

Embedded Solutions



mSATA SSDs

MSA490T & MSA490T-I

Transcend's MSA490T mSATA Solid State Drive features BiCS8 218-layer 3D NAND flash and built-in DRAM cache, delivering enhanced random read/write performance, higher storage density, and an endurance rating of 3K P/E cycles. With a standard SATA III 6Gb/s interface and compact mSATA form factor, the MSA490T is ideal for embedded industrial PCs, fanless systems, human-machine interfaces (HMIs), and self-service terminals where high-frequency data access and space efficiency are essential.

Built for long-term operation in demanding industrial environments, the MSA490T features a 30 μ m PCB gold finger and Corner Bond technology for enhanced vibration resistance and component durability. The standard model supports an extended operating temperature range of -20°C to 75°C, while the industrial wide-temperature MSA490T-I supports a wide operating temperature range of -40°C to 85°C. The MSA490T series provides a dependable storage solution for demanding applications such as smart manufacturing, outdoor terminals, and edge computing.

Hardware Features

- DDR3 DRAM Cache embedded
- Compliant with JEDEC MO-300A
- 30 μ m PCB gold finger
- Anti-sulfur technology implemented to prevent sulfuration in the environment
- Power Shield (PS) to ensure data transfer integrity and minimize data corruption in the drive during an abnormal power outage

Ordering Information

256GB	TS256GMSA490T
512GB	TS512GMSA490T
1TB	TS1TMSA490T
2TB	TS2TMSA490T
4TB	TS4TMSA490T

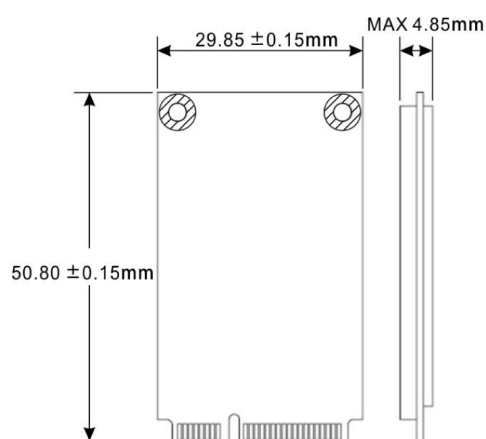
Firmware Features

- Supports S.M.A.R.T. function to conduct health monitoring, analysis, and reporting for storage devices
- Built-in LDPC ECC (Error Correction Code) functionality
- Early Move
- Advanced Global Wear-Leveling and Block management for reliability
- Advanced Garbage Collection

Specifications

Appearance	Dimensions	50.8 mm x 29.85 mm x 4.85 mm (2" x 1.18" x 0.19")
	Weight	8 g (0.28 oz)
	Pin Count	52 pin
	Form Factor	mSATA (MO-300A)
Interface	Bus Interface	SATA III 6Gb/s
Storage	Capacity	256 GB / 512 GB / 1 TB / 2 TB / 4 TB
	Flash Type	218-layer 3D NAND flash
Operating Environment	Operating Voltage	3.3V±5%
	Operating Temperature	Extended Temp. -20°C (-4°F) ~ 75°C (167°F)
	Storage Temperature	-55°C (-67°F) ~ 85°C (185°F)
	Humidity	5% ~ 95%
	Shock	1500 G, 0.5 ms, 3 axis
	Vibration (Operating)	20 G (peak-to-peak), 7 Hz ~ 2,000 Hz (frequency)
Power	Power Consumption (Operation)	2.7 watt(s)
	Power Consumption (IDLE)	0.88 watt(s)
Performance	Sequential Read/Write (CrystalDiskMark)	Read: Up to 560 MB/s Write: Up to 520 MB/s
	4K Random Read/Write (IOmeter)	Read: Up to 82,000 IOPS Write: Up to 83,000 IOPS
	Mean Time Between Failures (MTBF)	3,000,000 hour(s)
	Terabytes Written (TBW)	Up to 8,450 TBW
	Drive Writes Per Day (DWPD)	2.72 (3 yrs)
Warranty	Certificate	CE / UKCA / FCC / BSMI
	Warranty	Three-year Limited Warranty

Mechanical Dimensions



Product specifications are subject to change without notice. Pictures shown may differ from actual products. Total accessible capacity varies depending on operating environment. Due to the complexity and variety of industrial applications, Transcend cannot guarantee 100% compatibility with all platforms and under all scenarios. For special applications and environments, it is strongly suggested that you contact Transcend beforehand for clarification.