





## Revision History

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## Key Features:

- **Capacity:**
  - 64GB, 128GB, 256GB, 512GB, 1TB
- **NAND Flash:** 3D TLC
- **Form Factor:** mSATA
- **Compatibility:**
  - Serial ATA 6Gb/s interface
  - Complies with ATA-8 Standard
  - Complies SATA Revision 3.1
  - S.M.A.R.T feature supported
  - NCQ Command set supported
- **Performance**
  - Sequential Read:  
Up to 550MB/s
  - Sequential Write:  
Up to 500MB/s
  - Max Random 4K Read:  
Up to 90,000
  - Max Random 4K Write:  
Up to 70,000
- **Power Consumption:**
  - Slumber: 0.07W
  - Active: 0.62W
  - SR/SW : 1.37W / 1.29W
  - RR/RW: 1.58W / 1.15W
  - Device Sleep : 3.3mW
- **Temperature:**
  - Operation: 0°C ~ 70°C ( Normal )
  - Operation: -40°C ~ 85°C( Wide )
  - Non-operation: -55°C to 95°C
- **Reliability**
  - Shock: 1500G/0.5ms
  - Vibration 20G Peak, 10~2000Hz
  - MTBF: 2,000,000 hours
  - TBW :850 TB



## 1.0 General Description

Taking the advantages of NAND flash memory, Solid State Drive (SSD) provides better solutions on durability, performance, and power efficiency over traditional hard disk drives. Employing static wear-leveling technology to maximize device mean time between failures (MTBF), The SSD solutions are your best choice on wide-ranged mobile computing devices and consumer electronic products. With standard SATA form factor or customized module form factor, The mSATA SSD IMSS316 offers capacities 64GB 、 128GB 、 256GB 、 512GB 、 1TB using 3D TLC type flash memories.

## 2.0 Mechanical Specification

”All product specifications not covered in this document (electrical performance, appearance, etc.) are in accordance with ADATA’s defined norms and standards. “

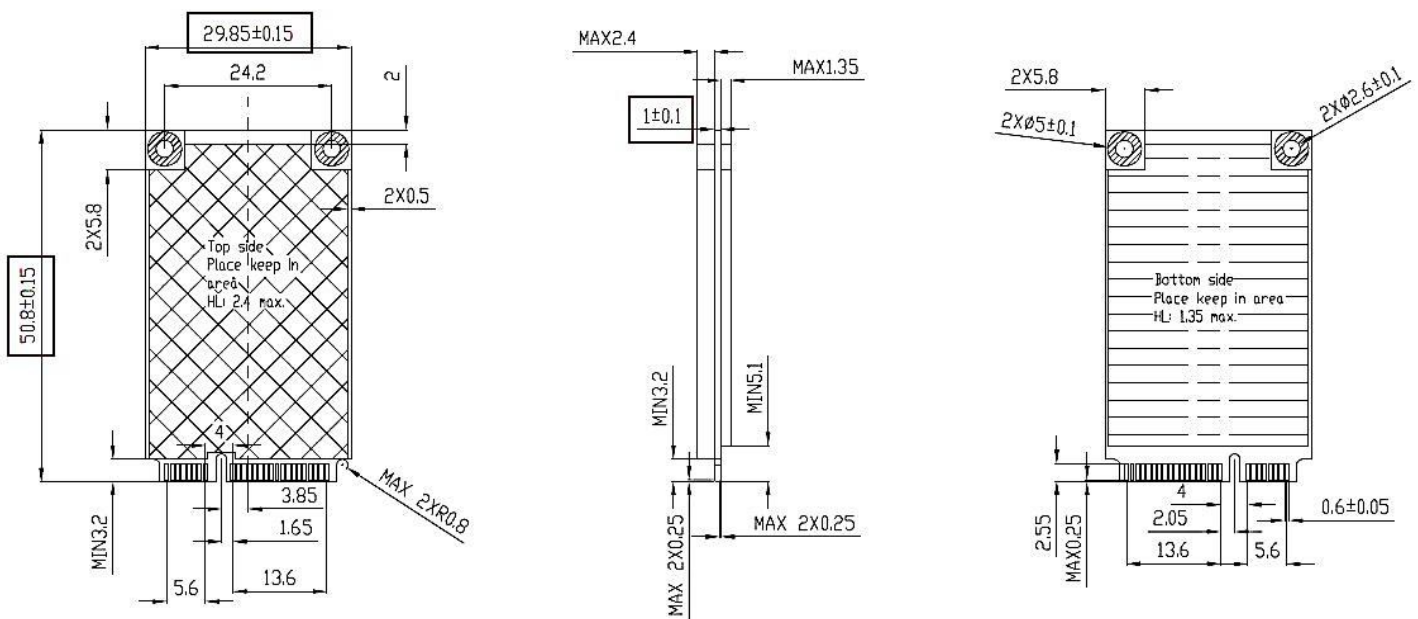
### 2.1 Physical dimensions and Weight

Table 2-1 Dimensions and Weight

| Model   | Length(mm) | Width(mm) | Height(mm) | Weight(gram) |
|---------|------------|-----------|------------|--------------|
| IMSS316 | Max 50.95  | Max 30    | Max 4.85   | Max 7±1g     |

### 2.2 Product Dimensions

Figure 2-1 Product Dimensions of mSATA



## 3.0 Product Specification

### 3.1 Interface and configuration

- Compliant with Serial ATA International Organization: Serial ATA Revision 3.1
- Compliant SSD Alliance compliance program.
- Support ATA-8 Command Set
- Support 1-port 1.5/3.0/6.0 Gbps SATA I/II/III interface.

### 3.2 Capacity

**Table 3-1 User Addressable Sectors**

| Model  | IMSS316     |             |             |               |               |
|--|-------------|-------------|-------------|---------------|---------------|
| <b>Unformatted Capacity</b>                      | 64GB        | 128GB       | 256GB       | 512GB         | 1TB           |
| <b>Total User Addressable Sectors (LBA Mode)</b> | 125,045,424 | 250,069,680 | 500,118,192 | 1,000,215,216 | 2,000,409,264 |

Total useable capacity may be less (due to formatting, flash management, and other functions).  
1GB=1,000,000,000 bytes; 1sector = 512bytes.

### 3.3 Performance

#### 3.3.1 Read/Write & ATTO Performance

**Table 3-2 Read/Write Performance (ATTO)**

|                         | 64GB | 128GB | 256GB | 512GB | 1TB | Unit |
|-------------------------|------|-------|-------|-------|-----|------|
| <b>Sequential Read</b>  | 450  | 550   | 550   | 550   | 550 | MB/s |
| <b>Sequential Write</b> | 250  | 460   | 470   | 480   | 500 | MB/s |

-Seq. Read & Write speed test by ATTO

-The system conditions and test environment may affect test result

#### 3.3.2 Read/Write & CDM Performance

**Table 3-3 Read/Write Performance (CDM)**

|                             | 64GB | 128GB | 256GB | 512GB | 1TB | Unit |
|-----------------------------|------|-------|-------|-------|-----|------|
| <b>Sequential Q32 Read</b>  | 450  | 560   | 560   | 560   | 560 | MB/s |
| <b>Sequential Q32 Write</b> | 250  | 470   | 500   | 530   | 500 | MB/s |
| <b>4K-QD32 Read</b>         | 140  | 240   | 270   | 360   | 270 | MB/s |
| <b>4K-QD32 Write</b>        | 230  | 300   | 300   | 310   | 300 | MB/s |

-Seq. Read & Write speed test by Crystal Disk Mark 5.2.1

### 3.3.3 IOPS Performance

**Table 3-4 Read/Write & IOPS Performance**

|                        | 64GB | 128GB | 256GB | 512GB | 1TB | Unit |
|------------------------|------|-------|-------|-------|-----|------|
| <b>4K Random Read</b>  | 20K  | 60K   | 90K   | 90K   | 90K | IOPS |
| <b>4K Random Write</b> | 30K  | 60K   | 70K   | 70K   | 70K | IOPS |

- Seq. Read & Write speed test by IOMeter 2010 with "00" pattern (Queue depth of 32; Measurements are performed on 10% capacity of LBA range. Write cache enable)
- IOPS Test Utility: IOMeter 2010 (Queue depth of 32; Measurements are performed on 10% capacity of LBA range. Write cache enable)
- The system conditions and test environment may affect test result

### 3.3.4 Read/Write & AS-SSD Performance

**Table 3-5 Read/Write Performance (AS-SSD)**

|                         | 64GB | 128GB | 256GB | 512GB | 1TB | Unit |
|-------------------------|------|-------|-------|-------|-----|------|
| <b>Sequential Read</b>  | 350  | 500   | 500   | 520   | 490 | MB/s |
| <b>Sequential Write</b> | 60   | 430   | 450   | 470   | 440 | MB/s |
| <b>4K-64 Thrd Read</b>  | 70   | 130   | 220   | 250   | 250 | MB/s |
| <b>4K-64 Thrd Write</b> | 190  | 250   | 250   | 260   | 250 | MB/s |

- Seq. Read & Write speed test by AS-SSD with Random pattern



## 3.4 Electrical

### 3.4.1 Operating Voltage

**Table 3-7 Operating Voltage**

| Operating Voltage |                   |
|-------------------|-------------------|
| Input Power       | DC 3.3V ± 5%      |
| Maximum Ripple    | 100mV p-p or less |

### 3.4.2 Power Consumption (Typical)

**Table 3-8 Power Consumption (Typical)**

|                  | 64GB | 128GB | 256GB | 512GB | 1TB  | Unit |
|------------------|------|-------|-------|-------|------|------|
| Slumber          | 0.07 | 0.07  | 0.07  | 0.07  | 0.07 | W    |
| Active           | 0.62 | 0.62  | 0.62  | 0.62  | 0.62 | W    |
| Sequential Read  | 1.37 | 1.37  | 1.37  | 1.37  | 1.37 | W    |
| Sequential Write | 1.29 | 1.29  | 1.29  | 1.29  | 1.29 | W    |
| Random Read      | 1.58 | 1.58  | 1.58  | 1.58  | 1.58 | W    |
| Random Write     | 1.15 | 1.15  | 1.15  | 1.15  | 1.15 | W    |
| Device Sleep     | 3.3m | 3.3m  | 3.3m  | 3.3m  | 3.3m | W    |

To measure consumption in /Slumber/ Active mode and Sequential Read/Write and Random Read/Write

## 3.5 Environmental Conditions

**Table 3-9 Temperature, Humidity, Shock, Vibration**

| Feature            | Operating (Commercial)                | Non-Operating |
|--------------------|---------------------------------------|---------------|
| Normal Temperature | 0°C to 70°C                           | -55°C to 95°C |
| Wide Temperature   | -40°C to 85°C                         | -55°C to 95°C |
| Humidity           | 5%~95% RH, non-condensing             |               |
| Vibration          | 20G Peak, 10~2000Hz                   |               |
| Shock              | 1500G, duration 0.5ms, Half Sine Wave |               |

## 3.6 Reliability

### 3.6.1 MTBF

**Table 3-10 Reliability Specification**

| Parameter  | Value           |
|--|-----------------|
| <b>Mean Time Between Failures (MTBF)</b><br>The MTBF statistics were calculated by Part Count Method, not relevant to individual units | 2,000,000 hours |

## 3.7 Endurance

Endurance for the SSD can be predicted based on the operating workload. The tables as below shows the drive lifetime for each SSD capacity based on JESD219 Client workload.

**Table 3-11 Reliability Specification**

| Total Byte Written (TBW) | 64GB | 128GB | 256GB | 512GB | 1TB | Unit |
|--------------------------|------|-------|-------|-------|-----|------|
|                          | 50   | 100   | 210   | 430   | 850 | TB   |

## 4.0 Supported Command Sets

### 4.1 Identify Controller

IDENTIFY DEVICE (ECh). This commands read out 512Bytes of drive parameter information. Parameter Information consists of the arrangement and value as shown in the following table. This command enables the host to receive the Identify Drive Information from the device.

| Word  | Value | F/V | Description   |
|-------|-------|-----|---|
| 0     | 0040h | F   | General configuration bit-significant information:<br>15 0 = ATA device |
|       |       | X   | 14-8 Retired  |
|       |       | F   | 7 1 = removable media device  |
|       |       | X   | 6 Obsolete  |
|       |       | X   | 5-3 Retired   |
|       |       | F   | 2 Reserved  |
|       |       | X   | 1 Retired   |
|       |       | F   | 0 Reserved  |
| 1     | XXXXh | X   | Number of logical cylinders   |
| 2     | C837h | V   | Specific configuration  |
| 3     | 00XXh | X   | Number of logical heads   |
| 4-5   | XXXXh | X   | Retired   |
| 6     | XXXXh | X   | Number of logical sector per logical track                              |
| 7-8   | XXXXh | V   | Reserved for assignment by the CompactFlash_ Association                |
| 9     | 000Eh | X   | Retired   |
| 10-19 | XXXXh | F   | Serial number (20 ASCII characters)                                     |
| 20-21 | XXXXh | X   | Retired   |
| 22    | 003Fh | X   | Obsolete  |
| 23-26 | XXXXh | F   | Firmware revision (8 ASCII characters)                                  |
| 27-46 | XXXXh | F   | Model number (40 ASCII characters)                                      |
| 47    | 8000h | F   | 15-8 80h  |
|       |       | F   | 7-0 00h = Reserved  |
|       |       | F   | 01h = Maximum number of 1 sectors on READ/WRITE MULTIPLE commands       |
| 48    | 4000h | F   | Reserved  |

|       |       |                                      |   |
|-------|-------|--------------------------------------|---|
| 49    | 2F00h | F<br>F<br>F<br>F<br>F<br>F<br>F<br>X | Capabilities<br>15-14 Reserved for the IDENTIFY PACKET DEVICE command.<br>13 1 = Standby timer values as specified in this standard are supported<br>0 = Standby timer values shall be managed by the device<br>12 Reserved for the IDENTIFY PACKET DEVICE command.<br>11 1 = IORDY supported<br>0 = IORDY may be supported<br>10 1 = IORDY may be disabled<br>9 1 = LBA supported<br>8 1 = DMA supported.<br>7-0 Retired |
| 50    | 4000h | F<br>F<br>F<br>X<br>F                | Capabilities<br>15 Shall be cleared to zero.<br>14 Shall be set to one.<br>13-2 Reserved.<br>1 Obsolete<br>0 Shall be set to one to indicate a device specific Standby timer value minimum.   |
| 51-52 | 0000h | X                                    | Obsolete  |
| 53    | 0007h | F<br>F<br>F<br>F<br>X                | 15-3 Reserved<br>2 1 = the fields reported in word 88 are valid<br>0 = the fields reported in word 88 are not valid<br>1 1 = the fields reported in words 70:64 are valid<br>0 = the fields reported in words 70:64 are not valid<br>0 1 = the fields reported in words 58:54 are valid<br>0 = the fields reported in words 58:54 are not valid   |
| 54-58 | XXXXh | X                                    | Obsolete  |
| 59    | 0000h | F<br>V<br>V                          | 15-9 Reserved<br>8 1 = Multiple sector setting is valid<br>7-0 xxh = Setting for number of sectors that shall be transferred per interrupt on R/W Multiple command  |
| 60-61 | XXXXh | F                                    | Total number of user addressable sectors  |
| 62    | 0000h | X                                    | Obsolete  |

|       |  |   |   |
|-------|--|---|---|
| 63    | 0007h  | F | 15-11 Reserved  |
|       |  | V | 10 1 = Multiword DMA mode 2 is selected<br>0 = Multiword DMA mode 2 is not selected |
|       |  | V | 9 1 = Multiword DMA mode 1 is selected<br>0 = Multiword DMA mode 1 is not selected  |
|       |  | V | 8 1 = Multiword DMA mode 0 is selected<br>0 = Multiword DMA mode 0 is not selected  |
|       |  | F | 7-3 Reserved  |
|       |  | F | 2 1 = Multiword DMA mode 2 and below are supported                                  |
|       |  | F | 1 1 = Multiword DMA mode 1 and below are supported                                  |
|       |  | F | 0 1 = Multiword DMA mode 0 is supported   |
| 64    | 0003h  | F | 15-8 Reserved   |
|       |  | F | 7-0 Advanced PIO modes supported  |
| 65    | 0078h  | F | Minimum Multiword DMA transfer cycle time per word                                  |
| 66    | 0078h  | F | Manufacturer's recommended Multiword DMA transfer cycle time                        |
| 67    | 0078h  | F | Minimum PIO transfer cycle time without flow control                                |
| 68    | 0078h  | F | Minimum PIO transfer cycle time with IORDY flow control                             |
| 69-74 | 0000h  | F | Reserved (for future command overlap and queuing)                                   |
| 75    | 0000h  |   | Queue depth   |
|       |  | F | 15:5 Reserved   |
|       |  |   | 4:0 Maximum queue depth - 1   |
| 76    | xh   | F | Serial ATA Capabilities   |
|       |  |   | 15:13 Reserved for Serial ATA   |
|       |  |   | 12 1 = Supports NCQ priority information  |
|       |  |   | 11 1 = Supports Unload while NCQ commands are outstanding                           |
|       |  |   | 10 1 = Supports the SATA Phy Event Counters log                                     |
|       |  |   | 9 1 = Supports receipt of host initiated power management requests                  |
|       |  |   | 8 1 = Supports the NCQ feature set  |
|       |  |   | 7:4 Reserved for Serial ATA   |
|       |  |   | 3 1 = Supports SATA Gen3 Signaling Speed (6.0Gb/s)                                  |
|       |  |   | 2 1 = Supports SATA Gen2 Signaling Speed (3.0Gb/s)                                  |
|       | 1 1 = Supports SATA Gen1 Signaling Speed (1.5Gb/s) |   |   |
|       | 0 Shall be cleared to zero                         |   |   |
| 77    |  |   | Reserved  |

|    |       |   |   |
|----|-------|---|---|
| 78 | xh    |   | Serial ATA features supported<br>15:7 Reserved for Serial ATA<br>6 1 = Device supports Software Settings Preservation<br>5 Reserved for Serial ATA<br>4 1 = Device supports in-order data delivery<br>3 1 = Device supports initiating power management<br>2 1 = Device supports DMA Setup auto-activation<br>1 1 = Device supports non-zero buffer offsets<br>0 Shall be cleared to zero   |
| 79 | xh    |   | Serial ATA features enabled<br>15:7 Reserved for Serial ATA<br>6 1 = Software Settings Preservation enabled<br>5 Reserved for Serial ATA<br>4 1 = In-order data delivery enabled<br>3 1 = Device initiated power management enabled<br>2 1 = DMA Setup auto-activation enabled<br>1 1 = Non-zero buffer offsets enabled<br>F 0 Shall be cleared to zero   |
| 80 | 01FEh | F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>X<br>X<br>F | Major version number 0000h or FFFFh = device does not report version<br>15 Reserved<br>14 Reserved for ATA/ATAPI-14<br>13 Reserved for ATA/ATAPI-13<br>12 Reserved for ATA/ATAPI-12<br>11 Reserved for ATA/ATAPI-11<br>10 Reserved for ATA/ATAPI-10<br>9 Reserved for ATA/ATAPI-9<br>8 Reserved for ATA/ATAPI-8<br>7 1 = supports ATA/ATAPI-7<br>6 1 = supports ATA/ATAPI-6<br>5 1 = supports ATA/ATAPI-5<br>4 1 = supports ATA/ATAPI-4<br>3 Obsolete<br>2 Obsolete<br>1 Obsolete<br>0 Reserved |
| 81 | 0021h | F   | Minor version number  |

|    |       |  |   |
|----|-------|--|---|
| 82 | 0068h | X<br>F<br>F<br>F<br>X<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F | Command set supported.<br>15 Obsolete<br>14 1 = NOP command supported<br>13 1 = READ BUFFER command supported<br>12 1 = WRITE BUFFER command supported<br>11 Obsolete<br>10 1 = Host Protected Area feature set supported<br>9 1 = DEVICE RESET command supported<br>8 1 = SERVICE interrupt supported<br>7 1 = release interrupt supported<br>6 1 = look-ahead supported<br>5 1 = write cache supported<br>4 Shall be cleared to zero to indicate that the PACKET Command feature set is not supported.<br>3 1 = mandatory Power Management feature set supported<br>2 1 = Removable Media feature set supported<br>1 1 = Security Mode feature set supported<br>0 1 = SMART feature set supported |
| 83 | 5000h | F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F                               | Command sets supported.<br>15 Shall be cleared to zero<br>14 Shall be set to one<br>13-9 Reserved<br>8 1 = SET MAX security extension supported<br>7 Reserved<br>6 1 = SET FEATURES subcommand required to spin up after power-up<br>5 1 = Power-Up In Standby feature set supported<br>4 1 = Removable Media Status Notification feature set supported<br>3 1 = Advanced Power Management feature set supported<br>2 1 = CFA feature set supported<br>1 1 = READ/WRITE DMA QUEUED supported<br>0 1 = DOWNLOAD MICROCODE command supported  |
| 84 | 4000h | F<br>F<br>F<br>F<br>F  | Command set/feature supported extension.<br>15 Shall be cleared to zero<br>14 Shall be set to one<br>13-2 Reserved<br>1 1 = SMART self-test supported<br>0 1 = SMART error logging supported  |

|    |       |  |   |
|----|-------|--|---|
| 85 | 0008h | X<br>F<br>F<br>F<br>X<br>V<br>F<br>V<br>V<br>V<br>V<br>F<br>F<br>F<br>V<br>V | Command set/feature enabled.<br>15 Obsolete<br>14 1 = NOP command enabled<br>13 1 = READ BUFFER command enabled<br>12 1 = WRITE BUFFER command enabled<br>11 Obsolete<br>10 1 = Host Protected Area feature set enabled<br>9 1 = DEVICE RESET command enabled<br>8 1 = SERVICE interrupt enabled<br>7 1 = release interrupt enabled<br>6 1 = look-ahead enabled<br>5 1 = write cache enabled<br>4 Shall be cleared to zero to indicate that the PACKET Command feature set is not supported.<br>3 1 = Power Management feature set enabled<br>2 1 = Removable Media feature set enabled<br>1 1 = Security Mode feature set enabled<br>0 1 = SMART feature set enabled |
| 86 | 5000h | F<br>F<br>F<br>F<br>V<br>V<br>V<br>F   | Command set/feature enabled.<br>15-9 Reserved<br>8 1 = SET MAX security extension enabled by SET MAX SET PASSWORD<br>7 See Address Offset Reserved Area Boot, INCITS TR27:2001<br>6 1 = SET FEATURES subcommand required to spin-up after power-up<br>5 1 = Power-Up In Standby feature set enabled<br>4 1 = Removable Media Status Notification feature set enabled<br>3-1 1 = Advanced Power Management feature set enabled<br>0 1 = DOWNLOAD MICROCODE command supported   |
| 87 | 4000h | F<br>F<br>F<br>F<br>F  | Command set/feature default.<br>15 Shall be cleared to zero<br>14 Shall be set to one<br>13-2 Reserved<br>1 1 = SMART self-test supported<br>0 1 = SMART error logging supported  |



|        |       |   |  |
|--------|-------|---|--|
| 88     | xh    | V<br>V<br>V<br>V<br>V<br>V<br>F<br>F<br>F<br>F<br>F | <p>15-14 Reserved</p> <p>13 1 = Ultra DMA mode 5 is selected<br/>0 = Ultra DMA mode 5 is not selected</p> <p>12 1 = Ultra DMA mode 4 is selected<br/>0 = Ultra DMA mode 4 is not selected</p> <p>11 1 = Ultra DMA mode 3 is selected<br/>0 = Ultra DMA mode 3 is not selected</p> <p>10 1 = Ultra DMA mode 2 is selected<br/>0 = Ultra DMA mode 2 is not selected</p> <p>9 1 = Ultra DMA mode 1 is selected<br/>0 = Ultra DMA mode 1 is not selected</p> <p>8 1 = Ultra DMA mode 0 is selected<br/>0 = Ultra DMA mode 0 is not selected</p> <p>7-6 Reserved</p> <p>5 1 = Ultra DMA mode 5 and below are supported</p> <p>4 1 = Ultra DMA mode 4 and below are supported</p> <p>3 1 = Ultra DMA mode 3 and below are supported</p> <p>2 1 = Ultra DMA mode 2 and below are supported</p> <p>1 1 = Ultra DMA mode 1 and below are supported</p> <p>0 1 = Ultra DMA mode 0 is supported</p> |
| 89     | 0000h | F   | Time required for security erase unit completion   |
| 90     | 0000h | F   | Time required for Enhanced security erase completion   |
| 91     | 0000h | V   | Current advanced power management value  |
| 92     | 0000h | V   | Master Password Revision Code  |
| 93     | 0000h | X   | Hardware reset result  |
| 94-126 | 0000h | V   | Reserved   |
| 127    | 0000h | F<br>F  | <p>Removable Media Status Notification feature set support</p> <p>15-2 Reserved</p> <p>1-0 00 = Removable Media Status Notification feature set not supported<br/>01 = Removable Media Status Notification feature supported</p> <p>10 = Reserved</p> <p>11 = Reserved</p>   |

|         |       |   |   |
|---------|-------|---|---|
| 128     | 0001h | F | Security status                         |
|         |       | V | 15-9 Reserved                           |
|         |       | F | 8 Security level 0 = High, 1 = Maximum  |
|         |       | F | 7-6 Reserved                            |
|         |       | V | 5 1 = Enhanced security erase supported |
|         |       | V | 4 1 = Security count expired            |
|         |       | V | 3 1 = Security frozen                   |
|         |       | V | 2 1 = Security locked                   |
|         |       | F | 1 1 = Security enabled                  |
| 129-159 | 0000h | X | 0 1 = Security supported                |
| 129-159 | 0000h | X | Vendor specific                         |
| 160-254 | 0000h | X | Reserved                                |
| 255     | 0000h |   | Integrity word                          |
|         |       |   | 15-8 Checksum                           |
|         |       | X | 7-0 Signature                           |

Note:

F/V = Fixed/variable content

F = the content of the word is fixed and does not change. For removable media devices, these values may change when media is removed or changed.

V = the contents of the word is variable and may change depending on the state of the device or the commands executed by the device.

X = the content of the word may be fixed or variable.

## 4.2 SMART Attribute

| ID (Hex) | Attribute Description       |
|----------|-----------------------------|
| 09h      | Power-On Hours Count        |
| 0Ch      | Drive Power Cycle Count     |
| A7h      | SSD Protect Mode            |
| A8h      | PHY Error Count             |
| A9h      | Bad Block Count             |
| ADh      | Erase Count                 |
| AFh      | Bad Cluster Table Count     |
| B4h      | User Block Count Left       |
| C0h      | Unexpected Power Loss Count |
| C2h      | Temperature                 |
| E7h      | SSD Life Left               |
| E9h      | Write Sector Count to Nand  |
| EAh      | Read Sector Count from Nand |
| F1h      | Write Sector Count          |
| F2h      | Read Sector Count           |

## 5.0 Pin assignment and descriptions

### 5.1 mSATA Interface

**Figure 5-1 mSATA Interface**

| Pin | Assignment | Descriptions          | Descriptions          | Assignment | Pin |
|-----|------------|-----------------------|-----------------------|------------|-----|
| 1   | N/A        | No Connect            | System Ground         | GND        | 27  |
| 2   | 3.3V       | DC 3.3V input source  | Reserved              | Reserved   | 28  |
| 3   | N/A        | No Connect            | System Ground         | GND        | 29  |
| 4   | GND        | System Ground         | No Connect            | N/A        | 30  |
| 5   | N/A        | No Connect            | SATA Differential RX- | SATA_RX- - | 31  |
| 6   | Reserved   | Reserved              | No Connect            | N/A        | 32  |
| 7   | N/A        | No Connect            | SATA Differential RX+ | SATA_RX+   | 33  |
| 8   | N/A        | No Connect            | System Ground         | GND        | 34  |
| 9   | GND        | System Ground         | System Ground         | GND        | 35  |
| 10  | N/A        | No Connect            | Reserved              | Reserved   | 36  |
| 11  | N/A        | No Connect            | System Ground         | GND        | 37  |
| 12  | N/A        | No Connect            | Reserved              | Reserved   | 38  |
| 13  | N/A        | No Connect            | DC 3.3V input source  | 3.3V       | 39  |
| 14  | N/A        | No Connect            | System Ground         | GND        | 40  |
| 15  | GND        | System Ground         | DC 3.3V input source  | 3.3V       | 41  |
| 16  | N/A        | No Connect            | No Connect            | N/A        | 42  |
| 17  | N/A        | No Connect            | No Connect            | N/A        | 43  |
| 18  | GND        | System Ground         | System Activity       | DevSlp     | 44  |
| 19  | Reserved   | Reserved              | Reserved              | Reserved   | 45  |
| 20  | Reserved   | Reserved              | No Connect            | N/A        | 46  |
| 21  | GND        | System Ground         | Reserved              | Reserved   | 47  |
| 22  | N/A        | No Connect            | Reserved              | Reserved   | 48  |
| 23  | SATA_TX+   | SATA Differential TX+ | Device Activity       | DAS/DSS    | 49  |
| 24  | 3.3V       | DC 3.3V input source  | System Ground         | GND        | 50  |
| 25  | SATA_TX-   | SATA Differential TX- | System Ground         | GND        | 51  |
| 26  | GND        | System Ground         | DC 3.3V input source  | 3.3V       | 52  |

## 6.0 Product Line up

**Table 6-1 Product Line up**

| <b>Part Number</b> | <b>Capacity</b> | <b>Type</b> | <b>Remark</b>  |
|--------------------|-----------------|-------------|----------------|
| IMSS316-064GD      | 64GB            | mSATA       | Normal, 0~70°C |
| IMSS316-128GD      | 128GB           | mSATA       | Normal, 0~70°C |
| IMSS316-256GD      | 256GB           | mSATA       | Normal, 0~70°C |
| IMSS316-512GD      | 512GB           | mSATA       | Normal, 0~70°C |
| IMSS316-001TD      | 1TB             | mSATA       | Normal, 0~70°C |
| IMSS316-064GP      | 64GB            | mSATA       | Wide, -40~85°C |
| IMSS316-128GP      | 128GB           | mSATA       | Wide, -40~85°C |
| IMSS316-256GP      | 256GB           | mSATA       | Wide, -40~85°C |
| IMSS316-512GP      | 512GB           | mSATA       | Wide, -40~85°C |
| IMSS316-001TP      | 1TB             | mSATA       | Wide, -40~85°C |

## 7.0 Package Specifications

Figure 7-1 Package

