

FMJ USB 10-Pin Module



OVERVIEW

The FMJ USB 10-Pin Module is a small, low cost, high performance, removable solid-state memory storage subsystem. It is an appropriate replacement for hard disk drives and host systems that require low power and small scalable storage solutions. FMJ technology is designed for customer's that prefer reliable operation in harsh environments and a long product lifecycle. Amongst the endless number of applications are networking products, military systems, interactive kiosks, record and playback systems, medical equipment, industrial control systems, avionics, and voting machines. Every USB 10-Pin Module is integrated with technology that prevents data corruption and loss from power anomalies.

FEATURES

- Capacity range: 512MB to 8GB
- Industry standard 10-Pin Module form factor
- Integrated wear-leveling and ECC technology
- Supports 5V interface
- MTBF: 4,000,000 hours
- Supports USB full and high-speed data rates
- RoHS 6 of 6 compliant
- Industrial temperature version available



FMJ USB 10-Pin Module

Table of Contents

1.0 Physical Specifications	3
1.1 Physical Dimensions.....	3
2.0 Product Specifications	3
2.1 System Performance.....	3
2.2 Reliability.....	4
2.3 Capacity.....	4
2.4 Environmental.....	4
3.0 Electrical Specifications	5
3.1 Absolute Maximum Ratings.....	5
3.2 DC Specifications.....	5
3.2 Pin Assignments/Signals.....	6
3.3 Signal Timing.....	6
4.0 Ordering Information	7

FMJ USB 10-Pin Module

1.0 Physical Specifications

The FMJ USB 10-Pin Module products are offered in an Industry Standard form factor.

1.1 Physical Dimensions

The following figure describes the physical dimensions for the FMJ USB 10-Pin Module.

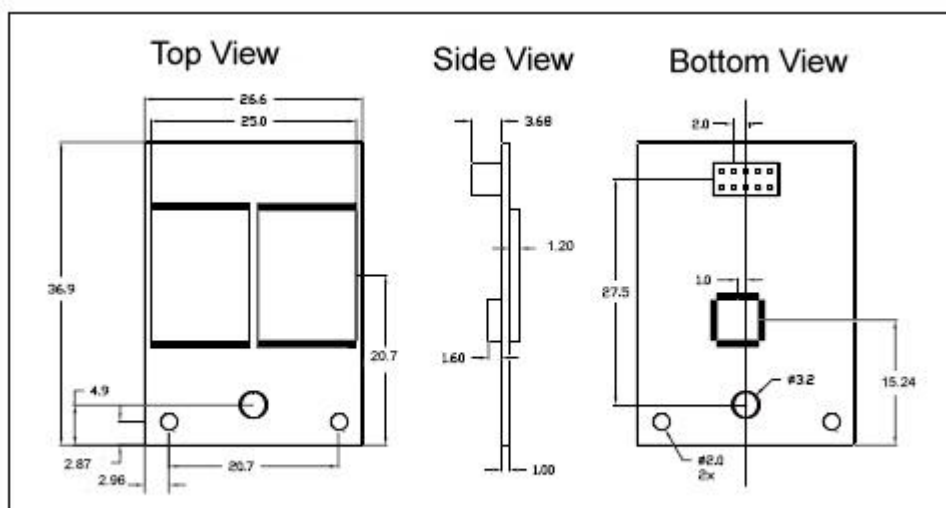


Figure 1: Physical Dimensions

2.0 Product Specifications

Note: All FMJ USB 10-Pin Module values quoted are typical at 25°C and nominal supply voltage.

2.1 System Performance

Table 1 shows the System Performance characteristics of the FMJ USB 10-Pin Module.

Table 1: System Performance

Parameter	Value
Read Transfer Rate	Up to 20MB/s
Write Transfer Rate	Up to 16MB/s
Burst Transfer Rate	60MB/s

FMJ USB 10-Pin Module

2.2 Reliability

Table 2 shows the Reliability information on the FMJ USB 10-Pin Module.

Table 2: Reliability Information

Parameter	Value
MTBF (@ 25°C)	4,000,000 hours
Bit Error Rate	<1 non-recoverable error in 10 ¹⁵ bits read
Data Retention	10 Year

2.3 Capacity

Table 3 shows the Product Capacities of the FMJ USB 10-Pin Module.

Table 3: Product Capacity

Product Capacity	Formatted Capacity (Bytes)	Number of Sectors
1GB	1015078912	1986560
2GB	2044395520	3993600
4GB	4129538048	8089600
8GB	8262782976	16179200

2.4 Environmental

Table 4: Environmental Specifications

Temperature (Operating)	0°C to 70°C (Commercial) -40°C to 85°C (Industrial)
Humidity	8% to 95% non-condensing
Vibration	16.3gRMS, MIL-STD-810F, Method 514.5, Procedure I, Category 24
Shock	1000G, Half-sine, 0.5ms Duration 50g Pk, MIL-STD-810F, Method 516.5, Procedure
Altitude	80,000ft, MIL-STD-810F, Method 500.4, Procedure II

FMJ USB 10-Pin Module

3.0 Electrical Specifications

3.1 Absolute Maximum Ratings

Table 5: Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	TS	-55	125	°C
Operating Temperature*	TA	-40	85	°C
Supply Voltage Relative to Ground	VCC	-0.3	6.0	V
Input/Output Voltage	VIO	-0.3	VCC + 0.3	V

* = Industrial temperature version.

3.2 DC Specifications

Table 6: DC Specifications

Parameter	Symbol	5.0V		Units
		Min	Max	
Supply Voltage	VCC	4.75	5.25	V
Input Leakage Current	ILI	-	10	µA
Output Leakage Current	ILO	-	10	µA
Icc Read Current	ICCR	40	60	mA
Icc Write Current	ICCW	40	60	mA
Icc Standby Current	ICCS	-	500	µA
Input Low Voltage	VIL	-0.3	0.8	V
Input High Voltage	VIH	2.0	VCC + 0.3	V
Output Low Voltage	VOL	-	0.4	V
Output High Voltage	VOH	2.4	-	V
Output Crossover Voltage	VCRS	1.3	2.0	V

FMJ USB 10-Pin Module

3.2 Pin Assignments/Signals

Figure 2 and Table 7 describes the FMJ USB 10-Pin Module connector assignments and signals. Refer to the USB specification for more information on the signals.

Figure 2: Pin Locations

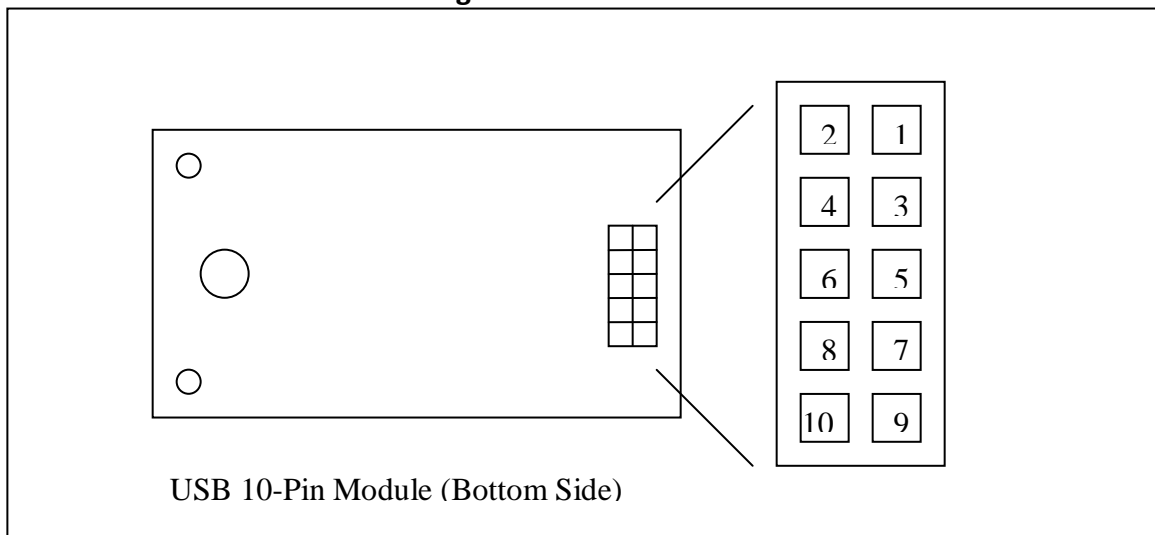


Table 7: Pin Assignments

Pin	Signal	Pin	Signal
2	NC	1	Vcc
4	NC	3	USB-
6	NC	5	USB+
8	NC	7	GND
10	Drive Active	9	Key (No Pin)

3.3 Signal Timing

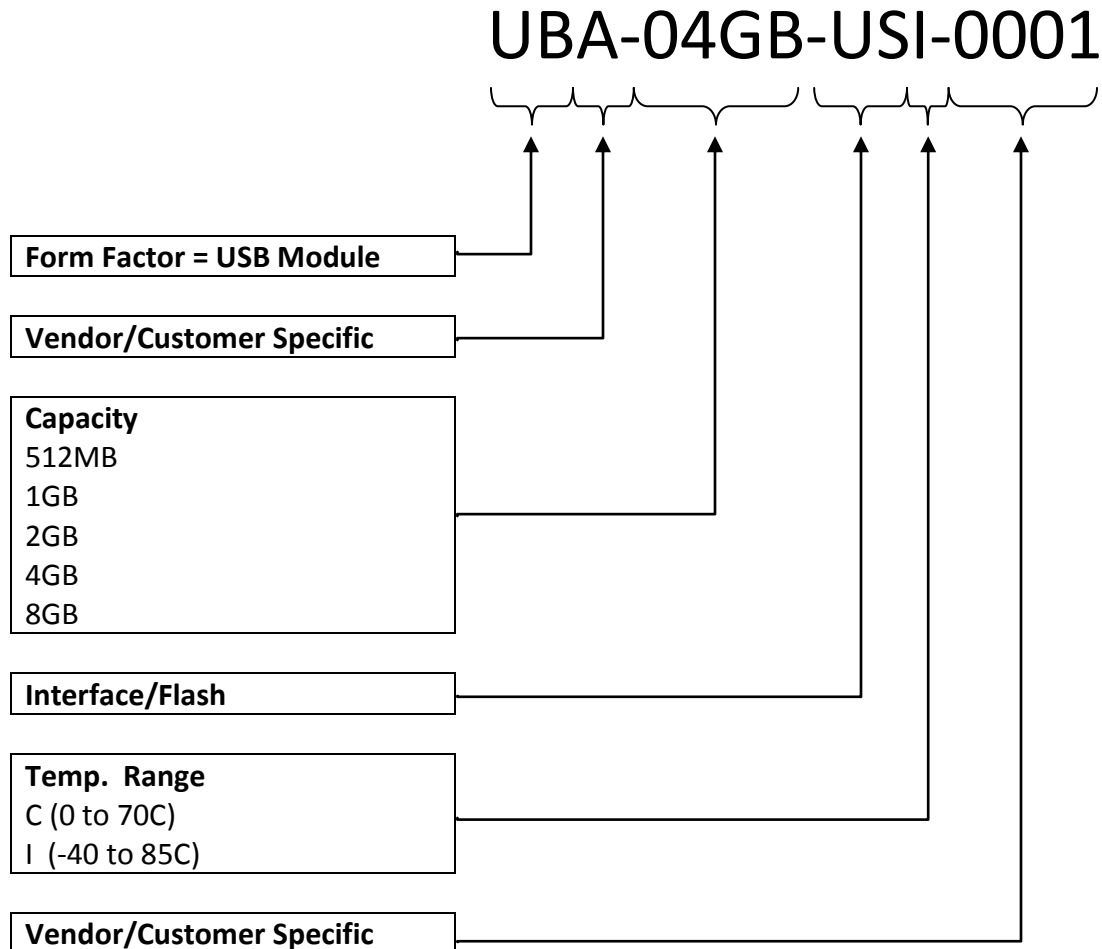
Refer to the USB specification for information on the signal timing.

FMJ USB

10-Pin Module

4.0 Ordering Information

The following describes the part number ordering nomenclature from FMJ Storage.



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1 Megabyte (MB) equals 1 Million Bytes; 1 Gigabyte (GB) equals 1 Billion Bytes. Accessible capacity may vary depending on the operating environment.

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