| 1 | VIN | 24V | Voltage supply. 5-24VDC supplies onboard 3.3V regulator |
| 2 | GND | 0V | Ground return. |
| 3 | VDD | N/A | Voltage output. 3.3V should not draw more than 25mA from this connection. |
| 4 | VDD_IO | 5V | Voltage input. Sets operating voltage for CS#, SI, WP#, SO, SCLK. VDD_IO must be connected to a voltage source, not left floating if you are using external pull-up resistors. |
| 5 | CS# | VDD_IO | Logic input. Chip select, asserted low. This pin is pulled to VDD_IO by a 4.7K Ω resistor. |
| 6 | SO | VDD_IO | Logic output. Serial data output from the IC. This pin is pulled to VDD_IO by a 4.7K Ω resistor. |
| 7 | WP# | VDD_IO | Logic input. Write protect, asserted low. Prevents writing to memory when asserted. This pin is pulled to VDD_IO by a 4.7K Ω resistor. |
| 8 | SI | VDD_IO | Logic input. Serial data input to the IC. This pin is pulled to VDD_IO by a 4.7K Ω resistor. |
| 9 | SCLK | VDD_IO | Logic input. Serial data clock input to the IC. This pin is pulled to VDD_IO by a 4.7K Ω resistor. |

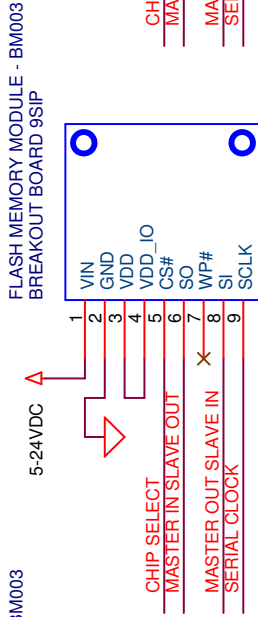
User Notes/Tips

- VDD_IO must be connected to a voltage source, not left floating if you are using external pull-up resistors
- For additional information on the Flash memory commands or timing of the SPI bus please review the Macronix MXL6445E datasheet. The MX25L6445E has a large command set and additional properties such as 4K of one-time-programmable memory. This is detailed in the device datasheet.
- Visit www.solutions-cubed.com for application notes related to this module.
- When operating at 5V you should provide 5V at the VIN and VDD_IO pins. This powers the on-board regulator and sets the voltage bus of the i/o pins. 3.3V will be present at the VDD pin.
- When operating at 3.3V you can provide 5V at VIN and use the on-board regulator output at VDD to power the VDD_IO pin. Alternatively you may tie VIN to ground and connect 3.3V to both VDD and VDD_IO of the on-board regulator is not needed to provide 3.3V.

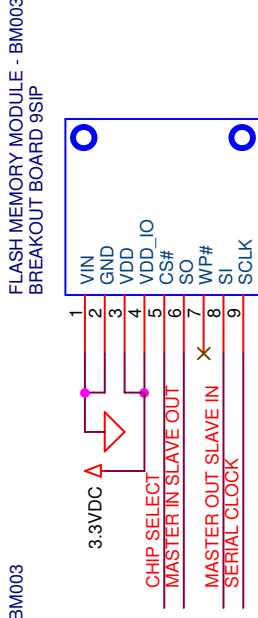
BASIC CONNECTIONS 5V SYSTEM



BASIC CONNECTIONS 3.3V SYSTEM



ALTERNATE CONNECTIONS 3.3V SYSTEM



ARDUINO CONNECTIONS

