SSD

(Solid state Disk)

Data Sheet

Rev. 1.1

9F-2, No. 56 , Sec. 2 , Roosevelt Rd., Taipei , Taiwan (100)
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Specification for Approval

ITEM	Ripple

Customer		Supplier	Alfa Media
Parts Number	2.5 " SATA SSD	Parts Number	2.5 " SATA SSD

Approved By	Date	Approved By	Date
Please return one copy with your signature by confirmation		Alfa Media Industrial Co., Engineer dep.	

Version	Date	Description
01	30-May-09	First edition

Alfa Media Industrial Co., Ltd.

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A. General Description

SATA SSD (Solid State Disk) delivers all the advantages of flash disk technology with the Serial ATA 2.0 interface and fully compliant with standard 2.5 inch form factor.

Our SATA SSD is based on standard Serial ATA interface with a 7-pin data segment and 15-pin power segment. It can reach up to 256GB capacity and highest 130MB throughput with SLC NAND flash. With the Lowerest power consumption is much better than traditional HDD , In addition, Our SATA SSD provides hot-swapping ability when removing, replacing or upgrading it.

Save the power Save the earth !

B. Key Features

★ Host Interface: SATA I (1.5Gbps) and SATA II (3.0Gbps)

★ Support Capacity: 128MB, 256MB, 512MB, 1GB, 2GB, 4GB, 8GB, 16GB, 32GB, 64GB, 128GB

★ Support up to 16pcs TSOP NAND Flash (both SLC and MLC)

★ Performance:

		Read	Write	R-Read	R-Write
Premium	*SLC*	130 MB/s	67 MB/s *	75 MB/s	15 MB/s
	MLC	120 MB/s	20 MB/s	65 MB/s	7 MB/s
Basic	*SLC*	67 MB/s	37 MB/s	58 MB/s	4 MB/s
	MLC	60 MB/s	16 MB/s	56 MB/s	2 MB/s

★ MTBF: 1,350,000 Hours

★ Power Consumption:

		Flash Quantity	Operating	Standby
Premium	*SLC*	16	410 mA	310 mA
	MLC	16	470 mA	240 mA
Basic	*SLC*	16	300 mA	250 mA
	MLC	16	350 mA	200 mA

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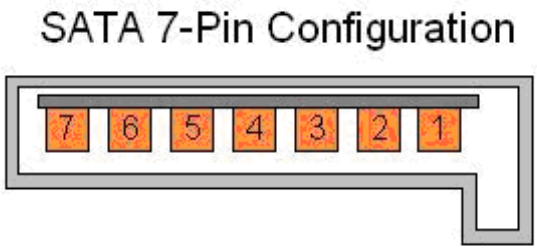
★ Temperature: Storage -40°C to 85°C, Operating 0°C to 70°C
★ Humidity: RH = 95% under 55°C
★ Mechanical Specification: Shock 1500G/0.5ms, Vibration 20G/20-2000Hz
★ Booting Feature from Windows 98/2000/XP/Vista and Linux
★ Acquired RoHS, WHQL, CE, FCC Certificate
★ Acoustic = 0dB
★ 100.2mm x 69mm x 9.5mm, fully compatible with 2.5” SATA HDD

C. Pin Configuration

Signal segment



Pin	Function	Pin	Function
1	Ground	2	A+ = Transmit (+)
3	A- = Transmit (-)	4	Ground
5	B- = Receive (-)	6	B+ = Receive (-)
7	Ground		

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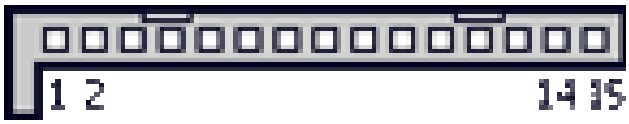
power segment



Pin	Function	Pin	Function
1	+3.3VDC	9	+5VDC
2	+3.3VDC	10	GND
3	+3.3VDC	11	GND
4	GND	12	GND
5	GND	13	+12VDC
6	GND	14	+12VDC
7	+5VDC	15	+12VDC
8	+5VDC		

D. Electrical Specification

D1. SATA PHY

Symbol	Description	Condition	Min.	Typical	max.	unit
T	Unit Interval	gen2	-	333.33	-	ps
		gen1	-	666.66	-	ps
T rise	TX rise time	20 % - 80 % at transmitter	67	-	136	ps
T_{fall}	TX fall time	80 % - 20 % at transmitter	67	-	136	ps
$V_{cm,acRx}$	RX AC common mode voltage	Measured @ receiver	-	-	100	mv
$V_{diff,tx}$	TX differential output voltage	Measured @ transmitter	400	500	700	mVp-p
Z_{difftx}	TX pair differential output impedance	Measured @ transmitter with TDR when REXT = 6.04 kΩ	85	100	115	Ω
Z_{diffrx}	RX pair differential input impedance	Measured @ receiver with TDR when REXT = 6.04 kΩ	85	100	115	Ω
V_{diffRx}	RX differential input voltage	Measured @ receiver	275	400	750	mV
V_{diffRx}	RX differential input voltage	Measured @ receiver	240	400	750	mV

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	(ESATA)					
$Z_{s\text{-}eTx}$	TX single-ended impedance	Measured @ transmitter with TDR when REXT = 6.04 kΩ	40	-	-	Ω
Zs-eRx	RX single-ended impedance	Measured @ transmitter with TDR when REXT = 6.05 kΩ	40	-	-	Ω
$T_{skew,TX}$	TX differential skew	Measured @ transmitter	-	-	20	ppm
f_{tol}	TX frequency long term stability	Send D10.2 pattern to spectrum analyzer	-350	-	350	ppm
SS_{Ctol}	Spread spectrum modulation deviation	Use frequency demodulator to measure SSC profile	-5000	-	0	ppm
V_{thresh}	OOB detect threshold	Measured @ receiver	50	100	200	mVp-p
$t_{COMRESET/COMINIT\ space}$	COMINIT/COMRESET transmit gap length	Measured from 100 mV differential crosspoints, from last to first edges of bursts	310.4	320	329.6	ns
$t_{COMWAKE\ space}$	COMWAKE transmit gap length	Measured from 101 mV differential crosspoints, from last to first edges of bursts	103.5	106.7	109	ns

D2. Absolute Maximum Rating

Parameter	Symbol	Rating	Unit
Power Voltage	Vcc	-0.5~+3.96	V
Input Voltage	VI	-0.3~Vcc+0.3(≦3.96V)	V
Output Voltage	Vo	-0.3~Vcc+0.3(≦3.96V)	V

D3. Operating Condition

Parameter	Symbol	Rating			unit
		Min.	Typical	max.	
H level input voltage	V_{IH}	Vcc x 0.8	-	V_{cc}	V
L level input voltage	V_{IL}	0	-	Vcc x 0.2	V
H level output voltage	V_{oH}	Vcc – 0.3	-	V_{cc}	V
L level output voltage	V_{OL}	0	-	0.4	V
Pull-down resistance	R_{PD}	-	75		kΩ
Pull-up resistance	R_{PU}	-	75		kΩ

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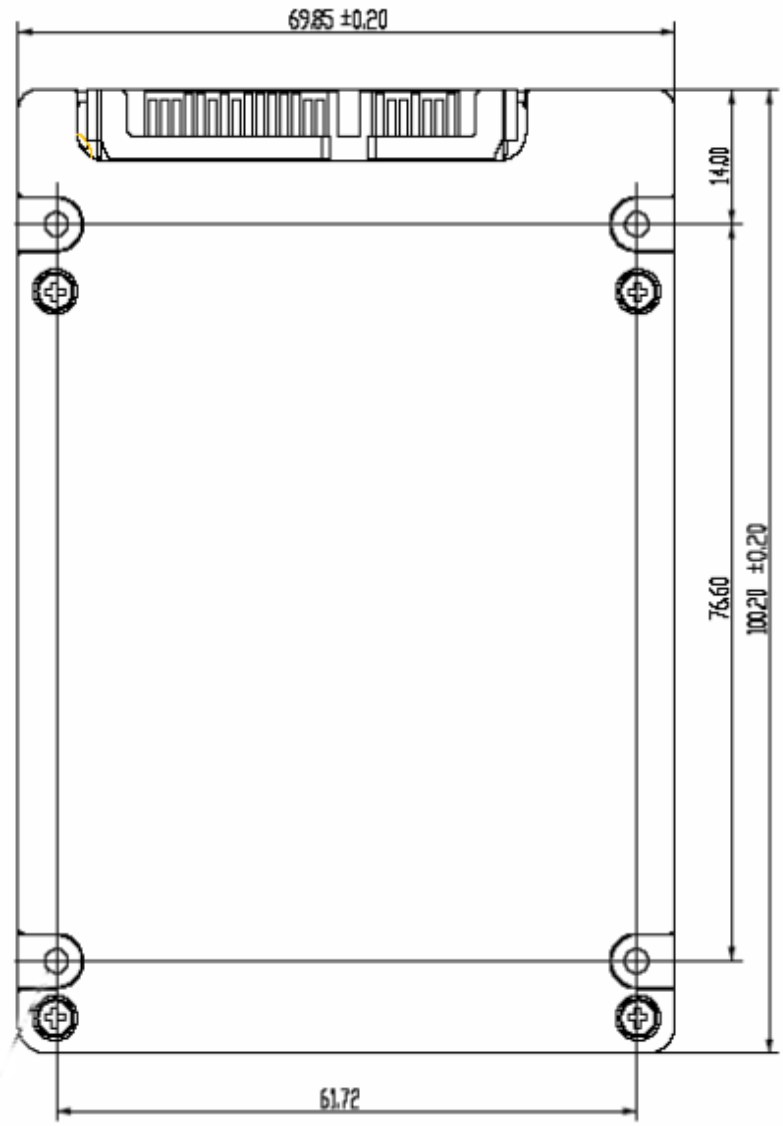
E. Physical Dimension



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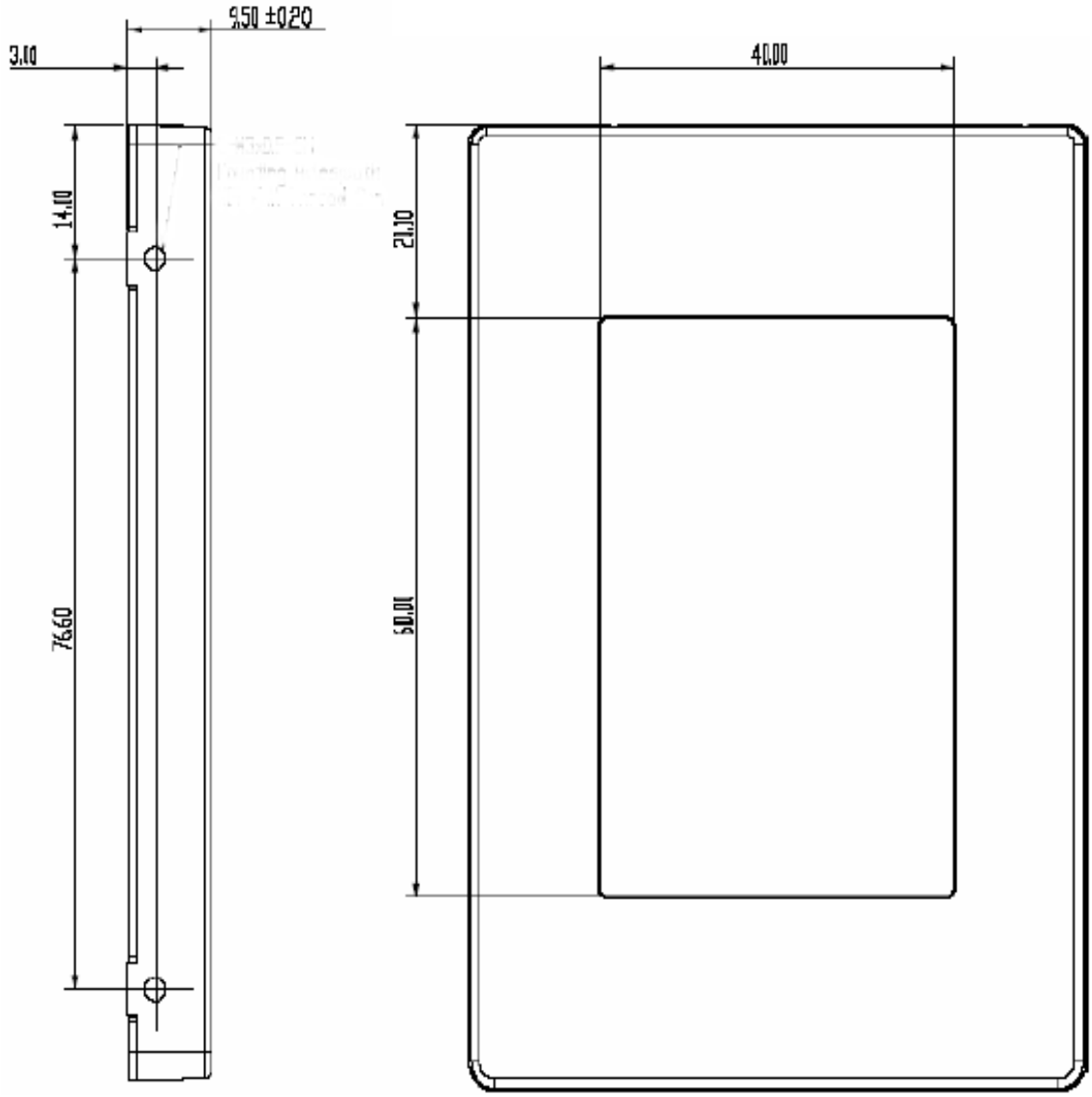

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