

# PHANES-K Series

Industrial SLC mini SATA III Module




## Product Feature

- SLC - NAND type flash technology
- Bootable for O.S. installation
- S.M.A.R.T. supported
- RoHS & REACH compliant
- Capacity from 8GB up to 32GB

## Product Specification

|                                    |  |                               |   |
|------------------------------------|--|-------------------------------|---|
| <b>Compatibility</b>               | <ul style="list-style-type: none"> <li>▶ SATA 1.0a, SATA 2.6 and SATA 3.2 Specification compliance</li> <li>▶ Compliant with ATA/ATAPI-8 ACS4</li> </ul>   | <b>Power consumption</b>      | <ul style="list-style-type: none"> <li>▶ Power requirement ▶ +3.3 V ± 5%</li> <li>▶ Reading mode ▶ 1650mW (Max.)</li> <li>▶ Writing mode ▶ 1730mW (Max.)</li> <li>▶ Idle mode ▶ 325mW (Max.)</li> </ul> |
| <b>Flash technology</b>            | <ul style="list-style-type: none"> <li>▶ SLC-NAND type flash memory</li> </ul>   | <b>Reliability</b>            | <ul style="list-style-type: none"> <li>▶ Wear-leveling ▶ Static and Dynamic wear-leveling algorithms</li> </ul>   |
| <b>Form-factor</b>                 | <ul style="list-style-type: none"> <li>▶ Standard mSATA form factor</li> <li>▶ Compliant with JEDEC MO-300A</li> </ul>   | <b>TBW</b>                    | <ul style="list-style-type: none"> <li>▶ Up to 325 TBW at 32GB Capacity. (Client workload by JESD-219A)</li> </ul>  |
| <b>Host Interface</b>              | <ul style="list-style-type: none"> <li>▶ mini PCIe connector with 52 pins SATA pin out</li> </ul>  | <b>MTBF</b>                   | <ul style="list-style-type: none"> <li>▶ &gt; 3,000,000 hours</li> </ul>  |
| <b>Performance</b>                 | <ul style="list-style-type: none"> <li>▶ Data transfer rate ▶ SATA 1.5Gb/s, 3.0Gb/s, 6.0Gb/s</li> <li>▶ Sequential read ▶ 510.0 MB/sec (max.)</li> <li>▶ Sequential write ▶ 305.0 MB/sec (max.)</li> </ul>   | <b>Erase counts</b>           | <ul style="list-style-type: none"> <li>▶ Up to 60,000 times</li> </ul>  |
| <b>Environmental specification</b> | <ul style="list-style-type: none"> <li>▶ Operating temp. ▶ STD. 0°C~70°C/IND. -40°C~+85°C</li> <li>▶ Non-operating temp. ▶ STD. -20°C~+80°C/IND. -50°C~+95°C</li> <li>▶ Humidity ▶ 10% ~ 95% non-condensing</li> <li>▶ Vibration ▶ 80 Hz to 2K Hz, 20G, 3 axes</li> <li>▶ Shock ▶ 0.5ms, 1500 G, 3 axes</li> <li>▶ Altitude ▶ 70,000 feet</li> </ul> | <b>ECC</b>                    | <ul style="list-style-type: none"> <li>▶ Hardware design LDPC (Low Density Parity Check)</li> </ul>   |
|                                    |  | <b>Physical specification</b> | <ul style="list-style-type: none"> <li>▶ Weight ▶ 8.0 g ± 1 g / 0.28 oz.</li> <li>▶ Dimension(W x L x H) ▶ 29.85 x 50.80 x 3.70 (mm)</li> <li>▶ Conformal coating ▶ Optional</li> </ul>                 |
|                                    |  | <b>Warranty</b>               | <ul style="list-style-type: none"> <li>▶ STD Grade SLC ▶ 3 years or within 60K Erasing counts</li> <li>▶ IND Grade SLC ▶ 5 years or within 60K Erasing counts</li> </ul>                                |

## Part Number List

| Product Picture   | Capacity | 0°C ~ 70°C          | - 40°C ~ + 85°C     |
|---|----------|---------------------|---------------------|
|  | 8GB      | SBMSM008G-PKCTC-(T) | WBMSM008G-PKITI-(T) |
|   | 16GB     | SBMSM016G-PKCTC-(T) | WBMSM016G-PKITI-(T) |
|   | 32GB     | SBMSM032G-PKCTC-(T) | WBMSM032G-PKITI-(T) |
|   |          |                     |                     |
|   |          |                     |                     |
|   |          |                     |                     |

## Part Number Decoder

X1 X2 X3 X4 X5 X6 X7 X8 X9 — X11 X12 X13 X14 X15 — X17 X18 X19 X20

## Example ▶

W B M S M 0 3 2 G — P K I T I — C

## X1 Grade

S : Standard grade operating temp. 0° C~70 ° C  
W: Industrial grade operating temp. -40° C ~ +85 ° C

## X2 The material of casing

B : Bare (without casing)

## X3 X4 X5 Product category

MSM : mSATA module

## X6 X7 X8 X9 Capacity

008G : 8GB  
016G : 16GB  
032G : 32GB

## X11 Controller

P : PHANES Series

## X12 Controller version

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

## X13 Controller grade

C : Commercial grade  
I : Industrial grade

## X14 Flash IC brand

T : Toshiba SLC-NAND flash IC

## X15 Flash IC grade

C : Commercial grade  
I : Industrial grade

## X17 X18 X19 X20 Reserved for specific requirement

Blank : Standard product w/o thermal sensor and conformal-coating  
T : Thermal Sensor (optional).  
C : Conformal coating (optional)