CENTON ELECTRONICS, INC.

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MEMORY
SPECIFICATIONS

SecureDigital™ Card

1GB

Commercial Temperature SecureDigital Card 1GB

Centon SD™ memory Card based on state-of-the-art memory devices with high storage capacity, fast data transfer rates, capacity 1GB.

Centon SD™ memory Card is a very highly secure, stamps size, flash memory card. It is designed to support high-end photo; Video and music SD compatible devices; Perfect choice of solid-state for any Digital Cameras, Digital Camcorder and other high resolution image recording devices. Centon SD™ memory Card will allow you to record every precious moment whenever you wish and open new doors for people's active digital lifestyles!

Centon SD™memory Card combine the reliability of flash media with high performance and increase in data transfer rates and easy method for quickly downloading and transfer digital files .Improves reliability and increases performance compared to other vendors.

SD™ memory Card- *1GB*

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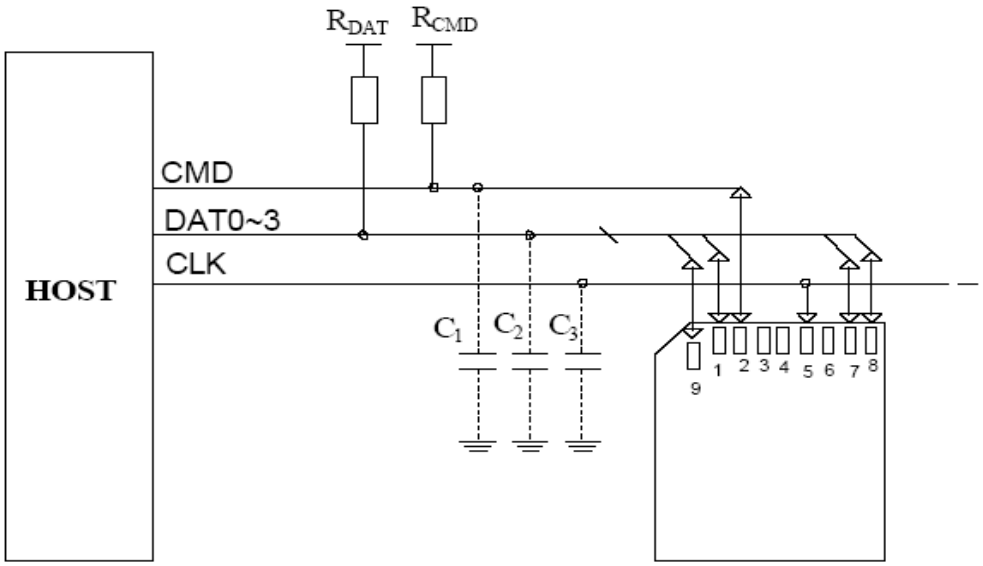


SD card Connection diagram

FEATURES

* 1GB capacity, MLC.
* Pin count: 9 Pins.
* Fast data transfer rate: 8MB/s average at Read speed.
* Endurance: 10,000 program/erase cycles.
* MTBF: 10,000 hours.
* Card Insertions/Removals: 10,000times Minimum.
* Postage stamp size and weighs approximately 2.0 grams.
* Compliant SDA specification ver1.01\ver 1.1\ver 2.0.
* Support In System Programming(ISP) function to load firmware.
* Two alternative communication protocols: SD mode SPI mode.
* Very low Power Consumption, Low profile, Noiseless.
* Write-protect switch prevents inadvertent overwriting of image or audio data.
* Data Retention: 10 years.
* Damage free powered card insertion and removal.
* Support Error Correcting Code (ECC) function.
* Automatic power down, wake up, smart power management.
* RoHS compliant.
* Type Secure Digital™ Card
  24mm (.94") x 32mm (1.25") x 2.1 mm (0.08")

COMPATIBILITY

Centon's SecureDigital™ cards is fully compatible with the Secure Digital card specification.

APPLICATION

Non-volatile storage solution for portable devices, such as PDAs, digital cameras and MP3 players

ENVIRONMENT

	OPERATING	STORAGE
TEMPERATURE	0°C to 70°C	-25°C to 85°C
HUMIDITY (non-condensing)	25% to 85%	25% to 85%

WARRANTY

Centon will repair or replace any Centon memory product that fails due to defective material or workmanship under normal use for the life of the product.

Product Specifications

Supply Voltage

2.7V-3.6V

Power

Operating current (Icc): 95mA (Max)
Standby Current (Isb): 130uA (Typ)

Performance

Data Transfer rate :Read :8MB/sec
Write: 3MB/sec
High speed SD card : 80X (for 256MB and above)
Clock frequency Data Transfer Mode: 25MHz
Clock frequency Identification Mode: 400KHz
Vibration :Operating/Non-Operating: 15G Peak to Peak Max
Shock : Operating/Non-Operating: 1,000G Max
Altitude :Operating/Non-Operating: 80,000 feet Max
Acoustic Noise: 0dB
Drop test: 1.5m free on P-title

Dimensions

Type Card: 24mm x 32mm x 2.1mm
Weight: 2.0grams Max

Environment Conditions

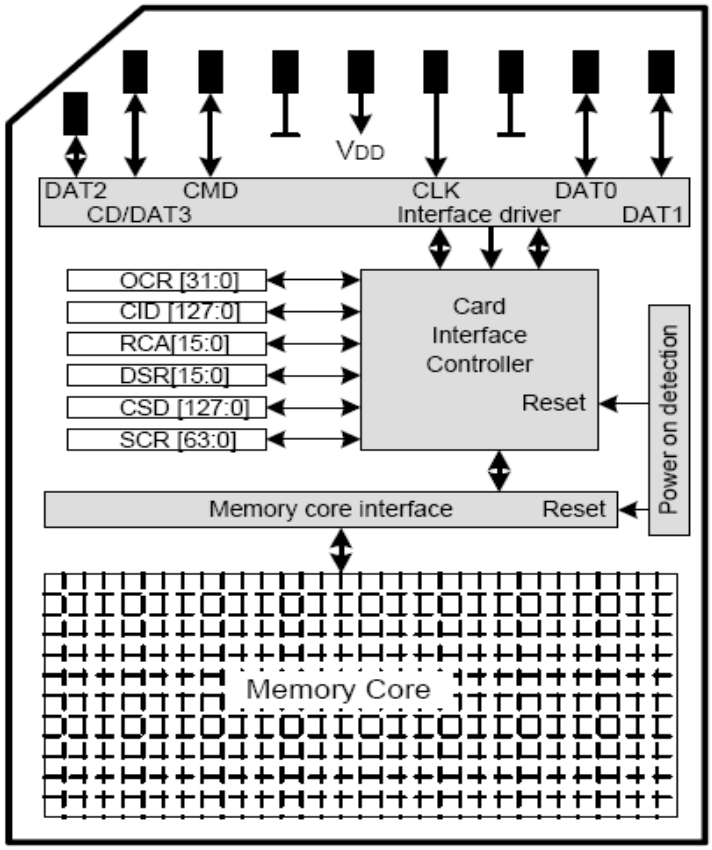
Operating temperature: 0C to 70C Commercial Grade
Storage temperature: -25C to 85C Commercial Grade

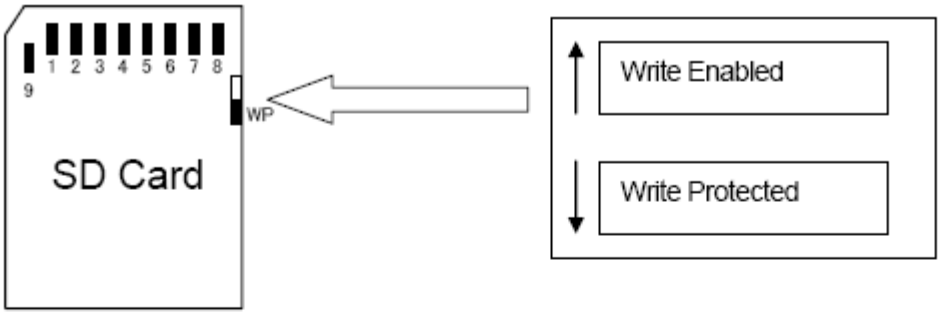
SD Bus Mode Pad Definition

Pin #	Name	Type[1]	SD Description
1	CD/DAT3[2]	I/O[3]	Card Detect/Data Line [Bit 3]
2	CMD	I/O	Command/Response
3	V_{SS1}	S	Supply voltage ground
4	V_{DD}	S	Supply voltage
5	CLK	I	Clock
6	V_{SS2}	S	Supply voltage ground
7	DAT0	I/O	Data Line [Bit 0]
8	DAT1	I/O	Data Line [Bit 1]
9	DAT2	I/O	Data Line [Bit 2]

NOTES: 1) S=power supply; I=input; O=output using push-pull drivers.
2) The extended DAT lines (DAT1-DAT3) are input on power up. They start to operate as DAT lines after the SET_BUS_WIDTH command. It is the responsibility of the host designer to connect external pullup resistors to all data lines even if only DAT0 is to be used. Otherwise, non-expected high current consumption may occur due to the floating inputs of DAT1 & DAT2 (in case they are not used).
3) After power up, this line is input with 50Kohm(+/-20Kohm) pull-up (can be used for card detection or SPI mode selection). The pull-up may be disconnected by the user, during regular data transfer, with SET_CLR_CARD_DETECT (ACMD42) command.

Block Diagram





SD Card Pin assignment (Back view of the Card)

SD card pin assignment

Pins	SD Mode			SPI Mode		
	Name	IO type [1]	Description	Name	IO Type	Description
1	CD/ DAT3	I/O /PP	Card Detect/ Data Line [Bit3]	CS	I	Chip Select (Negative True)
2	CMD	PP	Command/Response	DI	I	Data In
3	V_{SS1}	S	Ground	V_{SS}	S	Ground
4	V_{dd}	S	Supply Voltage	V_{dd}	S	Supply Voltage
5	CLK	I	Clock	SCLK	I	Clock
6	V_{SS2}	S	Ground	V_{SS2}	S	Ground
7	DAT0	I/O /PP	Data Line [Bit0]	DO	O/PP	Data Out
8	DAT1	I/O /PP	Data Line [Bit1]	RSV	-	Reserved (*)
9	DAT2	I/O /PP	Data Line [Bit2]	RSV	-	Reserved (*)

1) S: Power Supply, I: Input, O: Output, I/O: Bi-directionally,'PP' - IO using push-pull drivers

(*) These signals should be pulled up by host side with 10-100k ohm resistance in the SPI Mode.

Mechanical Form Factor (UNITS IN MMS)