

THEMIS Series

Industrial Secure Digital (SD) Memory Card & Industrial Secure Digital High Capacity (SDHC) Memory Card



Product features

- Supports SLC - NAND type flash technology
- Write Protect feature using mechanical switch
- Supports industrial grade operating temp. -40°C ~ +85°C
- Supports SD mode and SPI mode
- Supports CPRM
- RoHS & REACH compliant
- SD card capacity from 128MB up to 2GB ; SDHC from 4GB up to 16GB

Product specifications

Compatibility

- Capacities 128MB ~ 2GB are compliant with SD V1.01 / V1.1 / V2.0 specifications
- Capacities 4GB ~ 8GB are compliant with SD V1.01 / V1.1 / V2.0 / V3.0 specifications
- SD Memory Card Specifications, Part 1 Physical Layer Specification, Version 2.0

SD Specification Ver. 2.00

- Capacity supports from 128MB up to 2GB

Power consumption

- 9 pins contact pad
- FAT file system
- Capacity supports from 4GB up to 16GB
- 9 pins contact pad
- FAT32 file system

SDHC Specification Ver. 3.00

- Class 10
- SLC-NAND type flash based
- Standard SD memory card form-factor
- 9 pins connector
- Write protect feature using mechanical switch

Flash technology

Form-factor

Host Interface

Write Protection

Performance

- Sequential read: SD : 19.20 MB/sec (Max.) ; SDHC : 22.20 MB/sec (Max.)
- Sequential write: SD : 15.30 MB/sec (Max.) ; SDHC : 21.10 MB/sec (Max.)

Average access time

- 1 ms (estimated)

Class Speed Rating

- SDHC memory cards Class 10

Environmental specification

- Operating temp. : IND. -40°C ~ +85°C
- Non-operating temp. : IND. -50°C ~ +95°C
- Humidity : 10% ~ 95% non-condensing
- Vibration : 15 G peak-to-peak
- Shock : 1,000 G Max.
- Altitude : 80,000 feet

Reliability & Durability

- Durability : 10,000 Inserting cycles
- Bending : 10N
- Torque : 0.15N ± 2.5 deg.
- Drop Test : 1.5M free fall
- WP Switch Cycle : 1,000 cycle @ slide force 0.4N to 5N
- Wear-leveling : Global wear-leveling algorithms
- MTBF : > 3,000,000 hours
- ECC : 16 bits or 24 bits per 1 Kbytes / 24 bits per 512 bytes
- Endurance : > 2,000,000 cycles
- Data retention : 10 years

Physical specification

- Weight (max.) : 2.5 g / 0.09 oz. (Max.)
- Dimension(W x L x H) : 32.0 x 24.0 x 2.1 (mm) / 1.26 x 0.95 x 0.08 (inch)

Warranty

- 5 years

Operating temperature supports Industrial grade -40°C ~ +85°C

Part number list - Industrial SD & SDHC Memory Card

Product picture	Capacity	-40°C ~ +85°C
	128MB	WPSDC128M-EAISI
	256MB	WPSDC256M-EAISI
	512MB	WPSDC512M-EAISI
	1GB	WPSDC001G-EAISI
	2GB	WPSDC002G-EAISI
	4GB	WPSDH004G-EAISI *1 WPSDH004G-EAISI-D
	8GB	WPSDH008G-EAISI *2 WPSDH008G-EAIMI
	16GB	*1&2 WPSDH016G-EAIMI-D

Remarks:

- *1 Dual Channel.
- *2 Micron SLC flash IC solutions.

The default setting of file allocation table storage are :

128MB ~ 2GB : FAT16 / 4GB ~ 16GB : FAT32 (Do not support FAT16)
FAT type setting based on ATA/ATAPI specification.

Part number decoder

X1	X2	X3	X4	X5	X6	X7	X8	X9	—	X11	X12	X13	X14	X15	—	D			
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Example

W	P	S	D	H	0	1	6	G	—	E	A	I	M	I	—	D			
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X1 ▶ Grade

W : Industrial grade - operating temp. -40°C ~ +85°C

X11 ▶ Controller

E : ITE (THEMIS Series)

X2 ▶ The material of casing

P : Plastic casing

X12 ▶ Controller version

A,B,C,....

X3 X4 X5 ▶ Product category

SDC : Secure Digital (SD) memory card

SDH : Secure Digital High Capacity (SDHC) memory card

X13 ▶ Controller grade

I : Industrial grade

X6 X7 X8 X9 ▶ Capacity

- 128M : 128MB 001G : 1GB
- 256M : 256MB 002G : 2GB
- 512M : 512MB 004G : 4GB
- 008G : 8GB
- 016G : 16GB

X14 ▶ Flash IC

S : Samsung SLC-NAND flash IC
M : Micron SLC-NAND flash IC

X15 ▶ Flash IC grade

I : Industrial grade

D ▶ Dual Channel

D : Dual Channel

CF
Industrial CompactFlash Card

CFast
Industrial CFast Card

ATA
Industrial PCMCIA ATA Card

MIF
Industrial micro IDE Flash Module

MSE
Industrial micro SATA Flash Module

MUM
Industrial micro USB Flash Module

MPM
Industrial mini PCIe Flash Module

MSM
Industrial mini SATA Flash Module

SSD
Industrial Solid State Disk

UED
Industrial Rugged Metal USB Flash Disk

SD
Industrial SD & SDHC Memory Card

AD
Industrial Adapter Card-Drive

CF
Industrial CompactFlash Card

CFast
Industrial CFast Card

ATA
Industrial PCMCIA ATA Card

MIF
Industrial micro IDE Flash Module

MSE
Industrial micro SATA Flash Module

MUM
Industrial micro USB Flash Module

MPM
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