

# PHANES-F Series

MLC MicroSD Memory Card / SD Memory Card Specification 3.0



## Product Feature

- MLC - NAND type flash technology
- Supports SD mode and SPI mode
- Supports UHS-1
- Supports CPRM
- RoHS & REACH compliant
- micro SD card capacities from 8GB to 64GB

## Product Specification

### Compatibility

- SD Memory Card Specifications, Part 1 Physical Layer Specification, version 3.1 Final
- SD Memory Card Specifications, Part 3, Security Specification, Version 3.0 Final

### Flash technology

- MLC-NAND type flash memory

### Form-factor

- Standard MicroSD card form-factor

### Host Interface

- 8-pin connector

### Performance

- Class-10

Sequential read

- 99.8 MB/sec

Sequential write

- 92.9 MB/sec

### Environmental specification

Operating temp.

- IND. -40°C~+85°C

Non-operating temp.

- IND. -50°C~+95°C

Humidity

- 10% ~ 95% non-condensing

Vibration

- 20 Hz to 2K Hz, 20G, 3 axes

Shock

- 0.5ms, 1,500G, 3 axes

Altitude

- 70,000 feet

### Power consumption

Power requirement

- ▶ +3.3V ± 10%

Reading mode

- ▶ 400 mA (Max.)

Writing mode

- ▶ 400 mA (Max.)

Standby mode

- ▶ 1000 uA (Max.)

### Reliability

Durability

- ▶ 10,000 inserting cycles

Torque

- ▶ 0.1N ± 2.5 deg.

Wear-leveling

- ▶ Static and Dynamic wear-leveling algorithms

ECC

- ▶ BCH ECC

### Physical specification

Weight

- ▶ 0.3 g / 0.01 oz. (Max.)


Dimension(W x L x H)

- ▶ 11.0 x 15.0 x 1.0 (mm)

### Warranty

MLC(standard/wide temp.) ▶ 2 years or within 3k Erasing counts

## Part Number List

Product Picture	Capacity	- 40°C ~ + 85°C
	8GB	WPMSD008G-PFITMB
	16GB	WPMSD016G-PFITMB
	32GB	WPMSD032G-PFITMB
	64GB	WPMSD064G-PFITMB

## Part Number Decoder

X1 X2 X3 X4 X5 X6 X7 X8 X9 — X11 X12 X13 X14 X15 X16 — X18 X19 X20

## Example ▶

W P M S D 0 6 4 G — P F I T M B —

## X1 Grade

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

## X2 The material of casing

P : Plastic casing

## X3 X4 X5 Product category

MSD : Micro SDHC memory card

## X6 X7 X8 X9 Capacity

008G : 8GB      032G : 32GB

016G : 16GB      064G : 64GB

## X11 Controller

P : PHANES Series

## X12 Controller version

A, B, C, D.....

## X13 Controller grade

I : Industrial grade

## X14 Flash IC brand

T : Toshiba flash IC

## X15 Flash IC type

M : MLC-NAND flash IC

## X16 MLC Technology

B : Toshiba 15nm MLC

X18 X19 X20 Reserved for specific requirement