

Myung SSD  
3.5 Inch PATA

# S300 Product Specification

Sep / 2012  
Rev. 0.1



## Table of Contents

<b>1. Revision History</b>	3
<b>2. General Description</b>	4
<b>3. Features</b>	4
<b>4. Block Diagram</b>	5
<b>5. Specifications</b>	6
<b>6. Reliability Characteristics</b>	9
<b>7. Connector Descriptions</b>	10
7-1 Connector locations	10
7-2 Signal Assignments	10
<b>8. Supports ATA Command</b>	11
<b>9. SMART</b>	13
9-1 SMART Subcommand Sets	13
9-2 SMART Data Structure (READ (D0h))	14
<b>10. Identify Device Parameters</b>	15
<b>11. Mechanical Specifications</b>	17
<b>12. Ordering Information</b>	18
<b>13. Contact</b>	19

## 1. Revision History

- Rev. 0.1(2012.09.18) : Initial issue

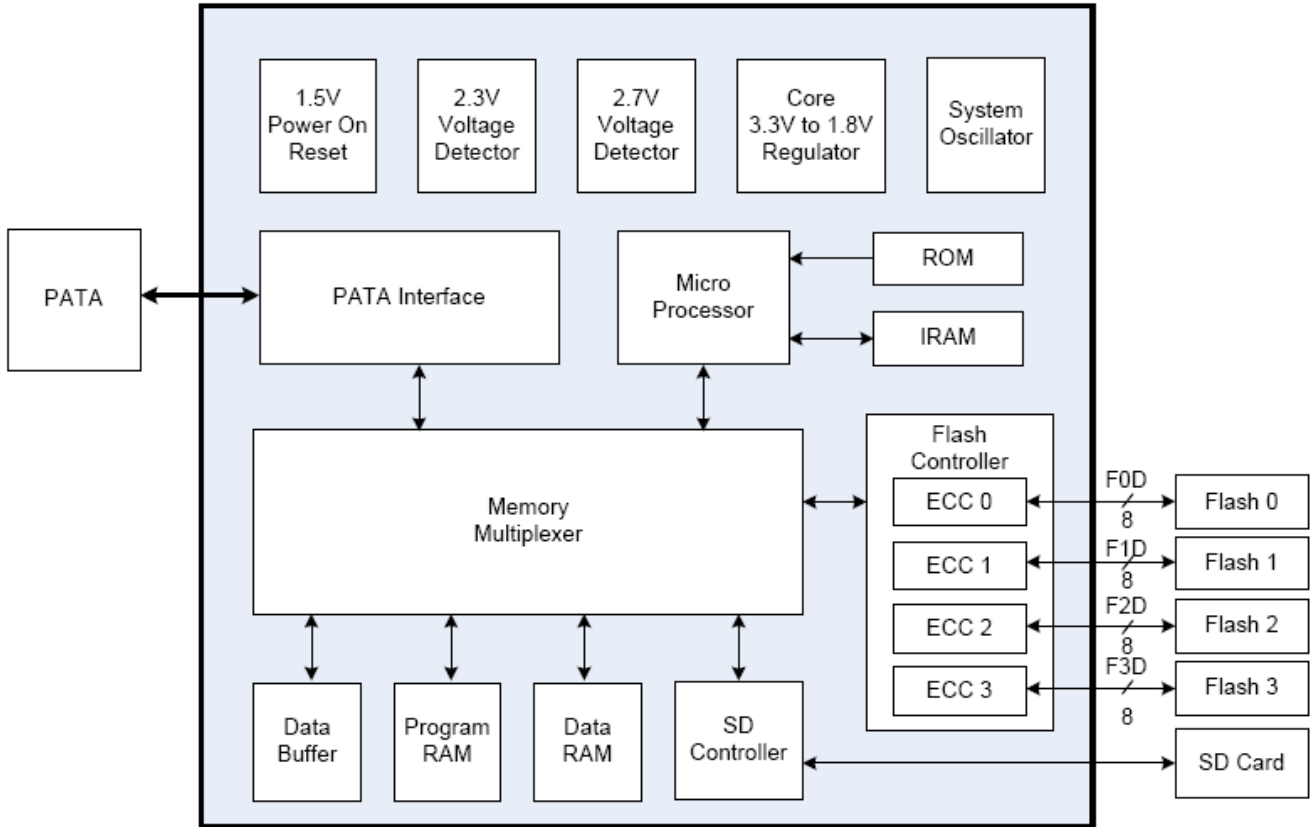
## 2. General Description

Since Myung SSD is composed of semiconductor chips, it is resistive on a external shock and does not produce any heat or noise. Since it does not have any moving parts, it is designed to minimize total electricity consumption. It is strongly resistive on dusts and other small particles. We are adopting latest technology of wear-leveling and which increased endurance of our product. Embedded error correction code(ECC) engine of the products also guaranty integrity of data stored on the SSD. Myung SSD has an exceeding reading and writing speed and it is fully compatible with other storage devices in a gaming systems, laptops and PCs.

## 3. Features

- Compliant with ATA/ATAPI-7 specification.
- Transfer mode
  - ATA/ATAPI PIO Mode 0, 1, 2, 3, 4
  - ATA/ATAPI Multi-Word DMA Mode 0, 1, 2
  - ATA/ATAPI Ultra DMA Mode 0, 1, 2, 3, 4, 5, 6
- Uses NAND flash memory
  - Multi Level Cell (MLC) components
- Advanced 8/15-bit hardware BCH ECC engine
- Flash Management Features
  - Bad block management
  - wear-leveling algorithm
- Power Management Features
- SMART Features
- Security Features
- Host Protected Area Features
- EDO mode supported
- Storage Capacity
  - 16GB / 32GB / 64GB / 128GB
- Temperature
  - Commercial : 0°C ~ 70°C
  - Industrial : - 40°C ~ 85°C
- Ordering Information
  - S100-016G : 2.5" PATA 16GB
  - S100-032G : 2.5" PATA 32GB
  - S100-064G : 2.5" PATA 64GB
  - S100-128G : 2.5" PATA 128GB

## 4. Block Diagram



## 5. Specifications

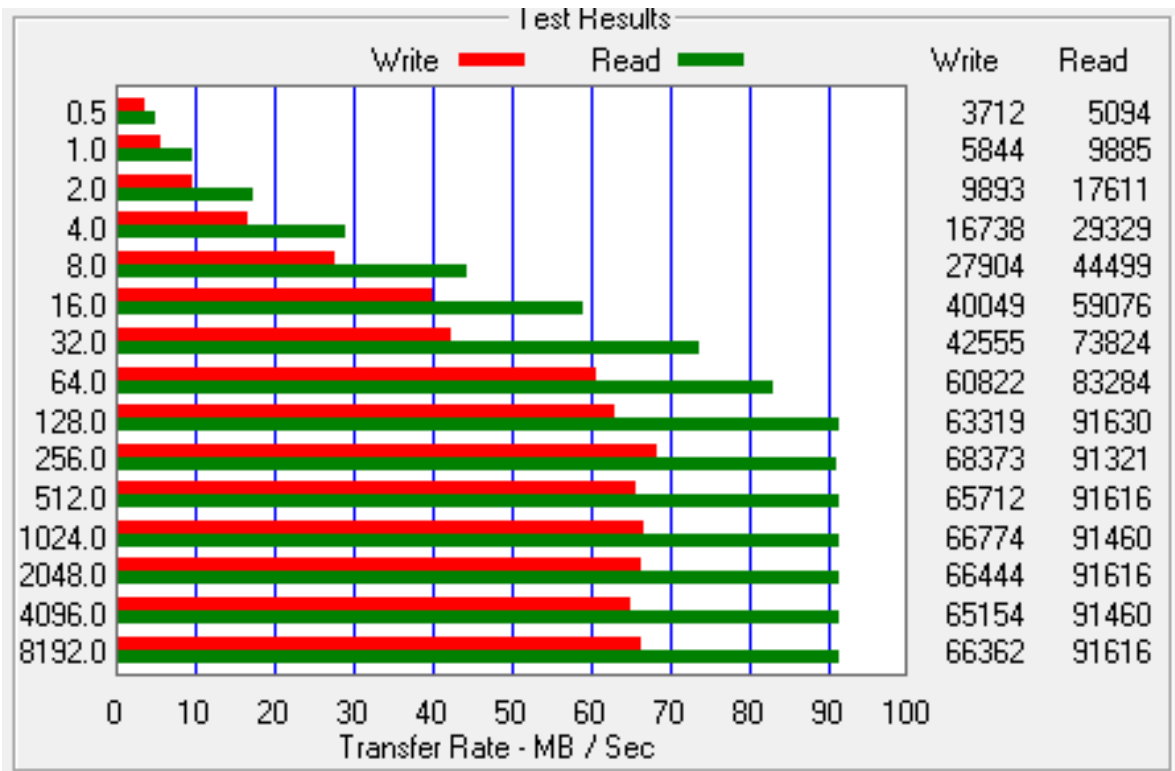
Mechanical Specifications		
Form Factor		3.5 Inch
Dimensions (mm)	Length	146
	Width	101.4
	Height	16

Weight				
Capacity	16GB	32GB	64GB	128GB
Weight	203g	205g	209g	209g

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 & Tech
S300-016G	16GB	90MB/s	20MB/s	MLC
S300-032G	32GB	90MB/s	30MB/s	MLC
S300-064G	64GB	90MB/s	60MB/s	MLC
S300-128G	128GB	90MB/s	60MB/s	MLC



<b>User Addressable Sectors</b>	
<b>Unformatted Capacity</b>	<b>Total User Addressable Sectors in LBA Mode</b>
<b>16GB</b>	30,801,920
<b>32GB</b>	61,603,840
<b>64GB</b>	124,518,400
<b>128GB</b>	250,347,520

<b>Power Consumption</b>			
<b>Capacity</b>	<b>Idle</b>	<b>Active Read</b>	<b>Active Write</b>
<b>16GB</b>	Max 70mA	Max 170mA	Max 240mA
<b>32GB</b>			
<b>64GB</b>			
<b>128GB</b>			

➤ Note 1: Partial and Slumber mode enabled

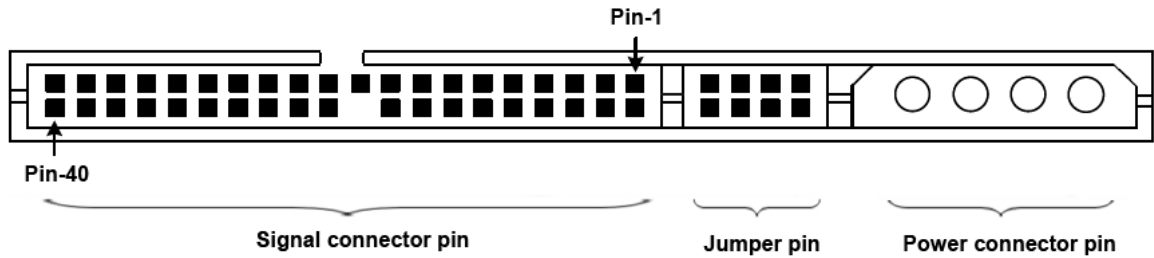


## 6. Reliability Characteristics

<b>Temperature</b>	
Operating (Commercial type)	0°C ~ 70°C
Operating (Industrial type)	-40°C ~ 85°C
Non-operation	- 40°C ~ 95 °C
<b>Humidity</b>	
Operating	60°C, 93%R.H
<b>Altitude</b>	
Non-Operating	80,000 feet
<b>Random Vibration</b>	
Non-Operating	15Hz ~ 2,000Hz
<b>Shock</b>	
Non-Operating	1,500g / 0.5ms

## 7. Connector Descriptions

### 7-1 Connector locations



### 7-2 Signal Assignments

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

## 8. Supports ATA Command

COMMAND NAME	COMMAND CODE (HEX)
<b>General Feature Set</b>	
1. Execute Drive Diagnostic	90h
2. Flush Cache	E7h
3. Identify Device	ECh
4. Read DMA	C8h
5. Read Multiple	C4h
6. Read Sector(s)	20h
7. Read Verify Sector(s)	40h/41h
8. Set Feature	EFh
9. Set Multiple Mode	C6h
10. Write DMA	CAh
11. Write Multiple	C5h
12. Write Sector(s)	30h
13. NOP	00h
14. Read Buffer	E4h
15. Write Buffer	E8h
<b>Power Management Feature Set</b>	
16. Check Power Mode	E5h/98h
17. Idle	E3h/97h
18. Idle Immediate	E1h/95h
19. Sleep	E6h/99h
20. Standby	E2h/96h
21. Standby Immediate	E0h/94h
<b>Security Mode Feature Set</b>	
22. Security Set Password	F1h
23. Security Unlock	F2h
24. Security Erase Prepare	F3h
25. Security Erase Unit	F4h
26. Security Freeze Lock	F5h
27. Security Disable Password	F6h
<b>SMART Feature Set</b>	
28. SMART Disable Operations	B0h
29. SMART Enable/Disable Autosave	B0h
30. SMART Enable Operations	B0h
31. SMART Return Status	B0h
32. SMART Execute Off-Line Immediate	B0h
33. SMART Read Data	B0h

COMMAND NAME	COMMAND CODE (HEX)
<b>Host Protected Area Feature Set</b>	
34. Read Native Max Address	F8h
35. Set Max Address	F9h
36. Set Max Set Password	F9h
37. Set Max Lock	F9h
38. Set Max Freeze Lock	F9h
39. Set Max Unlock	F9h
<b>CFA Feature Set</b>	
40. CFA Request Extended Error Code	03h
41. CFA Write Sectors Without Erase	38h
42. CFA Erase Sectors	C0h
43. CFA Writer Multiple Without Erase	CDh
44. CFA Translate Sector	87h
45. Set Features Enable/Disable 8-bit Transfer	EFh

## 9. SMART

### 9-1 SMART subcommand sets

In order to select a subcommand the host must write the subcommand code to the device's Features Register before issuing the SMART Function Set command. The subcommands are listed below.

Command	Command Code (Hex)
SMART Read Data	D0h
SMART Read Attribute Threshold	D1h
SMART Enable/Disable Auto save	D2h
SMART Save Attribute Values	D3h
SMART Execute OFF-LINE Immediate	D4h
SMART Read Log	D5h
SMART Write Log	D6h
SMART Enable Operations	D8h
SMART Disable Operations	D9h
SMART Return Status	DAh

## 9-2 SMART Data Structure (READ DATA (D0h))

If the reserved size is below a threshold, status can be read from the Cylinder Register using the Return Status command (DAh).

Byte	Description
0 ~1	Revision code
2~361	Vendor Specific
362	Off-line data collection status
363	Self-test execution status byte
364 ~ 365	Total time in seconds to complete off-line data collection activity
366	Vendor Specific
367	Off-line data collection capability
368 ~ 369	SMART capability
370	Error logging capability 7-1 Reserved 0 1=Device error logging supported
371	Vendor Specific
372	Short self-test routine recommended polling time (in minutes)
373	Extended self-test routine recommended polling time (in minutes)
374	Conveyance self-test routine recommended polling time (in minutes)
375 ~ 385	Reserved
386 ~ 395	Firmware Version / Date Code
396 ~ 397	Number of initial invalid block (396 = MSB, 397 = LSB)
398 ~ 399	Number of run time bad block (398 = MSB, 399 = LSB)
400	Number of spare block
511	Data structure checksum

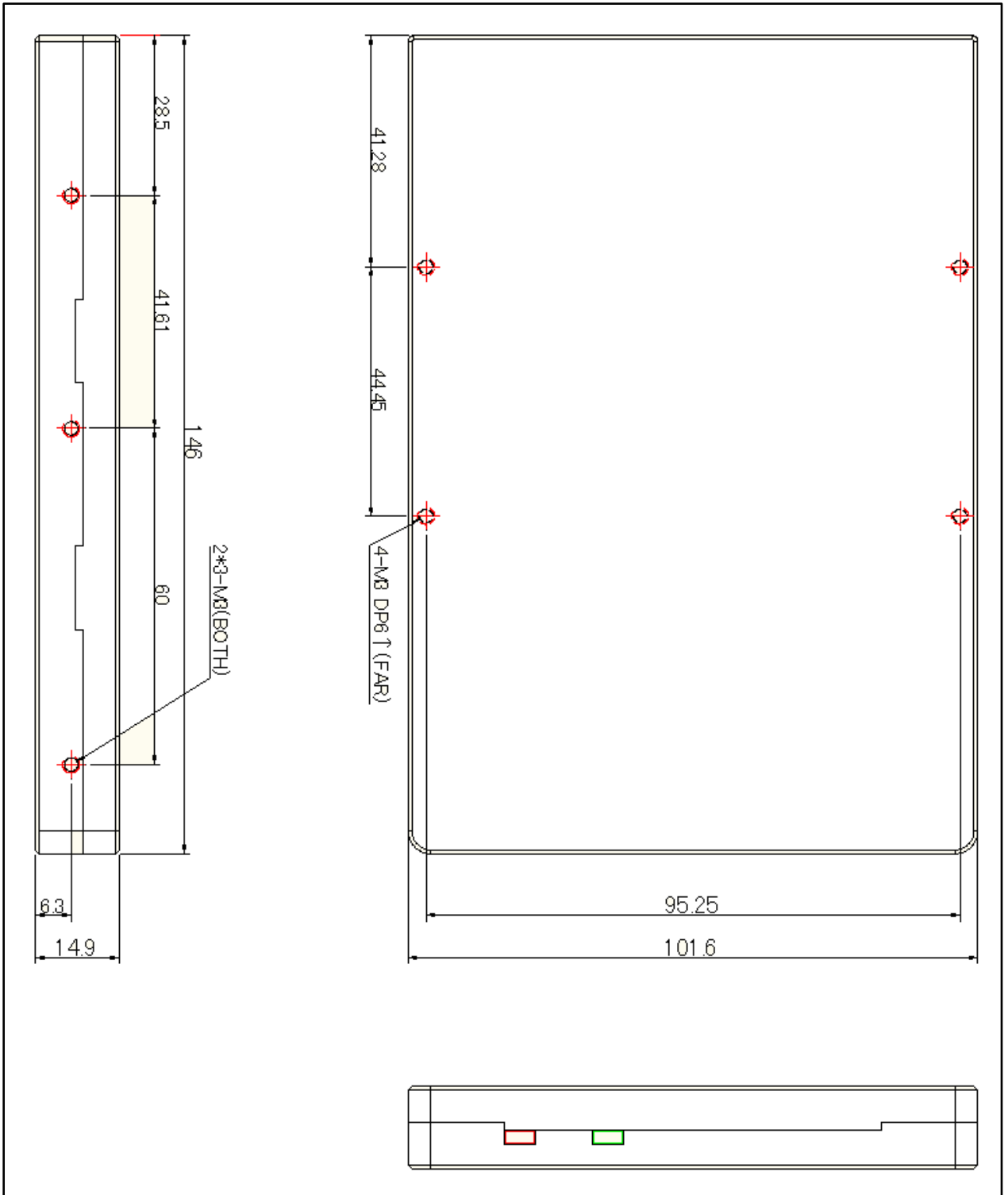
## 10. Identify Device Parameters

Word	Value	Description
0	044Ah	General configuration
1	XXXXh	Default number of cylinders
2	0000h	Reserved
3	00XXh	Default number of heads
4	0000h	Obsolete
5	0240h	Obsolete
6	XXXXh	Default number of sectors per track
7 ~ 8	XXXXh	Number of sectors per card (Word7=MSW, Word8=LSW)
9	0000h	Obsolete
10 ~ 19	XXXXh	Serial number in ASCII
20	0002h	Obsolete
21	0002h	Obsolete
22	0000h	Number of ECC bytes passed on Read/Write Long Commands
23 ~ 26	XXXXh	Firmware revision in ASCII (Big Endian Byte Order in Word)
27 ~ 46	XXXXh	Model number in ASCII (Big Endian Byte Order in Word)
47	8001h	Maximum number of sectors on Read/Write Multiple command
48	0000h	Reserved
49	0F00h	Capabilities
50	0000h	Reserved
51	0200h	PIO data transfer cycle timing mode
52	0000h	Obsolete
53	0007h	Field validity
54	XXXXh	Current number of cylinders
55	XXXXh	Current number of heads
56	XXXXh	Current sectors per track
57 ~ 58	XXXXh	Current capacity in sectors (LBAs) (Word57=LSW, Word58=MSW)
59	0100h	Multiple sector setting
60 ~ 61	XXXXh	Total number of sectors addressable in LBA Mode
62	0000h	Reserved
63	0007h	Multi-word DMA transfer
64	0003h	Advanced PIO modes supported

65	0078h	Minimum Multiword DMA transfer cycle time per word
66	0078h	Recommended Multiword DMA transfer cycle time
67	0078h	Minimum PIO transfer cycle time without flow control
68	0078h	Minimum PIO transfer cycle time with IORDY flow control
69 ~ 79	0000h	Reserved
80	0080h	Major Version Number (ATAPI-7)
81	0000h	Minor Version Number
82	742Bh	Command sets supported 0
83	5008h	Command sets supported 1
84	4003h	Command sets supported 2
85	0000h	Command sets Enable 0
86	0000h	Command sets Enable 1
87	4003h	Command sets Enable 2
88	003Fh	Ultra DMA mode supported and selected
89	0001h	Time required for Security erase unit completion
90	0000h	Time required for Enhanced security erase unit completion
91	0000h	Current Advanced power management value
92	FFFEh	Master Password Revision Code
93	600Fh 6F00h 603Fh	Hardware reset result (Master only) Hardware reset result (Slave only) Hardware reset result (Master w/ slave present)
94 ~ 127	0000h	Reserved
128	0001h	Security status
129 ~ 159	0000h	Vendor unique bytes
160	0000h	Power requirement description
161	0000h	Reserved
162	0000h	Key management schemes supported
163	0000h	CF Advanced True IDE Timing Mode Capability and Setting
164	0000h	Reserved
165 ~ 175	0000h	Reserved
176 ~ 255	0000h	Reserved



## 11. Mechanical Specifications



➤ Note : All Dimensions are in Millimeters.

## 12. Ordering Information

**S    300    -    128G**  
**1            2                            3**

### 1. Series Type

Series Type	Content
S	Myung SSD 'S' Series

### 2. Form factor

Form factor	Content
300	3.5 inch PATA

### 3. Capacity

Capacity	Content
016G	32 Gbyte
032G	64 Gbyte
064G	128 Gbyte
128G	256 Gbyte

## 13. Contact

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Thanks you.

