Monolithic 16M radiation-hardened SRAM

High-speed memory product
The monolithic 16 Mb static random access memory is BAE Systems’ next-generation, radiation-hardened memory product for users in the space community.

Description
Capable of withstanding the effects of natural space and an upper radiation-hardened environment, the 16 Mb monolithic SRAM has total-dose tolerance of greater than 1 Mrad and an upset rate of less than 1E-12 upsets per bit-day. Prompt dose levels are >1E9 rad/sec.

Key features
• Read and write access time 13.5 ns typical, 17 ns and 20 ns worst case
• Operating temperature range -55 degrees Celsius to +125 degrees Celsius
• Operating voltage (core) 1.5V
• Operating voltage (I/O) 3.3V
• Standby power < 2 mW typical, < 100 mW worst case
• Operating power < 7.5 mW/MHz typical
• Packaging 86-lead ceramic flatpack
• Asynchronous operation
• Prototype and flight flows
• Latchup-immune
**System definitions**

A:0-20 Address input pins that select a particular 8-bit word within the memory array.

DQ:0-7 Bi-directional data pins that serve as data outputs during a read operation and as data inputs during a write operation.

S Negative chip select at a low level allows normal read or write operation. At a high level, S forces the SRAM to a precharge condition, holds the data output drivers in a high-impedance state, and disables only the data input buffers. If this signal is not used, it must be connected to GND.

W Negative write enable at a low level activates a write operation and holds the data output drivers in a high-impedance state. At a high-level W allows normal read operation.

G Negative output enable at a high level holds the data output drivers in a high-impedance state. At a low level, the data output driver state is defined by S, W, and E. If this signal is not used, it must be connected to GND.

E Chip enable at a high level allows normal operation. At a low level, E forces the SRAM to a precharge condition, holds the data output drivers in a high-impedance state, and disables all the input buffers except the S input buffer. If this signal is not used, it must be connected to VDD.

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**Specifications**

| Monolithic 16 Mb family of products | 16 Mb SRAM single chip die are organized in either a 2M x 8 or 512K x 32 format, packaged in an 86-lead ceramic flatpack |

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