

32, 64, 96, 128, 160, 224, 320, 448, 512, 640, 800 MB and 1GB 144-Pin SO-DIMM Flash Disk Module

FEATURES

- Capacities of 32MB to 1GB available
- Compact Form Factor designed to plug into a 144-pin SO-DIMM socket with IDE pinouts
- Standard IDE software Interface
- Master or Slave Mode with use of -CSEL pin
- 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
- Commercial, Extended, and Industrial Operating Temperature Ranges Available
- 3.3V and 5.0V compatible VCC.

GENERAL DESCRIPTION

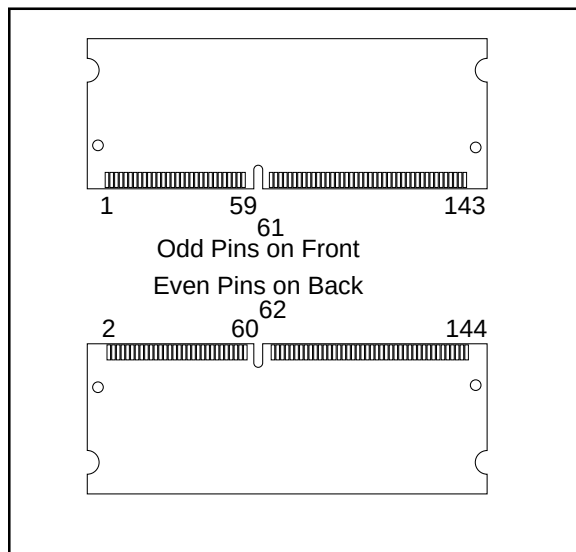
This SiliconTech product is a solid-state Flash Disk Module with a 144-pin Small Outline Dual In-line Memory Module (SO-DIMM) form factor. The module uses the standard IDE signals, common on IDE hard drives, arranged in a 144-pin card-edge connector.

The module is solid-state making it rugged and compact—ideal for applications where traditional rotating media is too fragile and bulky.

The use of card-edge connector technology commonly found in portable computers eliminates the installation confusion, the cost, and the potential failures commonly associated with interface cables.

In addition, the module uses low power, allowing for longer power-up time in battery-powered applications.

PIN LOCATIONS



ORDERING INFORMATION

SiliconTech P/N*	Capacity
SLFDM144-032C(E/I)	32 MBytes
SLFDM144-064C(E/I)	64 MBytes
SLFDM144-096C(E/I)	96 MBytes
SLFDM144-128C(E/I)	128 MBytes
SLFDM144-160C(E/I)	160 MBytes
SLFDM144-224C(E/I)	224 MBytes
SLFDM144-320C(E/I)	320 MBytes
SLFDM144-448C(E/I)	448 MBytes
SLFDM144-512C(E/I)	512 MBytes
SLFDM144-640C(E/I)	640 MBytes
SLFDM144-800C(E/I)	800 MBytes
SLFDM144-1GBC(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.

Signal Description

Signal Name	Dir	Description
-DASP	I/O	This input/output is the Disk Active/Slave Present signal in the Master/Slave handshake protocol.
D15-D00	I/O	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	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	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	Signal is the active high Interrupt Request to the host.
A2-A0	I	A[2:0] are used to select the one of eight registers in the Task File.
-CE1, -CE2	I	-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	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/high, this device is configured as a Slave
-IO16	O	This output signal is asserted low when this device is expecting a word data transfer cycle.
-PDIAG	I/O	This input/output is the Pass Diagnostic signal in the Master/Slave handshake protocol.
IORDY	O	This output signal may be used as IORDY.
-RESET	I	This input pin is the active low hardware reset from the host.
GND	—	Ground.
VCC	—	Power.
Key	—	This pin is keyed so that the drive can only be connected with the cable pin 1 to drive pin 1.

PIN SYMBOLS

Odd pins are NO CONNECT.

“-” indicates signal is active low.

Heavy black line indicates key.

* -CSEL low = Master; -CSEL high = Slave

Pin Num	Pin Symbol	Pin Num	Pin Symbol	Pin Num	Pin Symbol	Pin Num	Pin Symbol
2	GND	38	D11	74	-CE1	110	A2
4	VCC	40	NC	76	NC	112	NC
6	GND	42	D3	78	NC	114	NC
8	NC	44	NC	80	-CE2	116	-DASP
10	D7	46	D12	82	-IORD	118	-PDIAG
12	NC	48	NC	84	-IOWR	120	A1
14	D8	50	D2	86	NC	122	A0
16	NC	52	NC	88	NC	124	-IOIS16
18	D6	54	D13	90	NC	126	VCC
20	NC	56	NC	92	NC	128	GND
22	D9	58	D1	94	NC	130	NC
24	NC	60	NC	96	HINT	132	NC
26	D5	62	D14	98	-CSEL*	134	NC
28	NC	64	NC	100	-RESET	136	NC
30	D10	66	D0	102	IORDY	138	NC
32	NC	68	NC	104	NC	140	NC
34	D4	70	D15	106	NC	142	NC
36	NC	72	NC	108	NC	144	NC

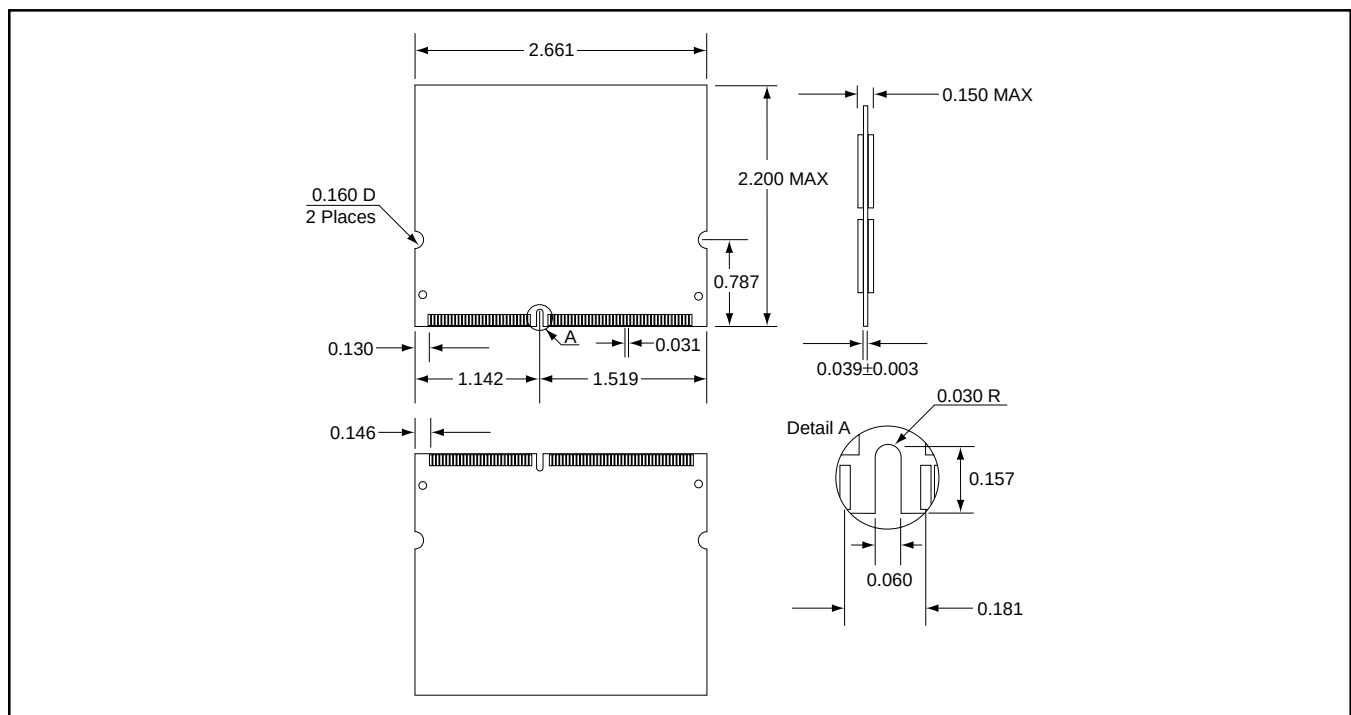
PACKAGE DIMENSIONS

Dimensions are in inches.

Tolerances are ± 0.005 inches.

Drawing not to scale.

Keying for 3.3V 144-Pin SO-DIMM sockets.



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 3.15	5.0 3.3	5.5 3.45	V

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	up to 8 MBytes/s (burst)
Controller Overhead (Command to DRQ)	2 ms (max)
Data Transfer Cycle End to Ready (Sector Write)	2 ms (typ)
Read	up to 1.3 to 1.5 MBytes/s
Write	up to 3 MBytes/s with 6-way Interleave

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*
Shock	500G, 3 cycles/ Axis X, Y, Z / Unit
Vibration (Logarithmic Digital Sine)	freq=100-2000Hz, 20G, 3 sweeps/ Axis X, Y, Z / Unit