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Transcend's MTE452T M.2 SSD features the PCI Express (PCIe) Gen 3 x2 interface and is compatible with NVM Express (NVMe) 1.3 specifications to achieve never-before-seen transfer speeds. The MTE452T features state-of-the-art 3D NAND technology, which allows 96 layers of 3D NAND flash chips to be vertically stacked. Compared to 3D NAND at 64 layers, this density breakthrough greatly improves storage efficiency. The MTE452T is built with DRAM cache for fast access, and is fully tested in-house to guarantee reliability in mission-critical applications, boasting an endurance rating of 3K Program/Erase cycles.

Transcend also offers the MTE452T-I with wide temperature ( $-40^{\circ}C \sim 85^{\circ}C$ ) capabilities to ensure sustained functionality, enhanced endurance and optimal reliability in mission-critical applications.

### Hardware Features

- Endurance: 3K P/E cycles (Program/Erase cycles) guaranteed
- · Key components fortified by default with Corner Bond technology
- PCIe Gen 3 x2 interface
- Promised operational reliability in a wide temperature range (from -40°C to 85°C)
- DDR3 DRAM Cache embedded

#### **Firmware Features**

- SLC caching technology
- Supports NVM command
- Built-in LDPC ECC (Error Correction Code) functionality
- Supports S.M.A.R.T. function to conduct health monitoring, analysis, and reporting for storage devices
- Dynamic thermal throttling

### **Ordering Information**

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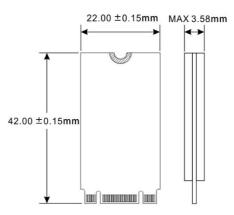
128GB	TS128GMTE452T TS128GMTE452T-I	
256GB	TS256GMTE452T TS256GMTE452T-I	
512GB	TS512GMTE452T TS512GMTE452T-I	



# Specifications

AppearanceWeight5 g (0.18 oz)Form FactorM.2M.2 Type2242-D2-B-M (Double-sided)InterfaceBus InterfaceNVMe PCIe Gen3 x2StorageFlash Type3D NAND flashQaacity128 GB / 256 GB / 512 GBOperating Voltage3.3V±5%Operating TemperatureStandard Temp, or C (158°F)Vide Temp, or C (158°F)Standard Temp, or C (158°F)Vide Temp, or C (158°F)Standard Temp, or C (158°F)EnvironmentStorage TemperatureStorage Temperature-55°C (-67°F) ~ 85°C (185°F)Humidity5% ~ 95%Storage Temperature0.60 (0.5 ms, 3 axisViotation (Operating)2.81 watt(s)Power Consumption (DLE)0.63 watt(s)Power Consumption (DLE)0.63 watt(s)Power Consumption (IDLE)Read: up to 1,700 MB/s Write: up to 1,250 MB/sAradom Read/Write (CrystalDisMark)Read: up to 200,000 IOPS Write: up to 250,000 IOPS Write: up to 250,000 IOPSMean Time Between Failures (MTBF)3,00000 hour(s)		Dimensions	42 mm x 22 mm x 3.58 mm (1.65" x 0.87" x 0.14")
Appearance     Form Factor     M.2       M.2 Type     2242-D2-B-M (Double-sided)       Interface     Bus Interface     NVMe PCIe Gen3 x2       Storage     Flash Type     3D NAND flash       Gapacity     128 GB / 256 GB / 512 GB       Operating Voltage     3.3V±5%       Operating Temperature     Standard Temp. O'C (32°F) ~ 70°C (158°F)       Vivie Temp. -40°C (40°F) ~ 85°C (185°F)     Standard Temp. O'C (32°F) ~ 70°C (158°F)       Vibrating Temperature     -55°C (67°F) ~ 85°C (185°F)       Storage Temperature     -55°C (67°F) ~ 85°C (185°F)       Humidity     5% ~ 95%       Storage Temperation     20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)       Power     Ower Consumption (Operation)     2.81 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Preformance     Sequential Read/Write (CrystalDiskMark)     Read: up to 1,200 MB/s Write: up to 1,250 MB/s       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS     Write: up to 250,000 IOPS	Appearance		
Form FactorM.2M.2 Type2242-D2-B-M (Double-sided)InterfaceBus InterfaceNVMe PCIe Gen3 x2StorageFlash Type3D NAND flashQuerating Voltage3.3V±5%Operating TemperatureStandard Temp. O°C (32°F) ~ 70°C (158°F) Wide Temp. -40°C (40°F) ~ 85°C (185°F)EnvironmentStorage Temperature-55°C (67°F) ~ 85°C (185°F)Humidity5% ~ 95%Storage Temperature1500 G, 0.5 ms, 3 axisPowerPower Consumption (Departing)2.01 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)PowerSequential Read/Write (CrystalDiskMark)Read: up to 1,700 MB/s Write: up to 1,250 MB/sPerformanceSequential Read/Write (IOmeter)Read: up to 220,000 IOPS Write: up to 250,000 IOPS Write: up to 250,000 IOPS		Weight	5 g (0.18 oz)
Interface     Bus Interface     NVMe PCIe Gen3 x2       Storage     Flash Type     3D NAND flash       Capacity     128 GB / 256 GB / 512 GB       Operating Voltage     3.3V±5%       Operating Temperature     O°C (32°F) ~ 70°C (158°F) Wide Temp. -4°°C (105°F)       Storage Temperature     Standard Temp. 0°C (32°F) ~ 70°C (158°F)       Storage Temperature     -55°C (-67°F) ~ 85°C (185°F)       Power     -56°C (-67°F) ~ 85°C (185°F)       Power     -56°C (-67°F) ~ 170°C (155°F)       P		Form Factor	M.2
Storage     Flash Type     3D NAND flash       Gapacity     128 GB / 256 GB / 512 GB       Appendix     230 VAND flash       Appendix     128 GB / 256 GB / 512 GB       Appendix     330 VAND flash       Appendix     Standard Temp. 0°C (32°F) ~ 70°C (158°F) Wide Temp. ~40°C (40°F) ~ 85°C (185°F)       Storage Temperature     -55°C (-67°F) ~ 85°C (185°F)       Humidity     5% ~ 95%       Shock     1500 G, 0.5 ms, 3 axis       Vibration (Operating)     2.81 watt(s)       Power Consumption (Operation)     2.81 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Action Read/Write (CrystalDiskMark)     Read: up to 1,700 MB/s Write: up to 1,250 MB/s       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS       Write: up to 250,000		М.2 Туре	2242-D2-B-M (Double-sided)
StorageCapacity128 GB / 256 GB / 512 GBPoperating Voltage3.3V±5%Operating TemperatureO°C (32°F) ~ 70°C (158°F) Wide Temp. -40°C (40°F) ~ 85°C (185°F)Storage Temperature-55°C (-67°F) ~ 85°C (185°F)Humidity5% ~ 95%Shock1500 G, 0.5 ms, 3 axisVibration (Operating)20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)PowerPower Consumption (Operation)2.81 watt(s)Power Consumption (IDLE)0.63 watt(s)Power Consumption (IDLE)0.63 watt(s)PerformanceK Random Read/Write (CrystalDiskMark)Read: up to 1,700 MB/s Write: up to 1,250 MB/sPerformanceK Random Read/Write (IOmeter)So00,000 hour(s)	Interface	Bus Interface	NVMe PCIe Gen3 x2
Capacity128 GB / 256 GB / 512 GBQperating Voltage3.3V±5%operating TemperatureStandard Temp. 0°C (32°F) ~ 70°C (158°F) Wide Temp. -40°C (40°F) ~ 85°C (185°F)Storage Temperature-55°C (-67°F) ~ 85°C (185°F)Humidity5% ~ 95%Shock1500 G, 0.5 ms, 3 axisYobration (Operating)20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)Power-0000 Hz (frequency)Power Consumption (IDLE)0.63 watt(s)Power Consumption (IDLE)0.63 watt(s)Att Random Read/Write (CrystalDiskMark)Read: up to 1,700 MB/s Write: up to 1,250 MB/sPerformanceAtt Random Read/Write (IOmeter)Mean Time Between Failures (MTBF)3,00,000 hour(s)	Storage	Flash Type	3D NAND flash
Operating Temperature     Standard Temp. 0°C (32°F) ~ 70°C (158°F) Wide Temp. -40°C (40°F) ~ 85°C (185°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 ~ 2000 Hz (frequency)       Power     Power Consumption (Operation)     2.81 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Sequential Read/Write (CrystalDiskMark)     Read: up to 1,700 MB/s Write: up to 1,250 MB/s       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS       Write: up to 250,000 IOPS     Write: up to 250,000 IOPS		Capacity	128 GB / 256 GB / 512 GB
Operating Temperature0°C (32°F) ~ 70°C (158°F) Wide Temp. -40°C (40°F) ~ 85°C (185°F)EnvironmentStorage Temperature-55°C (-67°F) ~ 85°C (185°F)Humidity5% ~ 95%Shock1500 G, 0.5 ms, 3 axisVibration (Operating)20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)PowerPower Consumption (DPeration)2.81 watt(s)Power Consumption (IDLE)0.63 watt(s)Power Consumption (IDLE)0.63 watt(s)PerformanceSequential Read/Write (CrystalDiskMark)Read: up to 1,700 MB/s Write: up to 220,000 IOPSPerformanceKandom Read/Write (IOmeter)3,000,000 hour(s)		Operating Voltage	3.3V±5%
Operating Environment     Storage Temperature     -40°C (-40°F) ~ 85°C (185°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 ~ 2000 Hz (frequency)       Power     Power Consumption (Operation)     2.81 watt(s)       Power Consumption (IDLE)     0.63 watt(s)       Performance     Sequential Read/Write (CrystalDiskMark)     Read: up to 1,700 MB/s Write: up to 1,250 MB/s       4K Random Read/Write (IOmeter)     Read: up to 200,000 IOPS Write: up to 250,000 IOPS     Mean Time Between Failures (MTBF)			
Storage reinperature   -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 ~ 2000 Hz (frequency)     Power   Power Consumption (Operation)   2.81 watt(s)     Power Consumption (IDLE)   0.63 watt(s)     Sequential Read/Write (CrystalDiskMark)   Read: up to 1,700 MB/s Write: up to 1,250 MB/s     4K Random Read/Write (IOmeter)   Read: up to 200,000 IOPS Write: up to 250,000 IOPS     Mean Time Between Failures (MTBF)   3,000,000 hour(s)		Operating Temperature	
Power Power Consumption (Operation) 2.81 watt(s)   Power Consumption (Operation) 2.81 watt(s)   Power Consumption (IDLE) 0.63 watt(s)   Read: up to 1,700 MB/s Write: up to 1,250 MB/s   4K Random Read/Write (IOmeter) Read: up to 200,000 IOPS   Mean Time Between Failures (MTBF) 3,000,000 hour(s)		Storage Temperature	-55°C (-67°F) ~ 85°C (185°F)
Vibration (Operating)   20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)     Power   Power Consumption (Operation)   2.81 watt(s)     Power Consumption (IDLE)   0.63 watt(s)     Sequential Read/Write (CrystalDiskMark)   Read: up to 1,700 MB/s Write: up to 1,250 MB/s     4K Random Read/Write (IOmeter)   Read: up to 200,000 IOPS Write: up to 250,000 IOPS     Mean Time Between Failures (MTBF)   3,000,000 hour(s)		Humidity	5% ~ 95%
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Power   Power Consumption (IDLE)   0.63 watt(s)     Performance   Sequential Read/Write (CrystalDiskMark)   Read: up to 1,700 MB/s Write: up to 1,250 MB/s     Performance   4K Random Read/Write (IOmeter)   Read: up to 200,000 IOPS Write: up to 250,000 IOPS     Mean Time Between Failures (MTBF)   3,000,000 hour(s)		Vibration (Operating)	20 G (peak-to-peak), 7 Hz ~ 2000 Hz (frequency)
Power Consumption (IDLE) 0.63 watt(s)   Sequential Read/Write (CrystalDiskMark) Read: up to 1,700 MB/s Write: up to 1,250 MB/s   4K Random Read/Write (IOmeter) Read: up to 200,000 IOPS Write: up to 250,000 IOPS   Mean Time Between Failures (MTBF) 3,000,000 hour(s)	Power	Power Consumption (Operation)	2.81 watt(s)
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Performance Mean Time Between Failures (MTBF) 3,000,000 hour(s)	Performance	Sequential Read/Write (CrystalDiskMark)	
Mean Time Between Failures (MTBF) 3,000,000 hour(s)		4K Random Read/Write (IOmeter)	
		Mean Time Between Failures (MTBF)	3,000,000 hour(s)
Ierabytes Written (IBW) up to 1,080 IBW		Terabytes Written (TBW)	up to 1,080 TBW
Drive Writes Per Day (DWPD) 2 (3 yrs)		Drive Writes Per Day (DWPD)	2 (3 yrs)
Certificate CE / FCC / BSMI	Warranty	Certificate	CE / FCC / BSMI
Warranty Three-year Limited Warranty		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.