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2.5" IDE Solid State Drive

General Description

The IDE Flash Drive FHD8/16/32/64/28GC25M series is an IDE interface solid state disk (SSD) drive that features a flash disk controller chip and NAND type flash memory devices. This 2.5 inch form factor SSD series is available in 8GB, 16GB, 32GB, 64GB and 128GB capacities. The drive uses a 5-volt power supply and supports up to PIO Mode 6, MDMA Mode 4, and UDMA Mode 5. This IDE SSD Drive is geared specifically to military and industrial markets for use in such products as avionics, video on demand, ATM, factory automation machines, POS terminals, measuring products, ticket vending machines, parking systems and other industrial products that require high tolerance to environmental conditions.

Designed and Manufactured in USA

Features

- Capacity: 8GB to 128GB
- Form factor: 2.5 inch type (HDD compatible)
- IDE interface: Up to PIO Mode 6,
  - MDMA Mode 4,
  - UDMA Mode 5
- Power supply: Vcc=5.0V +/-5%
- Operating temperature: Commercial: 0C to +70C
- Performance:
  - Sequential Read Rate: 65MB/sec (max)
  - Sequential Write Rate: 50MB/sec (max)
  - Access Time: 0.1ms
- Shock: 1500G (operating)
- Vibration: 16G (operating)

Specifications

- Compatibility: Full IDE hard disk compatible
- OS Support: All
- Package: Complete metal housing
- Reliability:
  - MTBF: >1,000,000 hours
  - Data reliability: Built-in EDC/ECC function
  - Patent pending Wear-leveling algorithms
- Endurance:
  - Read: Unlimited
  - Write/Erase: >140 years @ 50GB write-erase /day

Ordering Information

Capacity	Model No.
8GB	FHD8GC25M
16GB	FHD16GC25M
32GB	FHD32GC25M
64GB	FHD64GC25M
128GB	FHD28GC25M

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ABSOLUTE MAXIMUM RATINGS

SYMBOL	RATING		VALUE	UNIT
Vcc	Power Supply Voltage		-0.3 to 6.5	V
VIN	Input Voltage		-0.5 to Vcc+0.5	V
TSTG	Storage Temperature		-65 to 150	°C
TOPR	Operating Temperature	Commercial	-0 to 70	°C
		Industrial	-40 to 85	

RECOMMENDED DC OPERATING CONDITIONS

SYMBOL	PARAMETER	MIN	TYP.	MAX	UNIT
Vcc	Power Supply Voltage	4.5	5.0	5.5	V
VIH	High Level Input Voltage	2.0	–		V
VIL	Low Level Input Voltage		–	0.8	V

DC CHARACTERISTICS (Ta = -40°C to 85°C , Vcc = 5V ± 10%)

SYMBOL	PARAMETER	MIN	TYP.	MAX	UNIT
ICCO	Operating Current		40		µA
ICCS	Sleep Mode Current			1.2	
VOH	High Level Output Voltage	Vcc-0.8	–	–	V
VOL	Low Level Output Voltage	–	–	0.4	V

System Requirements

In order to install the 2.5" Flash Drive in your system, ensure that you have the following items:

- System mounting hardware
- 44 pin shown. DF serie

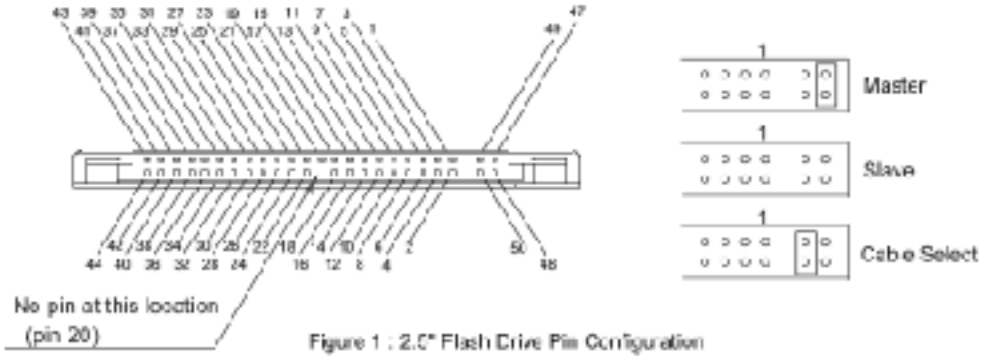

Figure 1 : 2.5" Flash Drive Pin Configuration

Pin Assignment
44 Pin IDE Flash Drive

PIN	SYMBOL	PIN	SYMBOL
1	/RESET	2	GND
3	HD7	4	HD8
5	HD6	6	HD9
7	HD5	8	HD10
9	HD4	10	HD11
11	HD3	12	HD12
13	HD2	14	HD13
15	HD1	16	HD14
17	HD0	18	HD15
19	GND	20	Key
21	DMARQ	22	GND
23	/IOW	24	GND
25	/IOR	26	GND
27	WAIT	28	CSEL
29	/DMACK	30	GND
31	IRQ	32	/IOCS16
33	HA1	34	/PDIAG
35	HA0	36	HA2
37	/CS0	38	CS1
39	/LIASP	40	GND
41	Vcc	42	Vcc
43	GND	44	NC

Revision History

Aug 17, 2007 Rev-A Preliminary Product Specification Released
March 21, 2008 Rev-B Revised Photo and Dimension Drawings

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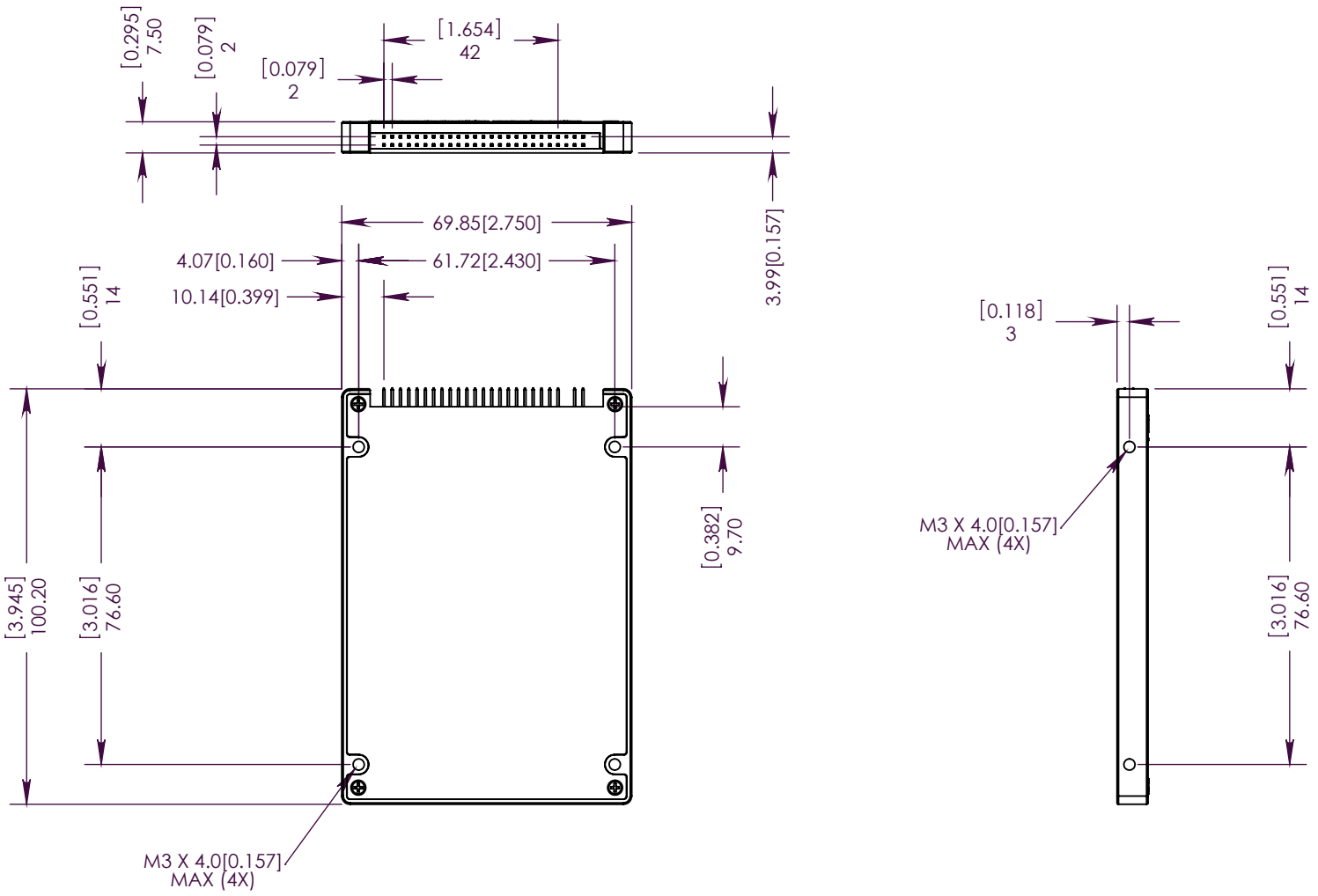
CONFIGURATION DESCRIPTIONS

Signal Name	Dir	Pin	Description
HA[2:0]	I	36, 33, 35	A2-A0 are used to select the one of the eight registers in the Task File
/CS[1:0]	I	38, 37	/CS0 is the chip select for the Task File registers while /CS1 is used to select the Alternative Status Register and the Device Control Register
CSEL	I	28	This internally pulled-up signal is used to configure this device as a Master or a Slave, if J_CSEL_-EN is grounded by a jumper from B to D. When the pin is grounded, this device is configured as a Master. When the pin is open, this device is configured as a Slave.
HD[15:0]	I/O	18, 16,14, 12, 10, 8, 6, 4, 3, 5, 7, 9, 11, 13, 15, 17	All the Task File operations occur in byte mode on the low order bus HD[7:0] while all data transfers are 16 bit using HD[15:0].
/DASP	I/O	39	This input/output is the Disk Active/ Slave Present signal in the Master/Slave handshake protocol.
DMARQ	O	21	DMA transfer request
/DMACK	I	29	DMA request knowledge
/IOW:STOP	I	23	The I/O Write strobe pulse is used to clock I/O data on the Card Data bus into the Drive controller registers when the Drive is configured to use the I/O interface. The clocking will occur on the negative to positive edge of the signal (trailing edge). During Ultra DMA, this is the stop signal.
/IOR: HDMARDY/ HSTROBE	I	25	This is an I/O Read strobe generated by the host. This signal gates I/O data onto the bus from the Drive. Ultra DMA control signal used to extend host transfer cycles.
IRQ	O	31	Signal used to interrupt host when service is requested.
/IOIS16	O	32	This output signal is asserted low when this device is expecting a word data transfer cycle.
IORDY: DDMARDY/ DSTROBE	O	27	This output signal may be used as IORDY. Ultra DMA control signal used to extend host transfer cycles.
/PDIAG	I/O	34	This input/output is the Pass Diagnostic signal in the Master/Slave handshake protocol.
/RESET	I	1	This input pin is the active low hardware reset from the host.
GND	--	2, 19, 22, 24, 26, 30, 40, 43	Ground
Key	--	20	This pin is keyed so that the drive can only be connected with the cable pin 1 to drive pin 1.
N/C	--	44	No connect
Vcc	--	42, 41	+5V

2.5" IDE Solid State Drive

Mechanical Specifications (32GB and below capacities)



2.5" IDE Solid State Drive

Mechanical Specifications (64GB and above capacities)