

16Mb Ceramic Space-Grade MRAM

16Mb, 2M x 8; 16Mb, 1M x 16

Preliminary Product Brief



Microcross' ceramic hermetic space-grade MRAM, utilizing Avalanche Technologies spin-torque magneto-resistive random-access memory, offers true random read/write access while being highly resistant to magnetic flux & radiation. These inherent characteristics mitigate the need for radiation shielding, while providing near infinite endurance and best-in-class non-volatile memory data retention.

Key Features

Technology

- 40nm pMTJ STT-MRAM (Perpendicular Magnetic Tunnel Junction)
- Inherently Rad-Hard MRAM technology

Performance

- 16Mb of Spin-Torque Persistent MRAM in a single, small footprint & low-profile package (10mm x 10mm x 1.65mm)
 - Density Organization: 16Mb, 2M x 8; 16Mb, 1M x 16
- Access performance: 45ns min.

Operating & Environmental Specifications

- Quality Flows
 - Space Flows
 - Rad-Hard (RH): 300 krad TID
 - Rad-Tolerant (RT): 100 krad TID
 - Military Flows
 - Rad-Tolerant (RT): 100 krad TID
 - Non-Rad
- Excellent Single Event Effects (SEE) Performance
 - SEU tolerance > 120.7 MeV cm²/mg
 - SEL threshold > 85.4 MeV cm²/mg
- Operating Voltage Range: VCC: 2.70V - 3.60V
- Temperature range: -55°C to +125°C

Benefits

Optimal Design

- Smallest hermetic Rad-Hard MRAM package available
- Spin-Torque Transfer technology MRAM is highly resistant to magnetic flux, mitigating the need for radiation shielding
- Spin-Torque Transfer technology has near infinite endurance and data retention greater than 10 years
- MRAM memory offers the fastest access time of non-volatile memories
- Best power profile of all non-volatile memories
 - Standby current: 3.5uA; Active current: 20mA

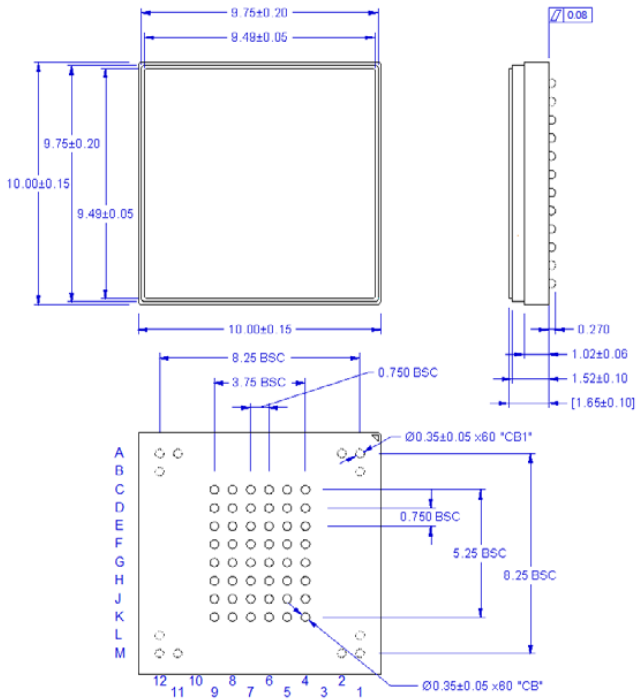
Flexible Package Options

- LGA & BGA ceramic packages available in 48 & 60 pad/solder-ball options provides integration flexibility

Applications

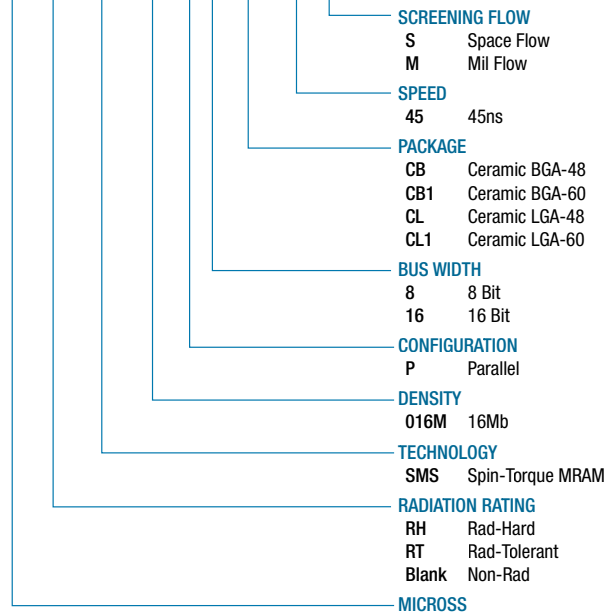
- Space grade processor based systems and FPGA boards
- LEO, MEO, GEO, and HEO space missions
- Satellites
- Launch vehicles
- Space systems and vehicles
- Aerospace systems

Mechanical Outline

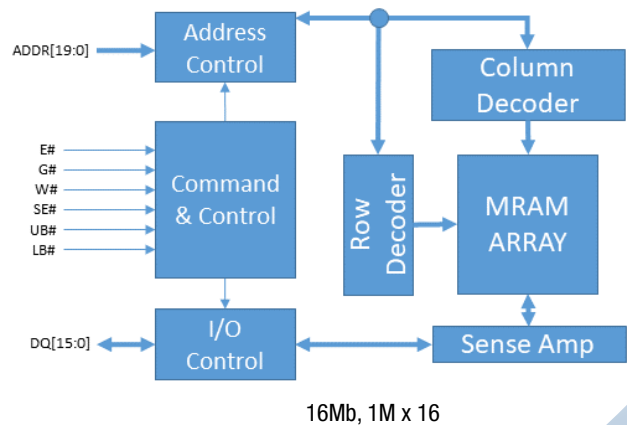
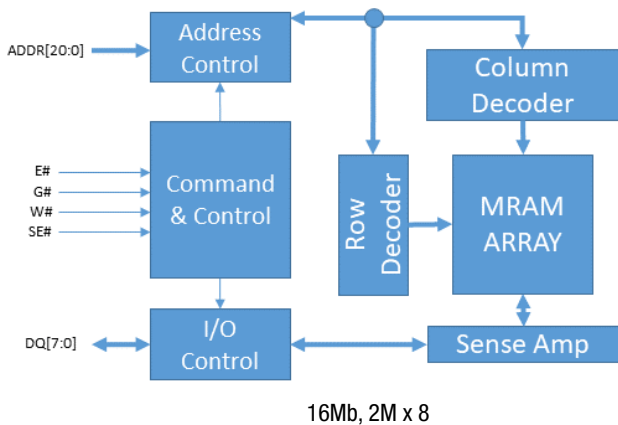


Ordering Information

MYXxxSMSxxxxPxxxxx-xx/x



Block Diagram



About All Tech Electronics

We are an AS9120 & ISO 9001:2015 Certified SDB providing services to the following standards:

- MIL-PRF-38534 & MIL-PRF-38535 For solder coverage
- GEIA-STD-0006 Requirements for robotic solder finish on Electronic Components
- IPC/ANSI J-STD-001 For Trim and Forming and Hot Solder Dip
- IPC/ANSI J-STD-002 For Solderability Test
- ANSI STANDARD EIA-481 For Tape & Reeling
- DLA QSLD certified supplier