MUS-INDDOM7XXXXX

Maximus 7PIN SATA DOM Solid State Drive

Data Sheet

Version 1.1

Aug, 2013

Revision History

Revision	Date	Description
1.1	Aug, 2013	Release

Table of Contents

1.   Overview

1.1   Product Description

This series of products are designed for industrial applications which have requirements in size and speed, goes through three proofing tests and high reliability environmental tests such as Wide Temperature Test and Shock\Vibration test. Maximus 7PIN SATA DOM supports Over Load Protect and Power Failure Protect, with a fully compliant with defense selected & tested standards. Maximus 7PIN SATA DOM products have high stability and reliability and can do perfectly well under lots of applications which involve severe environments. Maximus 7PIN SATA DOM has a capacity range from 2GB~64GB and can be adapted to applications such as Rugged Computer, Panel PC, POS Machine, Systems Integration, Embedded Systems, Surveillance, Server, ATM, Ticket Machine, etc. All of this series are manufactured with best-class components under strict tests and technologies, and are 100% proven by series of complicated and complete and long term tests.

1.2   Key Features

- Industrial 7PIN SATA Disk on Module
- Capacity 2GB~64GB
- Enhanced endurance by dynamic/static wear-leveling[1]
- Support dynamic power management
- Enhanced Power Failure Protect Function
- Built-in ECC (Error Correction Code) functionality
- Enhanced Over Load Protect Function
- Support 90°-180°-270°
- Automatic Bad-block management[2]
- Support Trim and NCQ (Native Command Queuing) command
- Support BCH ECC 12 64-bits in 1024 bytes

Notes:

[1]   The controller supports static/dynamic wear leveling. When the host writes data, the controller will find and use the block with the lowest erase count among the free blocks. When the free blocks' erase count is higher than the data blocks', it will activate the static wear leveling, replacing the not so frequently used user blocks with the high erase count free blocks.

[2]   When the flash encounters ECC failed, program fail or erase fail, the controller will mark the block as bad block to prevent the used of this block and caused data lost later on.

2. Product Specifications

2.1 Capacity

Model Name	Raw Capacity[①]
MUS-INDDOM7XX02S/M	02GB/SLC/MLC
MUS-INDDOM7XX04S/M	04GB/SLC/MLC
MUS-INDDOM7XX08S/M	08GB/SLC/MLC
MUS-INDDOM7XX16S/M	16GB/SLC/MLC
MUS-INDDOM7XX32S/M	32GB/SLC/MLC
MUS-INDDOM7XX64M	64GB/MLC

Notes:

1 GB = 1,000,000,000 bytes; 1 sector = 512 bytes.

2.2 Cache Size

Cache Size: No Cache

2.3 Physical Specification

Form Factor	SATA DOM
Connector	7PIN Female
Dimensions (mm)	31.3mm±0.2×22.0mm±0.2×7.1mm±0.2
Weight	<20g
Input Voltage	5.0V±5%

2.4 Environmental Specification

Operating Temperature	Standard Grade (0℃ ～+70℃)
	Wide Grade (-20℃ ～+70℃)
	Extended Grade (-40℃ ～+85℃)
Storage Temperature	-55℃ to 95℃
Humidity	Operating	95% (Non-condensing)
	Non-Operating	95% (Non-condensing)
Vibration	20G (40 to 2000Hz)
Flash Type	Original Industrial NAND MLC and SLC FLash
Shock	2000G at 0.3ms half sine wave
Average Access Time	0.1ms
Style	90D, 180D, 270D

2.5 Performance[①]

Capacity	Flash type	Sequential Read[②]	Sequential Write[②]	IOPS Random Read (4KB QD32)[③]	IOPS Random Write (4KB QD32)[③]
2GB	MLC	45	35	3300	2500
	SLC	48	36	5500	3200
4GB	MLC	47	40	4000	3000
	SLC	51	41	5800	3200
8GB	MLC	49	43	4500	3200
	SLC	55	46	6000	4400
16GB	MLC	61	53	5700	4000
	SLC	66	55	6200	4800
32GB	MLC	72	60	6400	4700
	SLC	75	62	6500	4800
64GB	MLC	80	75	6500	4900
	SLC	/	/	/	/

Note:

Test platform: ASUS P8H67-M, CPU i3-2100, DDR III 2GB, Windows® 7 32bit with AHCI mode.

Flash mode: Synchronous.

Tested base on Crystal Disk Mark (Version 3.1.1), default test data(Random), copied file 2000MB, unit MB/s.

Tested base on IOmeter 2009, unit IOPS.

2.6   Reliability

Data Retention	15 years at 25°C		
MTBF	>1,000,000 hours		
Write Endurance	**Capacity**	**MLC**	**SLC**
	2GB	**2.5TB**	**82TB**
	4GB	**5TB**	**162TB**
	8GB	**10TB**	**325TB**
	16GB	**20TB**	**650TB**
	32GB	**40TB**	**1300TB**
	64GB	**80TB**	**/**

Notes: Endurance=Capacity*P/E cycle/WAI

The capacity refers to raw capacity

2.7   Temperature Sensor

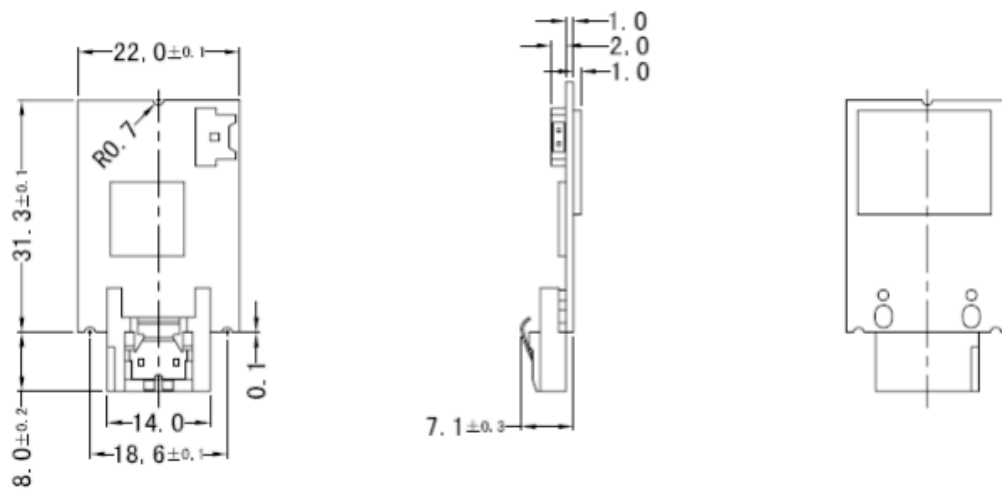|	**Yes**	**No**
Temperature sensor	Support	/

2.8 /2.9 Product Ecological Compliance & Certificate

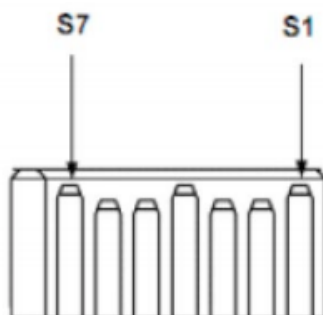# 3.   Mechanical Information

3.1   Dimensions

Note: above example is 180D dimension.

3.2   Pin Locations

3.3   Signal Descriptions

1	GND	
2	+A	Host Transmitter Differential Signal Pair
3	-A	Host Transmitter Differential Signal Pair
4	GND	
5	-B	Host Receiver Differential Signal Pair
6	+B	Host Receiver Differential Signal Pair
7	GND	

4. Model Name Rules

MUS-IND DOM 7 XX XX X

Abbreviation	Referring to
MUS	Maximus Brand Name
IND	Advanced Industrial Series
DOM	Disk on Module
7	7PIN
XX	Temperature Range. "ST" for Standard Grade, "WT" for Wide Grade, "ET" for Extended Grade
XX	Capacity
X	NAND Flash Type. "M" for MLC, "S" for SLC

Note: The Abbreviations in the form are corresponded under an order of "from left to the right" in the Model Name above.

The capacity refers to raw capacity not practical capacity.

5. Contact Information

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