

# DATASHEET

*Solid State Drive*

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## **MT-XXXT**

mSATA Solid State Drive

Rev:1.0

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### 1. Product introduction

#### 1.1 Summary

MT-XXX is a high performance and high reliability storage device which consists nonvolatile NAND Flash memories and semiconductor components. This technology is designed to optimize the limitations of low computing performance of traditional hard disk drives. All mechanical parts have been replaced with electronic components to prevent shock and vibration damages.

#### 1.2 Product model list

Model	Flash	Capacity	Sequential Read	Sequential Write
MT-64T	3D TLC	64GB	450~510MB/S	350~400 MB/S
MT-128T	3D TLC	128GB	450~510MB/S	350~400 MB/S
MT-256T	3D TLC	256GB	490~570MB/S	430~510 MB/S
MT-512T	3D TLC	512GB	510~570 MB/S	450~510 MB/S

#### 1.3 Specifications

1.3.1 Interface protocol: SATAIII 6Gbps;

1.3.2 Input voltage: DC 3.3V ( $\pm 5\%$ );

1.3.3 Operating temperature:  $0^{\circ}\text{C} \sim +70^{\circ}\text{C}$ ;

1.3.4 Storage temperature:  $-20^{\circ}\text{C} \sim +75^{\circ}\text{C}$ ;

1.3.5 physical dimension: 50mm length \* 30mm wide \* 3.5mm height  
error $\pm 0.5\text{mm}$ );

1.3.6 Write endurance: Write 100GB /Day, theoretically can use 8 years;

1.3.7 Read life: unlimited;

1.3.8 MTBF: 1,000,000 hours;

1.3.9 Support Capacity: 64GB, 128GB, 256GB, 512GB;

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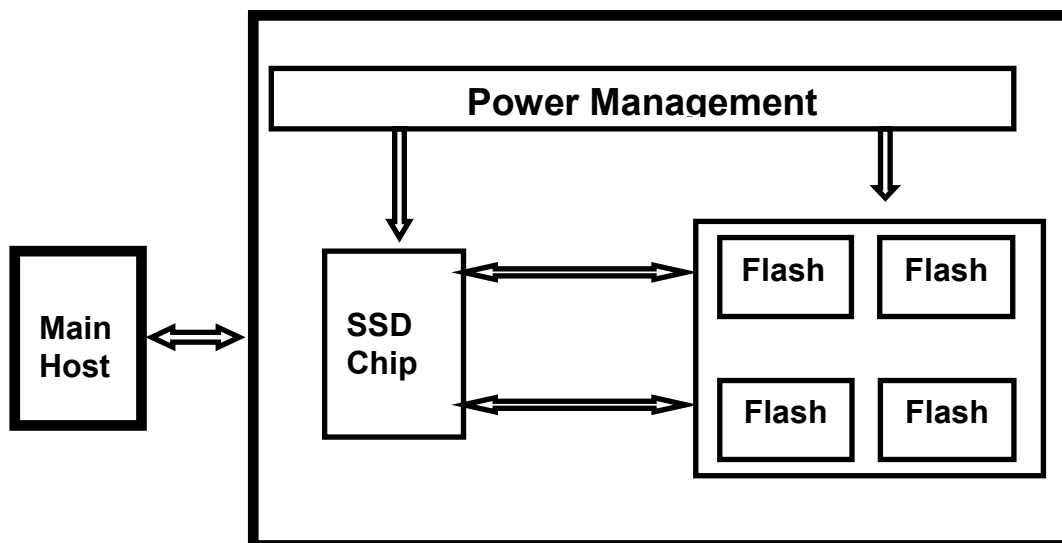
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### 1.4 Features

- 1.4.1 SATA 6Gbp/s interface.
- 1.4.2 Support wear leveling.
- 1.4.3 Support Garbage collection.
- 1.4.4 Support Over-provisioning.
- 1.4.5 Support power management and intelligent management technology.
- 1.4.6 Support Native Command Queuing (NCQ) ;
- 1.4.7 Support TRIM (Disable Delete Notify) command;
- 1.4.8 Support Error Checking And Correcting(ECC).
- 1.4.9 Support PIO mode 0,1,2,3,4;
- 1.4.10 Support DMA mode 0,1,2;
- 1.4.11 Support UDMA mode 0,1,2,3,4,5,6,7;

### 2. Block diagram



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### 3. Measurements

L50mm \* W30mm \* H3.5mm, Error±0.5m (e.g. Figure 1)

Using 2 screws to fix SSD;

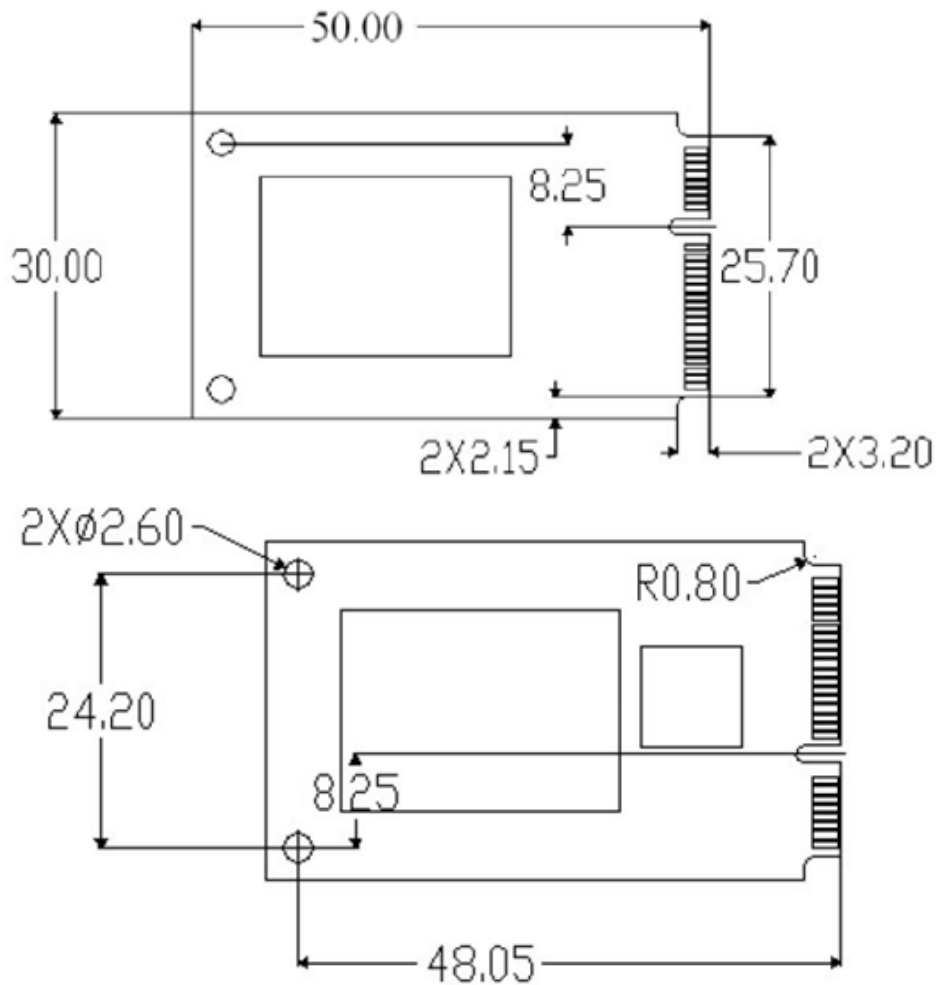
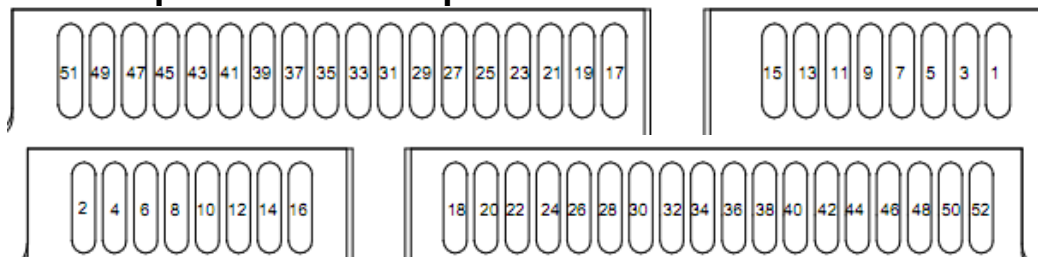


Figure 1

### 4. Interface description/Pin description



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Figure 2

(e.g. Figure 2)

<b>PIN</b>	<b>PIN Definition</b>	<b>PIN</b>	<b>PIN Definition</b>
1	/	2	+3.3V
3	/	4	GND
5	/	6	/
7	/	8	/
9	GND	10	/
11	/	12	/
13	/	14	/
15	GND	16	/
17	/	18	GND
19	/	20	/
21	GND	22	/
23	TX+	24	+3.3V
25	TX-	26	GND
27	GND	28	/
29	GND	30	/
31	RX-	32	/
33	RX+	34	GND
35	GND	36	/
37	GND	38	/
39	+3.3V	40	GND
41	+3.3V	42	/
43	GND	44	/
45	/	46	/
47	/	48	/
49	DAS/DSS	50	GND
51	Presence Detection	52	+3.3V

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### 5. Performance

#### 5.1 Read & Write Speed Test

Model: MT-256T

Motherboard: Intel Z68

CPU: Intel® Core(TM) i5-2400 3.10GHz

Memory: Kingston 4GB

OS: WIN7 Professional

BIOS Set: AHCI model

Test Software: CrystalDiskMark5.2.0

Test Project	Read	Write
Sequential read and write	559MB/S	505 MB/S
4K Read & Write	25 MB/S	69 MB/S

#### 5.2 Data Throughput Test

Model: MT-256T

Motherboard: Intel Z68

CPU: Intel® Core(TM) i5-2400 3.10GHz

Memory: Kingston 4GB

OS: WIN7 Professional

BIOS Set: AHCI mode

Test Software: Iometer 2008

Test Project	Test Result	
	512K bytes	4Kbytes
Sequential Read	73200	62000
Sequential Write	40500	44400
Random Read	51500	52800
Random Write	2098	57500

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### 5.3 Access time

Model: MT-256T

Motherboard: Intel Z68

CPU: Intel® Core (TM) i5-2400 3.10GHz

Memory: Kingston 4GB

OS: WIN7 Professional

BIOS Set: AHCI mode

Test Software: HD Tune Pro 3.50

Random Access time: 0.07ms

## 6. Power consumption

Input voltage: DC 3.3V ( $\pm 5\%$ )

Model test: MT-256T

Test Project		Power Consumption	Unit
Idle		0.43	W
4K	Sequential Read	1.00	W
	Sequential Write	1.05	W
	Random Read	1.40	W
	Random Write	1.20	W
512K	Sequential Read	0.70	W
	Sequential Write	0.80	W
	Random Read	0.80	W
	Random Write	0.90	W