

32, 64, 96, 128, 160, 224, 256, 320, 448, 512, 640, 800MB, and 1GB 3.5-Inch IDE Flash Drives

FEATURES

- Capacities from 32MB to 1GB
- Standard IDE Drive Form Factor of 3.5-Inch
- Standard IDE connector and Interface
- Configures to Master or Slave IDE device
- Replaces IDE hard drive for applications where tough environments prohibit use of traditional rotating media
- Solid-State (no moving parts)
- High Shock and Vibration Limits
- 512 Byte Sector and ECC Defect Management Compatible to IDE Hard Disk Drives
- No “Spin” Noise Compared to Traditional Rotating Media
- Available in Commercial, Extended, and Industrial Operating Temperature Ranges

ORDERING INFORMATION

SimpleTech P/N*	Capacity
SLFLD35-032C(E/I)	32 MBytes
SLFLD35-064C(E/I)	64 MBytes
SLFLD35-096C(E/I)	96 MBytes
SLFLD35-128C(E/I)	128 MBytes
SLFLD35-160C(E/I)	160 MBytes
SLFLD35-224C(E/I)	224 MBytes
SLFLD35-256C(E/I)	256 MBytes
SLFLD35-320C(E/I)	320 MBytes
SLFLD35-448C(E/I)	448 MBytes
SLFLD35-512C(E/I)	512 MBytes
SLFLD35-640C(E/I)	640 MBytes
SLFLD35-800C(E/I)	800 MBytes
SLFLD35-1GBC(E/I)	1 GBytes

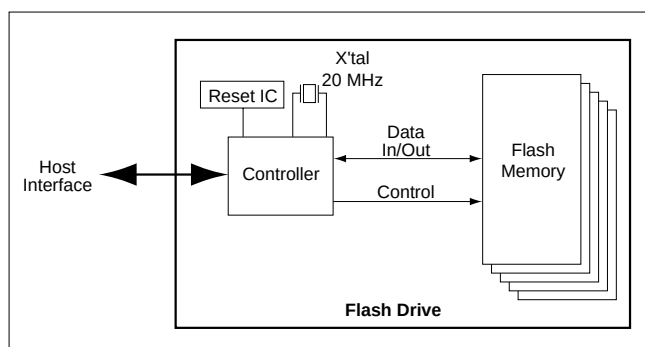
* An “E” suffix added to the part number selects the Extended Operating Temperature range option. An “I” suffix added to the part number selects the Industrial Operating Temperature range option. A part number without the “E” or “I” suffix selects the Commercial Operating Temperature option.

GENERAL DESCRIPTION

The SimpleTech SLFLD35-032C(E/I) to SLFLD35-1GBC(E/I) are solid-state flash IDE drives with capacities of 32MB to 1GB and with a standard 3.5-inch form factor.

The IDE drive consists of an IDE controller and an array of flash memory devices. The IDE drive supports the standard ATA register and command set.

FUNCTIONAL BLOCK DIAGRAM



PIN CONFIGURATION

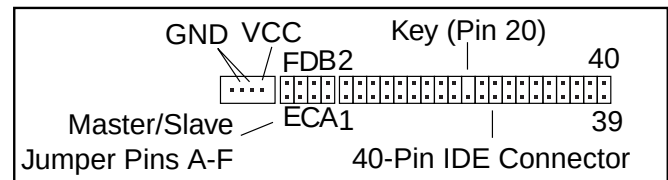
40-Pin IDE Connector

Pin Symbols

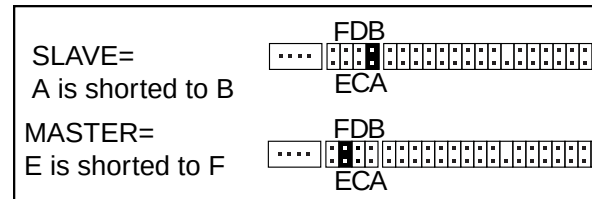
Pin Num	Pin Symbol	Pin Num	Pin Symbol
1	-RESET	21	-DREQ
2	GND	22	GND
3	D07	23	-IOWR
4	D08	24	GND
5	D06	25	-IORD
6	D09	26	GND
7	D05	27	-IORDY
8	D10	28	-CSEL
9	D04	29	-DACK
10	D11	30	GND
11	D03	31	-HINT
12	D12	32	-IOIS16
13	D02	33	A1
14	D13	34	-PDIAG
15	D01	35	A0
16	D14	36	A2
17	D00	37	-CE1
18	D15	38	-CE2
19	GND	39	-DASP
20	Key	40	GND

"-" indicates signal is active low.

Pin Locations



Jumper Settings



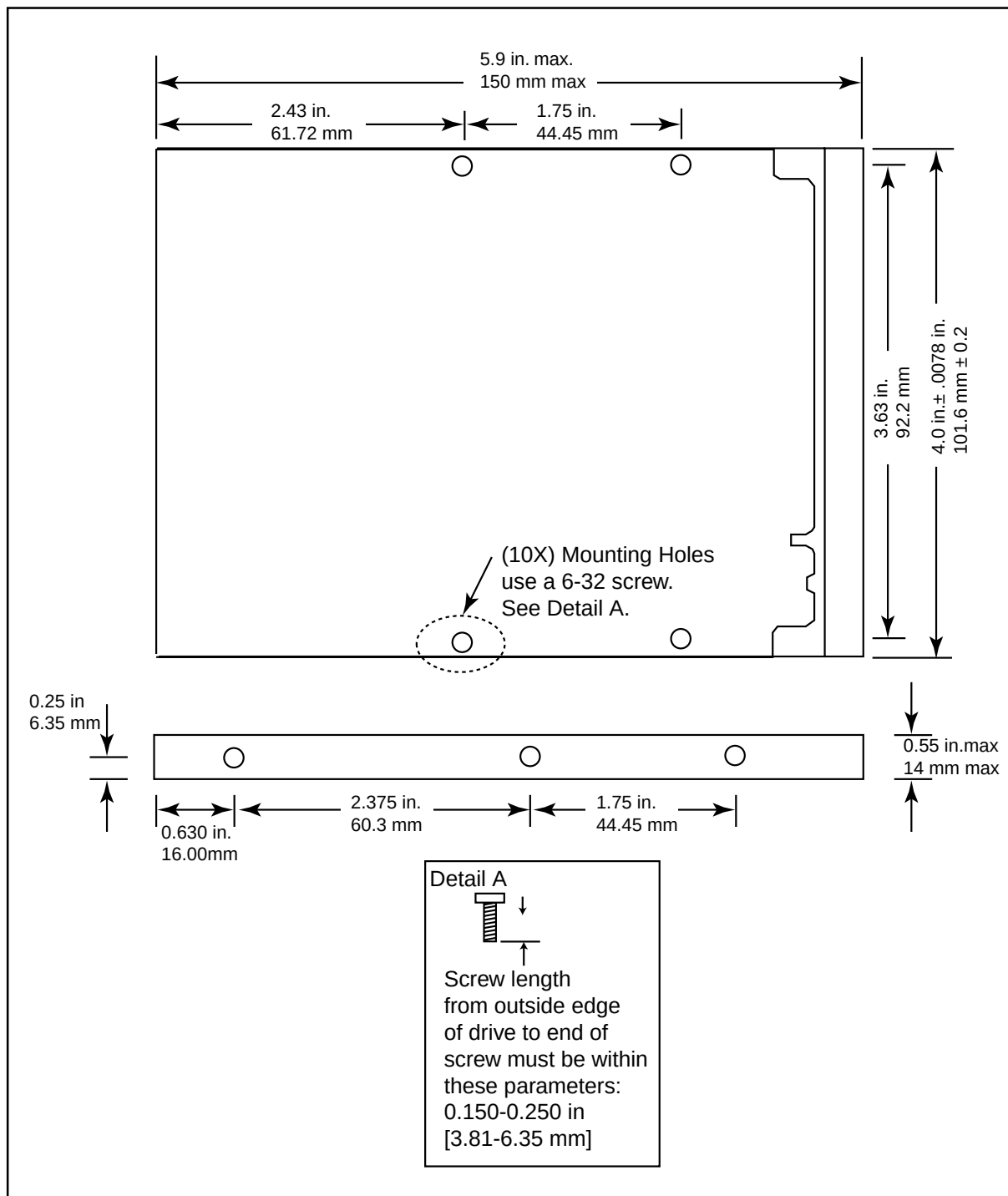
Note: After selecting jumper settings, it may be necessary to run IDE HDD Auto Detect in CMOS setup during boot up.

Signal Description

Signal Name	Dir	Pin	Description
-DASP	I/O	39 TTL I/O 3mA Output 100K Pullup	This input/output is the Disk Active/Slave Present signal in the Master/Slave handshake protocol.
D15-D00	I/O	18, 16, 14, 12, 10, 8, 6, 4, 3, 5, 7, 9, 11, 13, 15, 17 TTL I/O 3mA Output	All Task File operations occur in byte mode on the low order bus D00-D07 while all data transfers are 16 bit using D00-D15.
-IOWR	I	23 TTL Schmitt Trigger Input 100K Pullup	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).
-IORD	I	25 TTL Schmitt Trigger Input 100K Pullup	This is an I/O Read strobe generated by the host. This signal gates I/O data onto the bus from the Drive.
HINT	O	31 TTL Tri-State 3mA Output	Signal is the active high Interrupt Request to the host.
A2-A0	I	35, 33, 36 TTL Input	A[2:0] are used to select the one of eight registers in the Task File.
-CE1, -CE2	I	37, 38 TTL Schmitt Trigger Input 100K Pullup	-CE1 is the chip select for the task file registers while -CE2 is used to select the Alternate Status Register and the Device Control Register.
-CSEL	I	28 TTL Input 100K Pullup	This internally pulled up signal is used to configure this device as a Master or a Slave. When the pin is grounded, this device is configured as a Master. When the pin is open, this device is configured as a Slave
-IO16	O	32 TTL Tri-State 3mA Output	This output signal is asserted low when this device is expecting a word data transfer cycle.
-PDIAG	I/O	34 TTL I/O 3mA Output 100K Pullup	This input/output is the Pass Diagnostic signal in the Master/Slave handshake protocol.
-DREQ	O	21	DMA transfer request.
-DACK	I	29	DMA request acknowledge.
-IORDY	O	27 TTL Output 3mA Output	This output signal may be used as IORDY.
-RESET	I	1 TLL Input 100K Pullup	This input pin is the active low hardware reset from the host.
GND	—	2, 19, 22, 26 30, 40	Ground.
Key	—	20	This pin is keyed so that the drive coan only be connected with the cable pin 1 to drive pin 1.

PACKAGE DIMENSIONS

Refer to the figure below for package dimensions of the 3.5-inch FlashDrive.



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	Note
All input/output voltages	Vin, Vout	-0.3 to VCC+0.3	V	1
VCC voltage	VCC	-0.3 to +6.7	V	
Storage Temperature range	Tstg	-55 to +125	°C	
1. Vin, Vout min=-2.0V for pulse width <=20 ns				

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit
Commercial operating temperature	Ta	0	25	70	°C
Extended operating temperature	Ta	-25	—	85	°C
Industrial operating temperature	Ta	-40	—	85	°C
VCC voltage	VCC	4.5	5.0	5.5	V
		3.0	3.3	3.6	

PERFORMANCE

Item	Performance
Start Up Times (Reset to Ready)	100 ms (max)
Start Up Times (Sleep to Idle)	2 ms (max)
Data Transfer Rate To/From Host	8 MBytes/s (burst typ)
Controller Overhead (Command to DRQ)	2 ms (max)
Data Transfer Cycle End to Ready (Sector Write)	2 ms (typ)
Read	1.3 to 1.5 MBytes/s (typ)
Write	3 MBytes/s with 6-way Interleave (typ)

RELIABILITY

Item	Value
Data Write/Erase Endurance	300,000 min. cycles
Data reliability	1 in 10 ¹⁴ bits, read

CAPACITANCE (Ta=25°C, f=1MHz)

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Input Capacitance	Cin	—	—	15	pF	(Vin=0V)
Output Capacitance	Cout	—	—	15	pF	(Vout=0V)

ENVIRONMENTAL CHARACTERISTICS

Item	Value
Operating Shock	2000 G max.
Non-operating Shock	2000 G max.
Operating Vibration	15 G peak to peak (0.5 sine wave)
Non-operating Vibration	15 G peak to peak (0.5 sine wave)
Humidity	5% to 96%
Altitude	up to 50,000 ft