

FLASH MEMORY MODULE – BM003

OPEN SOURCE HARDWARE MODULE



hardware made easy

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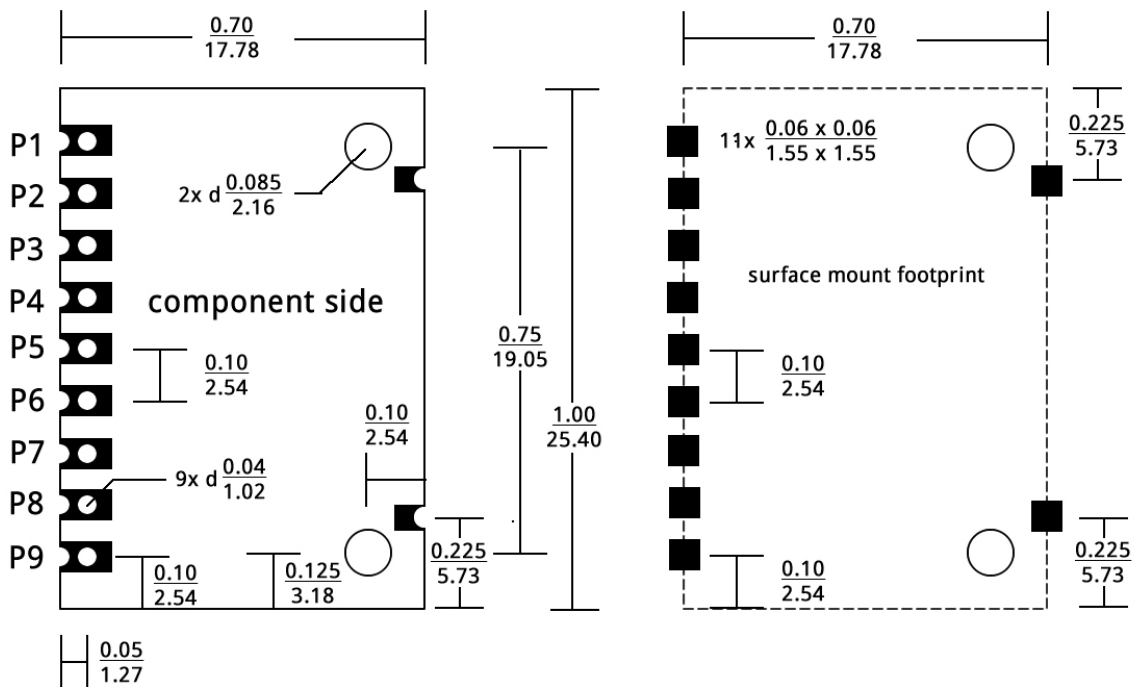
Product Description:

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	

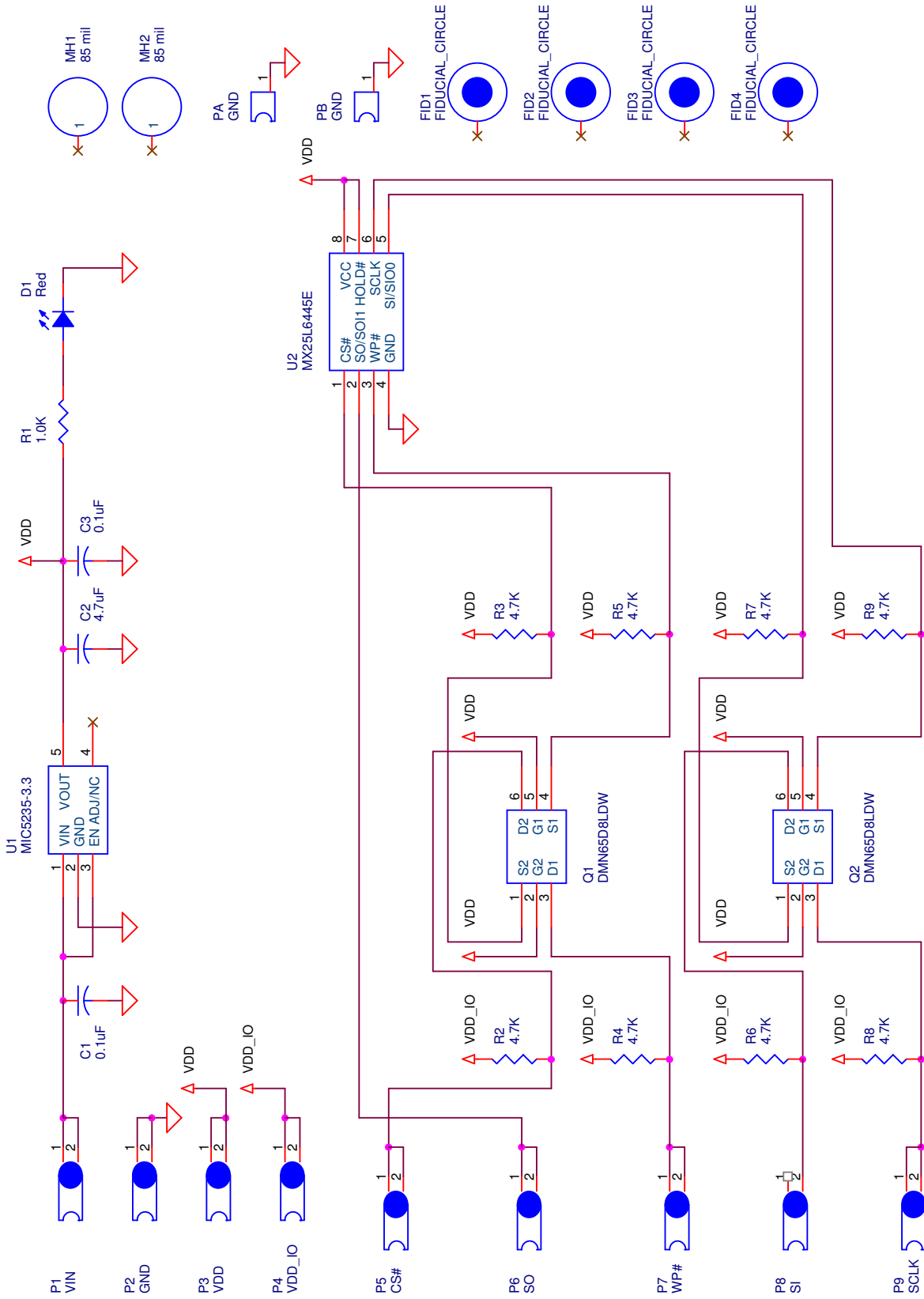
Pin Functions and Notes

#	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.

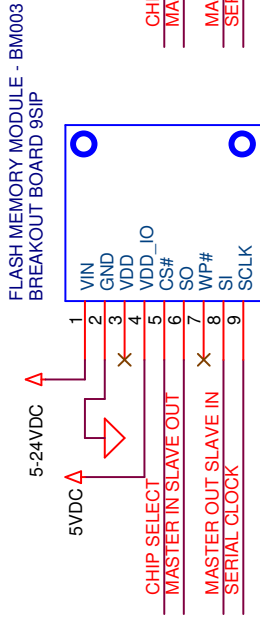
User Notes/Tips

- 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.

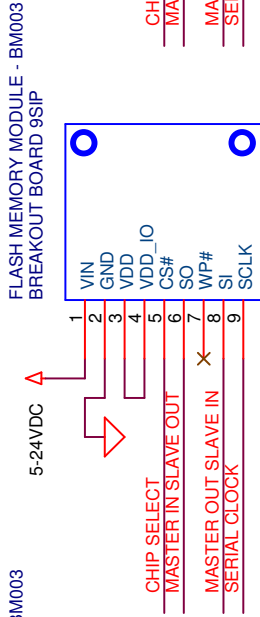
FLASH MEMORY MODULE – BM003 User Datasheet



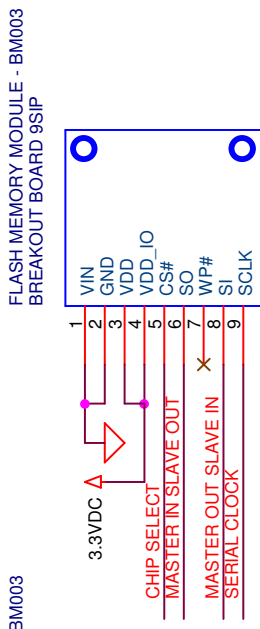
BASIC CONNECTIONS 5V SYSTEM



BASIC CONNECTIONS 3.3V SYSTEM



ALTERNATE CONNECTIONS 3.3V SYSTEM



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