

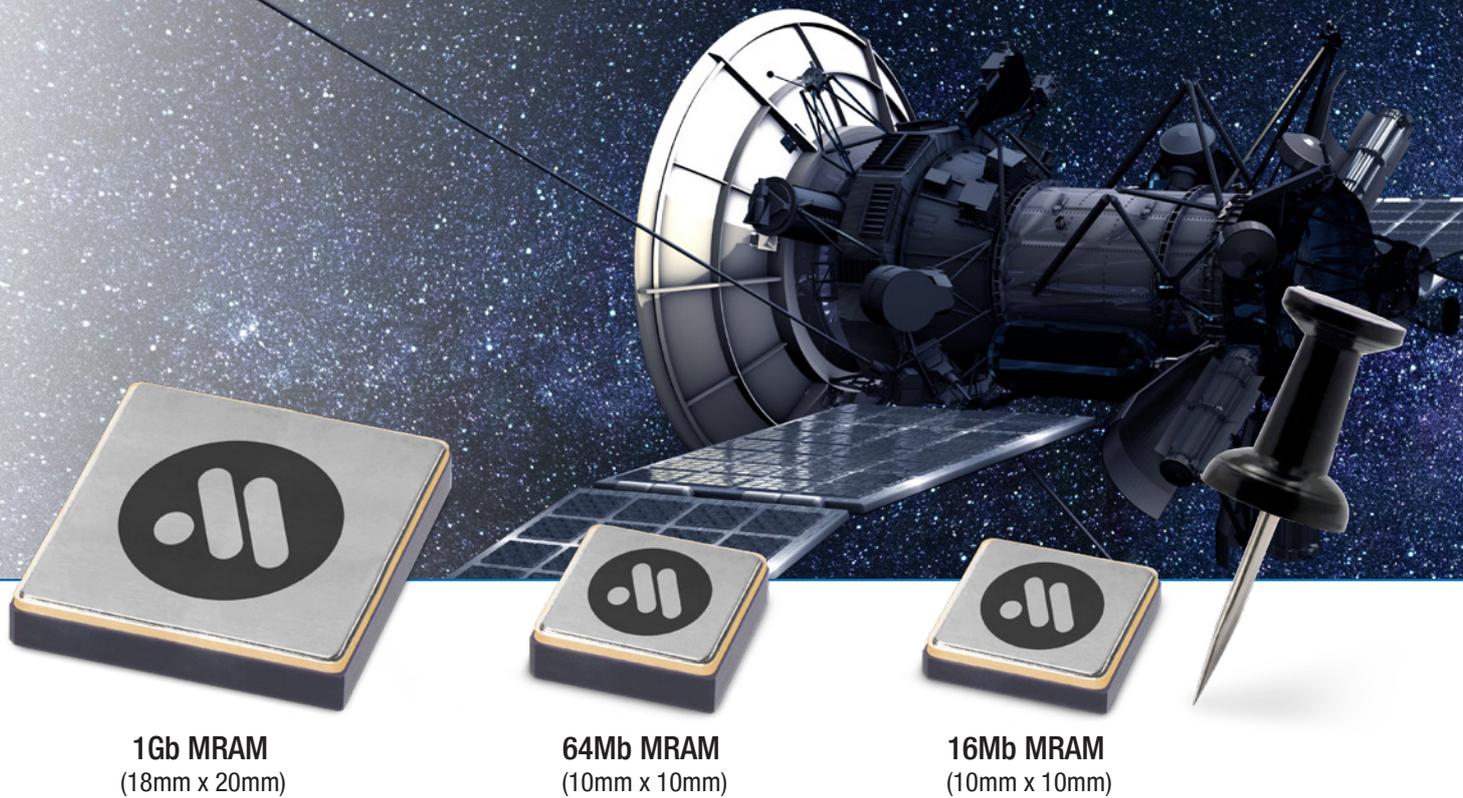


microcross®

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Lowest Power & Most Compact Hi-Rel Non-Volatile Space-Grade Memory

Application Brief



1Gb MRAM
(18mm x 20mm)

64Mb MRAM
(10mm x 10mm)

16Mb MRAM
(10mm x 10mm)

Space-Grade Ceramic MRAM

Key Features

Technology

- Inherently Rad-Hard MRAM technology

Performance

- 16Mb, 64Mb, & 1Gb of Spin-Torque Persistent MRAM available in small footprint & low-profile packages
- 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

Flexible Package Options

- LGA & BGA ceramic packages available

Applications

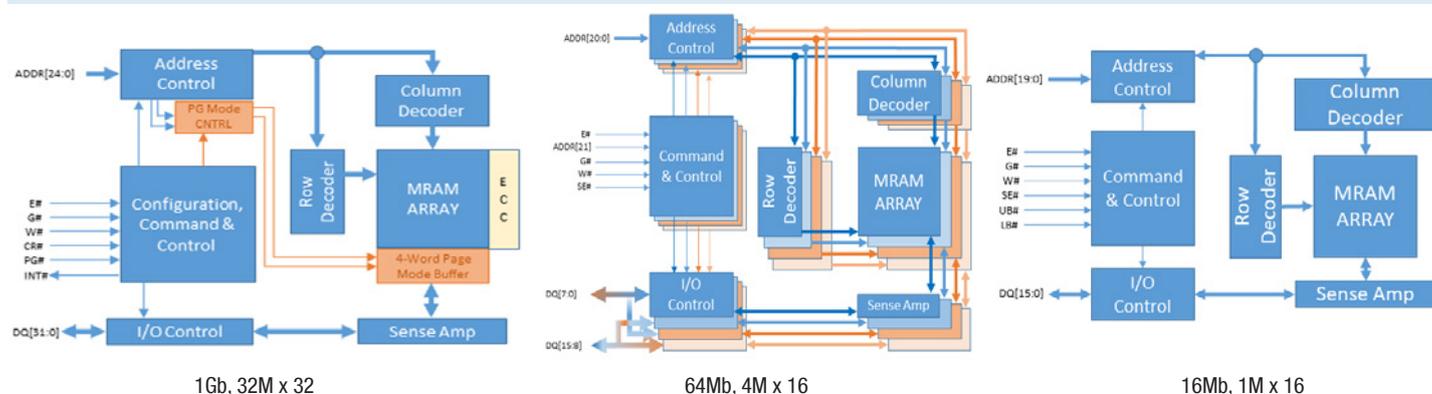
- Space grade processor based systems and FPGA boards
- LEO, MEO, GEO, and HEO space missions
- Satellites
- Launch vehicles
- Space systems and vehicles
- Aerospace systems

Micross offers the Smallest & Lowest Power Hi-Rel Non-Volatile Memory for Space

Micross, a leading global provider of mission-critical microelectronic components and services for high-reliability aerospace, defense, space and industrial applications has entered an exclusive partnership with Avalanche Technology, the leader in next generation MRAM Technology. With this collaboration, Micross is the exclusive supplier of die and hermetically sealed devices utilizing Avalanche's next-gen Spin Transfer Torque Magnetoresistive Random Access Memory (STT-MRAM).

Micross' SWaP optimized hermetic STT-MRAM devices offer inherent protection from harsh environments, magnetic flux and radiation, while providing the most compact and best power profile non-volatile memory. MRAM devices are ideally suited for high-speed non-volatile memory applications, such as program storage and data backup in space and aerospace systems. Micross and Avalanche are addressing the need for more compact and lower power solutions that are optimized for hi-reliability aerospace & space applications, and are introducing a series of memory devices based on this best-in-class technology.

MRAM Block Diagrams



A Selection of Space Programs with Micross Solutions

- Cassini
- NPOESS
- AEHF1-6
- Milstar
- Astrolink
- Gallileo
- Aerion
- SWARM
- Sentinel
- Earthcare
- Metop 2nd Generation
- TerraSAR-X

Qualifications

- ANSI/ESD-S20.20:2014
- AS9100:2016/ISO 9001:2015
- MIL-PRF-38534, Class H
- MIL-PRF-38535, Class Q & V
- MIL-STD-750, Laboratory Suitability
- MIL-STD-883, Laboratory Suitability
- EEE-INST-002

About Micross

Micross... The Most Complete Provider of Advanced Microelectronic Services, and Component, Die & Wafer Solutions. With the broadest authorized access to die & wafer suppliers, and the most comprehensive advanced packaging, assembly, modification and test capabilities, Micross is uniquely positioned to provide unparalleled high-reliability solutions from bare die, to fully packaged devices, to complete program lifecycle sustainment. For more than 40 years, Micross has been a trusted source for the aerospace, defense, space, medical and industrial markets.

For more information, visit: www.micross.com/MRAM



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