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3707714 User's Manual

Component Name

Version 1.1

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Contents:

1. Product Information

The Micro Disk Serial ATA Module is solid-state design for serial and Serial ATA translation interface. It's an ideal replacement for standard SATA hard disk by no errors even under extreme shock and vibration conditions. The Micro Disk Serial ATA Module is extremely small and highly suitable for rugged environments, thus providing an excellent solution for space limitations. It is compatible with all consumer applications designed for data storage, allowing simple use for the end user.

The Micro Disk Serial ATA Module is Serial ATA compatible and offering various capacities. It has low power consumption and can operate from a single 3.3/5.0 Volt power supply. The operating temperature grade is commercial operating temperature grade (0℃~+70℃) and wide operating temperature grade (-40℃~+85℃).

2. System Features

◆ Serial ATA 1.0a Specification compliant.
◆ Max Capacity supported: 16GByte.
◆ High reliability assured based on the internal Error Correcting Code function.
◆ Reliable wear-leveling algorithm to ensure the best of flash endurance.
◆ Auto Standby and Sleep Mode supported.
◆ Hardware Protect.
◆ Capacity supported: 128MB, 256MB, 512MB, 1GB, 2GB, 4GB, 8GB and 16GB

3. Specifications

Compatibility	Serial ATA 1.0a Specification	
Flash Technology	NAND Type Flash Memory Base	
Form Factor	Horizontal Type in Rightwards	
Connector Types	Standard 7-pin female Serial ATA connector	
System Performance		
Data Transfer Mode	Serial ATA	
Sequential Read	SLC Type	45Mbytes / sec Max.
	MLC Type	45Mbytes / sec Max.
Sequential Write	SLC Type	30Mbytes / sec Max.
	MLC Type	25Mbytes / sec Max.
Access Time	0.5ms	
Environmental Specification		
Standard Temperature	Operation	0ºC ~ +70ºC
	Non-operation	-20ºC ~ +80ºC
Wide Temperature	Operation	-40ºC ~ +85ºC
	Non-operation	-50ºC ~ +95ºC
Vibration	Operation max	20 G
	Non-operation max	20 G
Humidity	5~95% non-condensing	
Shock	1500 G	
Reliability		
MTBF	> 1,000,000 hours	
Error Correction Code	4 bits Error Correction Code	
Endurance(SLC)	Greater than 1,000,000 cycles logically contributed by Wear-leveling and advanced bad sector management algorithms	
Endurance(MLC)	Greater than 1,00,000 cycles logically contributed by Wear-leveling and advanced bad sector management algorithms	
Data Reliability	< 1 non-recoverable error in 10^{14} bits read	
Data Retention	10 years	
Power Consumption		
Power Voltage	+5V ± 10%	
Read	149mA	
Write	188mA	
Sleep Mode	107mA	
Power input	A power cable with 4pin to 2pin connector	

Pin Assignments

Pin Number	Name	Type
1	GND	1st mate
2	A+	Differential signal pair A from Phy
3	A-	
4	GND	1st mate
5	B-	Differential signal pair B from Phy
6	B+	
7	GND	1st mate

Note:

1. All pins are in a single row, with a 1.27 mm (.050") pitch.
2. The comments on the mating sequence in forward table apply to the case of backplane blind mate connector only. In this case, the mating sequences are:

    (1) The pre-charge power pins and the other ground pins

    (2) The signal pins and the rest of the power pins.

5. Dimension
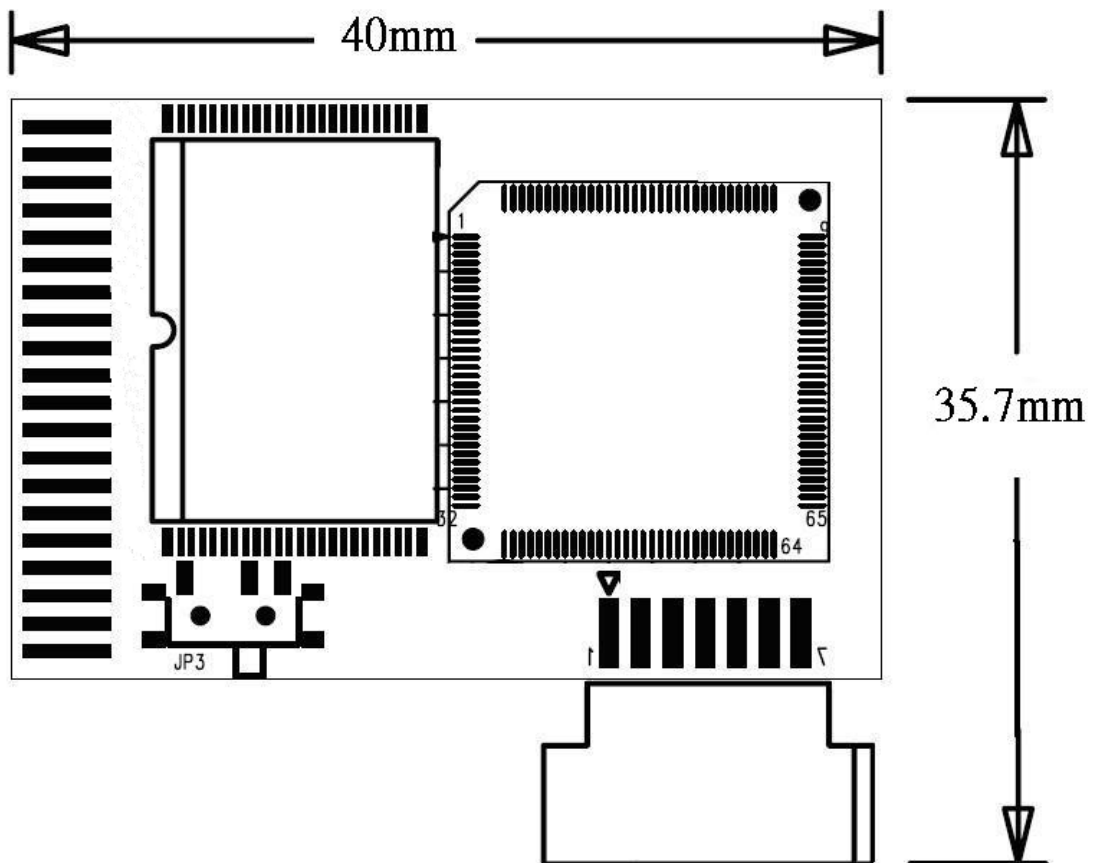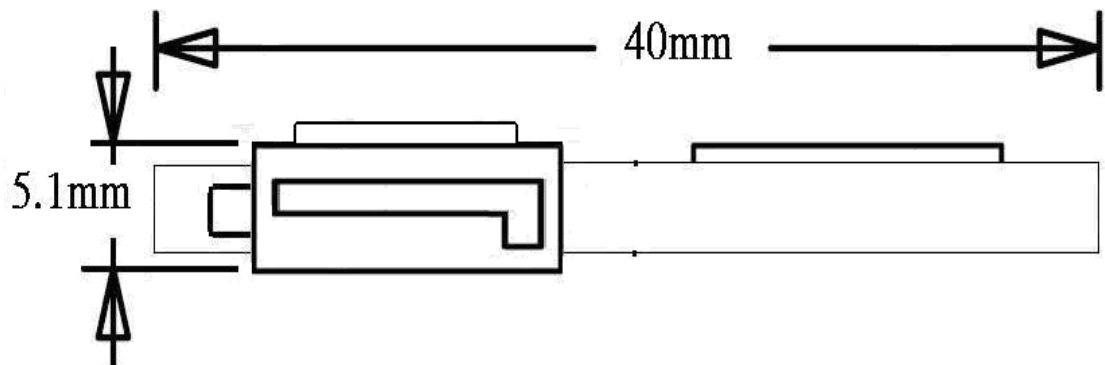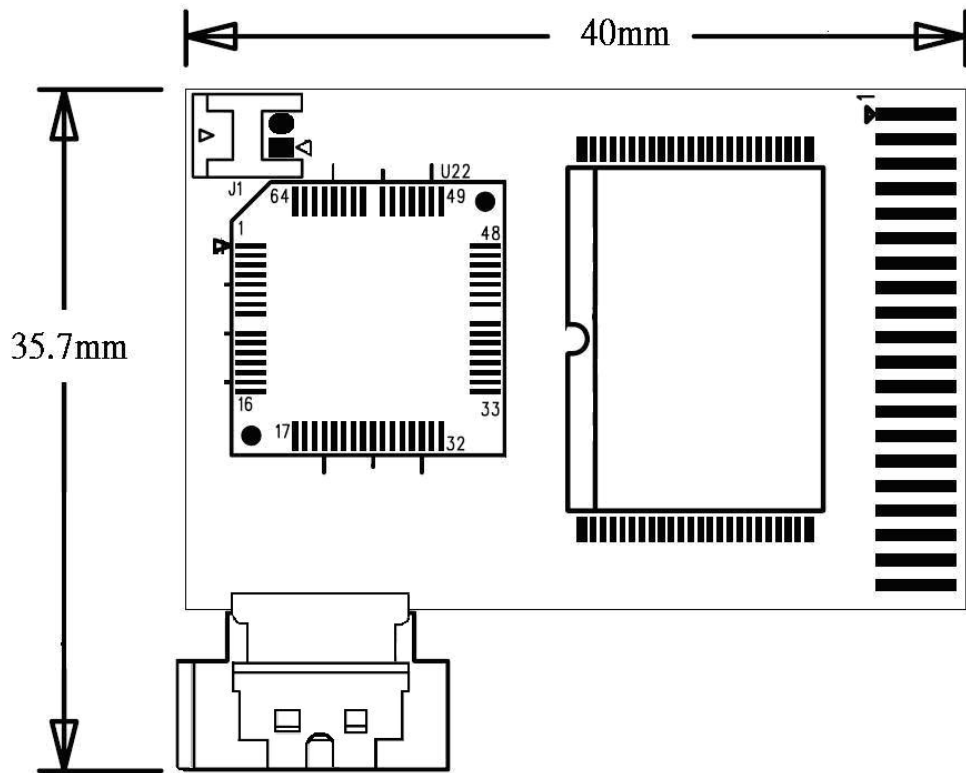
Electrical Specifications

Symbol	Parameter	Rating	Units
V_{CC}	Power Supply	-0.3 to 5.5	V
V_{IN}	Input Voltage	-0.3 to V_{CC} +0.3	V
V_{OUT}	Output Voltage	-0.3 to V_{CC} +0.3	V
V_{CCQ}	Power supply for host I/O and embedded regulator	-0.6 to 5.5	V
V_{IN5}	Input voltage for host I/O	-0.3 to V_{CCQ} +0.3	V
V_{OUT5}	Output voltage for host I/O	-0.3 to V_{CCQ} +0.3	V
T_{OPR-I}	Industrial temperature grade	-40° to +85°	℃
T_{OPR}	Commercial temperature grade	0° to +70°	℃
T_{STG}	Storage temperature	-55° to 150°	℃

6. DC Characters

Symbol	Parameter	Condition	MIN	TYP	MAX	Unit
DC sink current	I_{OL}		8			mA
Internal pull-up current			40		160	uA
Input low-voltage	V_{IL}				0.8	V
Input high-voltage	V_{IH}		2.0		5.0	V
Output low-voltage	V_{OL}		0		0.4	V
Output high-voltage	V_{OH}		2.6		3.6	V

7. AC Characters

Symbol	Parameter	Condition	MIN	TYP	MAX	Unit
Rising slew-rate			0.4	0.7	1.0	V/ns
Falling slew-rate			0.4	0.7	1.0	V/ns
Device Capacitance	C device				27	pF

8. Hardware Function

8.1. Overlook

Write Protect Switch →

← SATA Connector

Front View
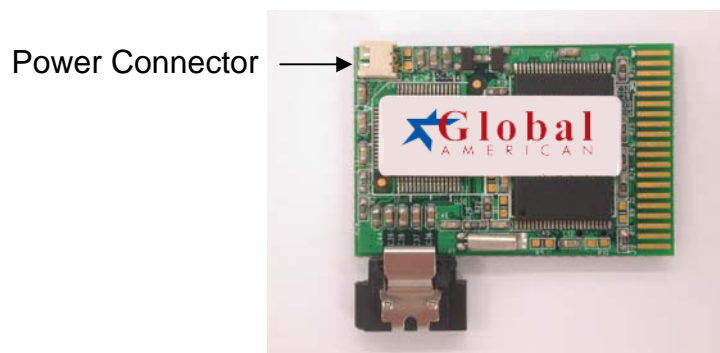
Power Connector →

Back View

8.2. Write Protect Switch

← Lock   Unlock →
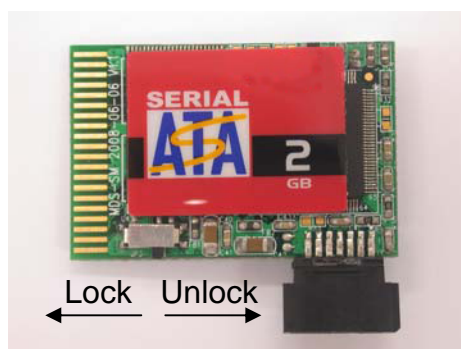
9. Packing

9.1. Product Package
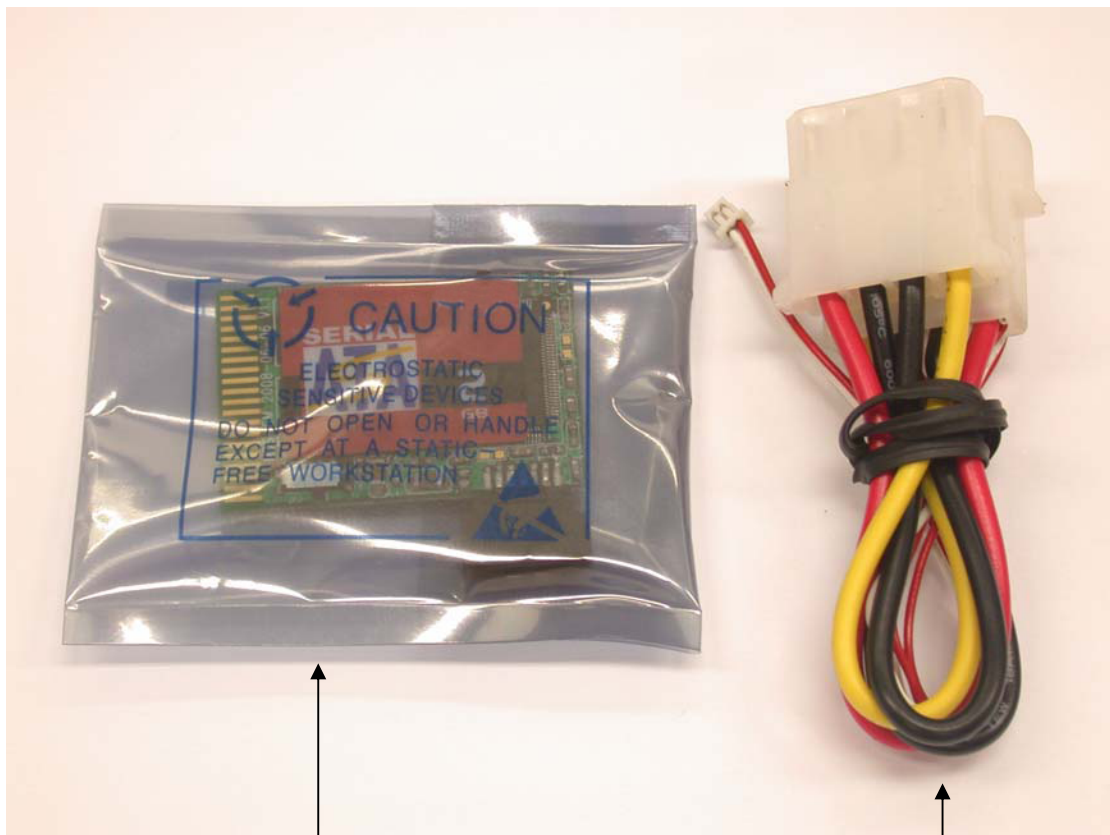
Micro Disk SATA Module   Power Cable

9.2. Product Photo

9.2.1. Front View

Write Protect Switch

SATA Connector

9.2.2. Back View

Power Connector

SATA Connector

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support your products, projects and business.

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