

64Mb Ceramic Space-Grade MRAM

64Mb, 4M x 16

Preliminary Product Brief



Micross' 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

- 64Mb of Spin-Torque Persistent MRAM in a single, small footprint & low-profile package (10mm x 10mm x 2.65mm)
 - Density Organization: 64Mb, 4M 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: 14mA; Active current: 40mA

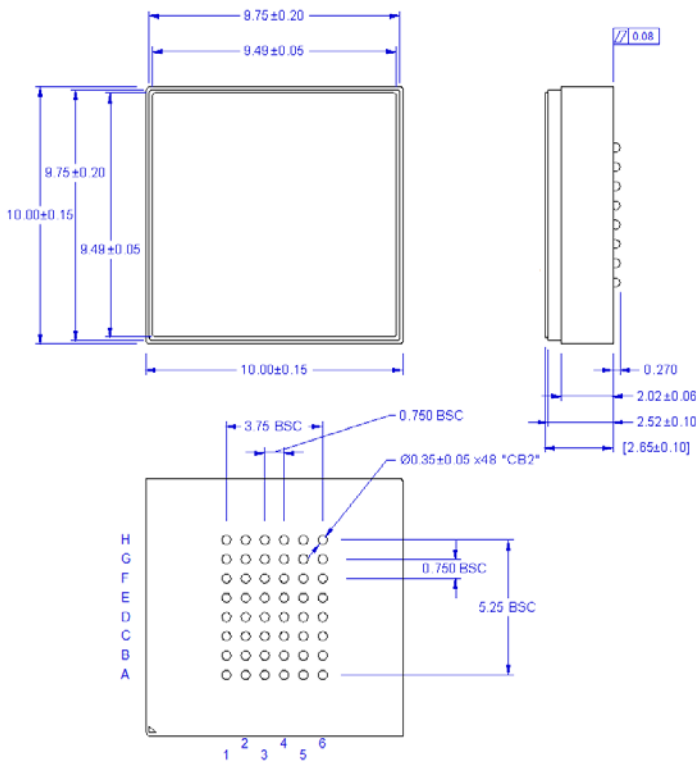
Flexible Package Options

- 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

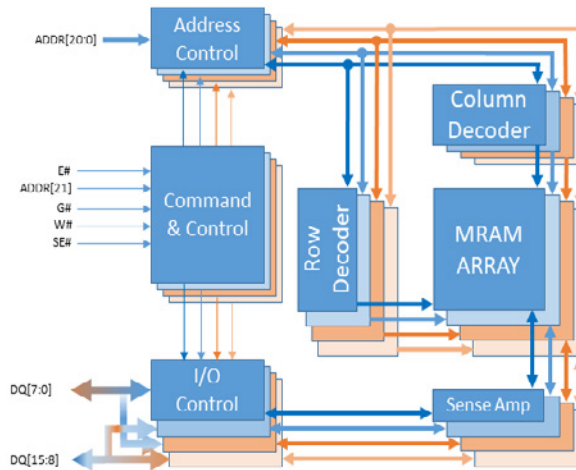


Ordering Information

MYXxxSMSxxxxPxxxxx-xx/x

SCREENING FLOW	
S	Space Flow
M	Mil Flow
SPEED	
45	45ns
PACKAGE	
CB	Ceramic BGA-48
CB1	Ceramic BGA-60
CL	Ceramic LGA-48
CL1	Ceramic LGA-60
BUS WIDTH	
16	16 Bit
CONFIGURATION	
P	Parallel
DENSITY	
064M	64Mb
TECHNOLOGY	
SMS	Spin-Torque MRAM
RADIATION RATING	
RH	Rad-Hard
RT	Rad-Tolerant
Blank	Non-Rad
MICROSS	

Block Diagram



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.



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