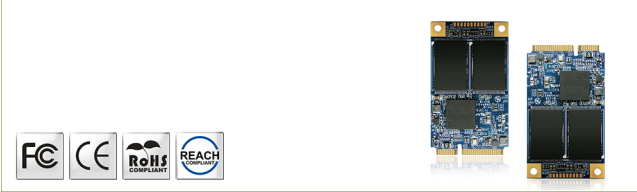


SLC  
aSLC  
MLC  
3D-NAND  
DRAM Module  
Adapter  
Card-drive



**Features**

- Enhanced MLC-NAND flash by sophisticated aSLC firmware
- Built with DRAM cache
- Support Trim command set
- Support Native Command Queuing (NCQ)
- Support S.M.A.R.T. command set and utility
- Support Power Loss Protection
- Capacities from 32GB up to 256GB

**Specification**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>■ <b>Compatibility</b><br/>SATA Revision 3.2<br/>ATA-8 ACS4 command set</li> <li>■ <b>Declarations</b><br/>RoHS &amp; REACH compliant</li> <li>■ <b>Flash technology</b><br/>MLC-NAND flash technology</li> <li>■ <b>Form-factor</b><br/>Standard mSATA form factor<br/>Compliant with JEDEC MO-300A<br/>mini PCI-e connector with 52 pins SATA pin out</li> <li>■ <b>Host Interface</b><br/>mini PCI-e connector with 52 pins SATA pin out</li> <li>■ <b>Performance</b> <ul style="list-style-type: none"> <li>➢ <b>Data transfer rate</b><br/>SATA 1.5Gb/s, 3.0Gb/s, 6.0Gb/s</li> <li>➢ <b>Sequential read</b><br/>550 MB/sec (Max.)</li> <li>➢ <b>Sequential write</b><br/>510 MB/sec (Max.)</li> <li>➢ <b>4KB random read</b><br/>72K IOPS (Max.)</li> <li>➢ <b>4KB random write</b><br/>90K IOPS (Max.)</li> </ul> </li> <li>■ <b>Environmental</b> <ul style="list-style-type: none"> <li>➢ <b>Operating temp.</b><br/>STD. 0°C~+70°C/W.T. -40°C~+85°C</li> <li>➢ <b>Non-operating temp</b><br/>STD. -20°C~+80°C/W.T. -50°C~+95°C</li> <li>➢ <b>Humidity</b><br/>10% ~ 95% non-condensing</li> <li>➢ <b>Vibration</b><br/>80 Hz to 2K Hz, 20G, 3axes</li> <li>➢ <b>Shock</b><br/>0.5ms, 1500G, 3 axes</li> <li>➢ <b>Altitude</b><br/>70,000 feet</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>■ <b>Power consumption</b> <ul style="list-style-type: none"> <li>➢ <b>Power requirement</b><br/>+3.3 V ± 5%</li> <li>➢ <b>Reading mode</b><br/>2,380mW (Max.)</li> <li>➢ <b>Writing mode</b><br/>3,620mW (Max.)</li> <li>➢ <b>Idle mode</b><br/>270mW (Max.)</li> </ul> </li> <li>■ <b>Reliability</b> <ul style="list-style-type: none"> <li>➢ <b>Wear-leveling</b><br/>Static and Dynamic wear-leveling algorithms<br/>Up to 5,136 TBW at 256GB Capacity<br/>(Sequential Write)</li> <li>➢ <b>TBW</b><br/>Up to 20,000 times</li> <li>➢ <b>Erase counts</b><br/>120 bits per 2K bytes block</li> </ul> </li> <li>■ <b>Physical specification</b> <ul style="list-style-type: none"> <li>➢ <b>Weight (Max.)</b><br/>8g</li> <li>➢ <b>Dimension (WxL)</b><br/>29.80 x 50.80 (mm)</li> </ul> </li> <li>■ <b>Conformal coating</b><br/>Optional</li> <li>■ <b>Warranty</b><br/>2 years or within 20,000 erasing counts</li> </ul> |
|---|---|

**Part Number List**

Capacity	0°C~+70°C	Capacity	-40°C~+85°C
32GB	SBMSR032G-PHCTMBAS	32GB	WBMSR032G-PHCTMBASC
64GB	SBMSR064G-PHCTMBAS	64GB	WBMSR064G-PHCTMBASC
128GB	SBMSR128G-PHCTMBAS	128GB	WBMSR128G-PHCTMBASC
256GB	SBMSR256G-PHCTMBAS	256GB	WBMSR256G-PHCTMBASC

**Part Number Decoder**

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20

**Example**

W B M S R 2 5 6 G - P H C T M B A S C

- |  |  |
|--|--|
| <p><b>X1 Grade</b></p> <p>S : Standard grade operating temp. 0°C~+70°C<br/>W : Wide temp. grade operating temp. -40°C~+85°C</p> <p><b>X2 The material of casing</b></p> <p>B : Bare (without casing)</p> <p><b>X3 X4 X5 Product category</b></p> <p>MSR : Mini SATA Module (mSATA) w/ DRAM cache</p> <p><b>X6 X7 X8 X9 Capacity</b></p> <p>032G : 32GB      128G : 128GB<br/>064G : 64GB      256G : 256GB</p> <p><b>X11 Controller</b></p> <p>P : PHANES Series</p> <p><b>X12 Controller version</b></p> <p>A, B, C, D.....</p> | <p><b>X13 Controller grade</b></p> <p>C : Commercial grade</p> <p><b>X14 Flash IC brand</b></p> <p>T : Toshiba NAND flash IC</p> <p><b>X15 Flash IC type</b></p> <p>M : MLC-NAND flash IC</p> <p><b>X16 MLC Technology</b></p> <p>B : Toshiba 15nm MLC</p> <p><b>X17 X18 aSLC Technology</b></p> <p>AS : aSLC Technology extends MLC products' lifespan</p> <p><b>X19 X20 Reserved for specific requirements</b></p> <p>C : Conformal coating (optional)</p> |
|--|--|