

Myung Solid State Drive  
3.5 Inch PATA SLC

# MS Series Product Specification

May 2012  
Rev. 0.3



**MYUNG INFO.TECH.**  
Myung Information Technologies Co., Ltd.

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## 1. Revision History

Revision	Date	Description	Remark
0.1	Dec 12, 2008	Preliminary Specification	
0.2	Aug 11, 2009	Contact Address Change	
0.3	May 17, 2012	Supports ATA Command, Performance and Model name change	

## 2. General Description

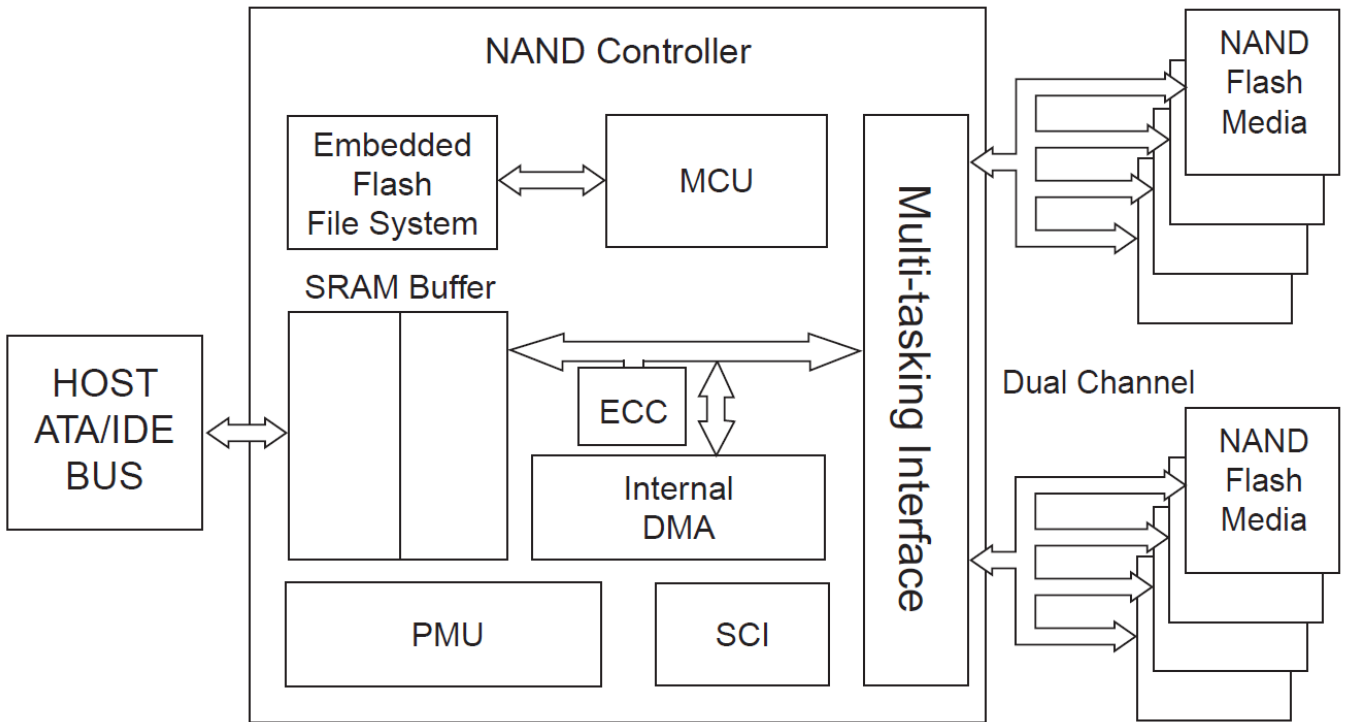
Myung Information Technology SSD is designed to solve the replacement of traditional HDD. It is fully consists of semiconductor device and using NAND flash memory, which has a high reliability and a high stability. AS the SSD doesn't have a moving part such as platter(HDD) and head media, it gives a good solution in a any System for a storage device with high performance and low power consumption and small form factor.SSD gives rugged features in industrial PC with an extreme environment and on increased MTBF. For and easy adoption, it has a same host interface with HDD and has a same physical dimension.

## 3. Features

- Host Interface: 16-bit access
- Supports up to PIO Mode-6
- Supports up to Multi-word DMA Mode-4
- Supports up to Ultra DMA Mode-5
- Host intervention Zero wake-up latency
- Built-in Hardware ECC
  - Corrects up to 8 random bits of error per 512-byte sector
- Uses NAND flash memory
  - Single Level Cell (SLC) components
- Low Power Operation:
  - Active mode: 25 mA (3V) (typical)
  - Sleep mode: 65  $\mu$ A (3V) (typical)
- Sustained Write Performance (Host to Flash)
  - Supports up to 30MByte/sec
- Sustained Read Performance (Flash to Host)
  - Up to 40MByte/sec
- Storage Capacity
  - 1GB / 2GB / 4GB / 8GB / 16GB
- Temperature
  - Commercial : 0°C ~ 70°C
  - Industrial : - 40°C ~ 85°C
- Ordering Information
  - MS3001GA : PATA 1GB
  - MS3002GA : PATA 2GB
  - MS3004GA : PATA 4GB
  - MS3008GA : PATA 8GB
  - MS3016GA : PATA 16GB

※ OEM production and production capacity are available other than the standard capacity.  
ex) 3.3GB , 2.8GB

## 4. Block Diagram



1397 B1.0

## 5. Specifications

### Mechanical Specifications

Form Factor	2.5 Inch	
Dimensions (mm)	Length	100.2
	Width	69.8
	Height	9.5
Connector	IDE Type	

### Weight of Capacities

Capacity	1GB	2GB	4GB	8GB	16GB
Weight	200g	200g	201g	201g	203g

### Electrical Specifications

Parameter	Symbol	MIN	TYP	MAX	UNIT
Voltage Input	VCC	4.0	5.0	5.25	V

### Performance of Capacities

Model Number	Capacity	Sequential Read	Sequential Write	Memory Type
MS3001GA	1GB	Max 40MB/s	Max 30MB/s	SLC
MS3002GA	2GB	Max 40MB/s	Max 30MB/s	SLC
MS3004GA	4GB	Max 40MB/s	Max 30MB/s	SLC
MS3008GA	8GB	Max 40MB/s	Max 30MB/s	SLC
MS3016GA	16GB	Max 40MB/s	Max 30MB/s	SLC

### User Addressable Sectors

Capacity <sup>1</sup>	Total Bytes	Cylinders <sup>2</sup>	Heads <sup>2</sup>	Sectors <sup>2</sup>	Max LBA
1 GB	1,024,966,656	1,986	16	63	2,001,888
2 GB	2,048,385,024	3,969	16	63	4,000,752
4 GB	4,096,253,952	7,937	16	63	8,000,496
8 GB	8,001,552,384	15,504	16	63	15,628,032
16 GB	16,013,942,784	31,029	16	63	31,277,232

### Power Consumption

Capacity	Idle	Active Read	Active Write
1GB	15mA	80mA	93mA
2GB	15mA	80mA	93mA
4GB	15mA	80mA	93mA
8GB	15mA	80mA	93mA
16GB	15mA	80mA	93mA

1. These flash drive capacities can only be manufactured by using the specified version of the NAND Controller.
2. Cylinders, Heads, and Sectors can be re-configured from the default settings during the manufacturing process.

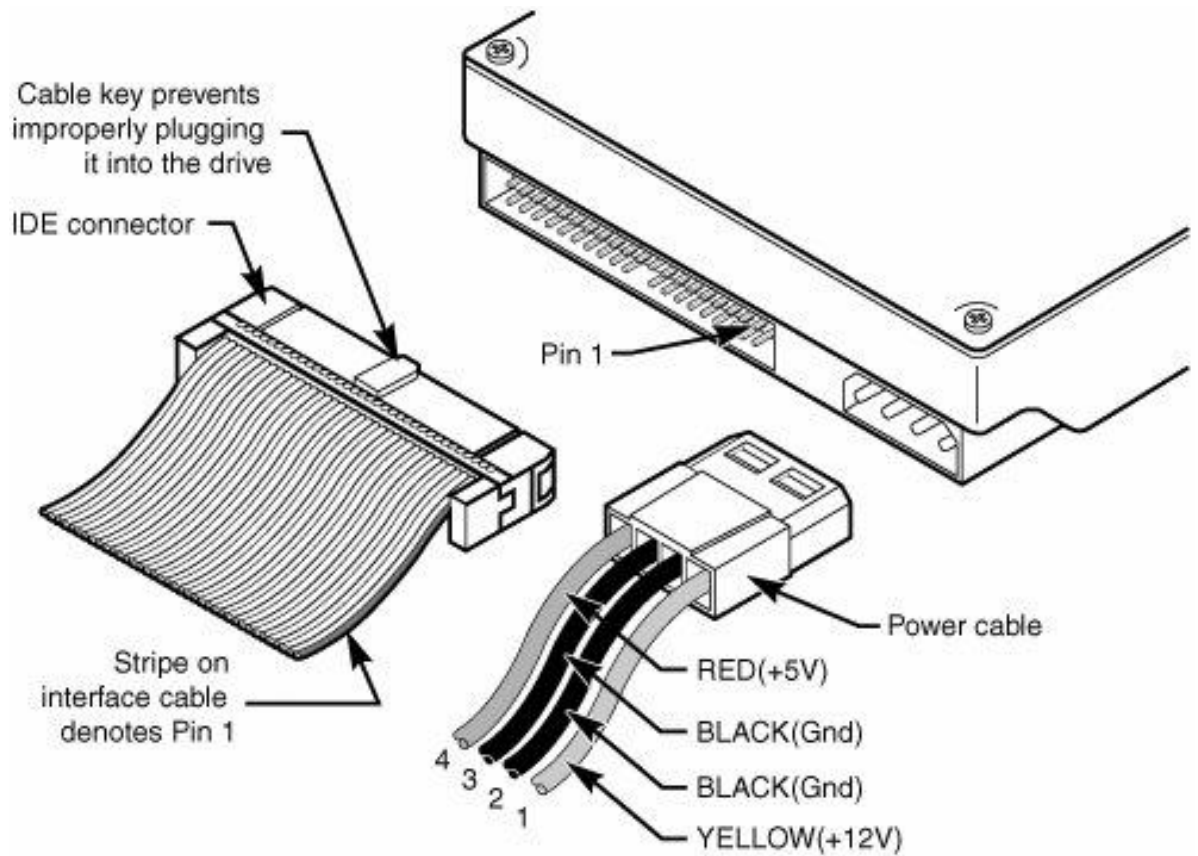
## 6. Reliability Characteristics

<b>Temperature</b>	
Operating (Commercial type)	0°C ~ 70°C
Operating (Industrial type)	-40°C ~ 85°C
Non-operation	- 55°C ~ 95 °C
<b>Humidity</b>	
Operating	5% to 95% (60°C)
<b>Altitude</b>	
Non-Operating	80,000 feet(24.384Km)
<b>Random Vibration</b>	
Non-Operating	15Hz ~ 2,000Hz
<b>Shock</b>	
Non-Operating	1,500g / 0.5ms



## 7. PATA Connector Descriptions

### 7-1 Connector locations



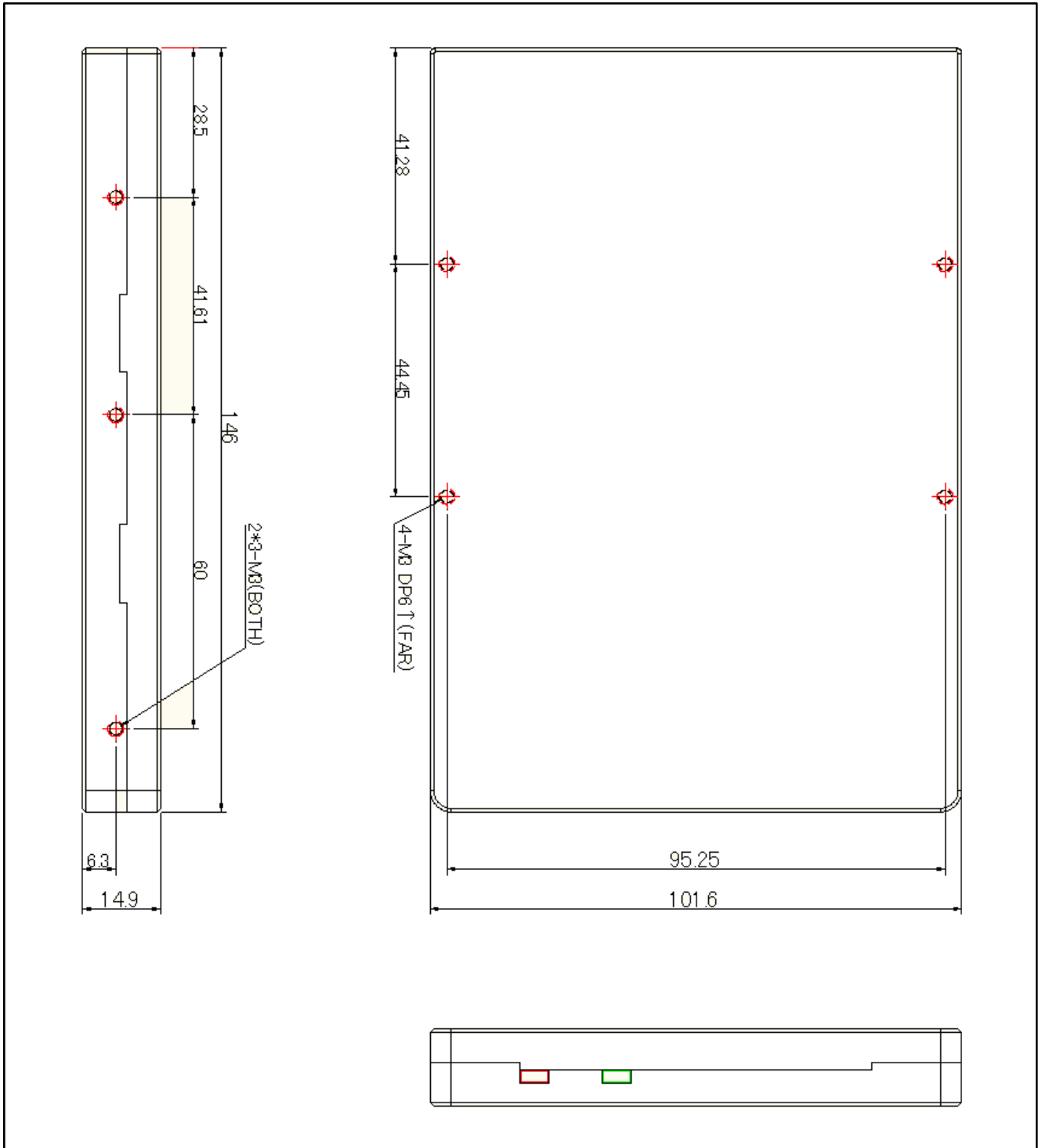
7-2 PATA Pinout Data

Signal	Pin Number		Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	(keypin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	Obsolete
DA1	33	34	PDIAG-
DA0	35	36	DA2
CS0-	37	38	CS1-
DASP-	39	40	Ground
+5V	41	42	+5V
Ground	43	44	NC

## 8. Support Command List

COMMAND NAME	COMMAND CODE (HEX)
Check-Power-Mode	E5H or 98H
Execute-Drive-Diagnostic	90H
Flush-Cache	E7H
Format-Track	50H
Identify-Drive	ECH
Idle	E3H or 97H
Idle-Immediate	E1H or 95H
Initialize-Drive-Parameters	91H
NOP	00H
Read-Buffer	E4H
Read-DMA	C8H or C9H
Read-Multiple	C4H
Read-Sector(s)	20H or 21H
Read-Verify-Sector(s)	40H or 41H
Recalibrate	1XH
Security-Disable-Password	F6H
Security-Erase-Prepare	F3H
Security-Erase-Unit	F4H
Security-Freeze-Lock	F5H
Security-Set-Password	F1H
Security-Unlock	F2H
Seek	7XH
Set-Features	EFH
SMART	B0H
Set-Multiple-Mode	C6H
Set-Sleep-Mode	E6H or 99H
Set-WP#/PD#-Mode	8BH
Standby	E2H or 96H
Standby-Immediate	E0H or 94H
Write-Buffer	E8H
Write-DMA	CAH or CBH
Write-Multiple	C5H
Write-Sector(s)	30H or 31H
Write-Verify	3CH

## 9. Package Dimensions



➤Note : All Dimensions are in Millimeters.

## 10. Ordering Information

**MS**      **3**      **008G**      **A**  
**1**            **2**            **3**            **4**

### 1. MS : Myung SSD Generation 1

### 3. Capacity

### 2. Form factor

Form factor	Content
3	3.5 inch

Capacity	Content
001G	1GByte
002G	2GByte
004G	4GByte
008G	8GByte
016G	16GByte

### 4. Interface

Interface	Content
A	PATA

Sample)

**MS3001GA**

#### Product Spec

Form factor : 3.5 inch

Capacity : 1 GByte

Interface : PATA

## 11. Contact

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# Thanks you.

