

Radiation-Hardened EEPROMs

Conventional radiation hardened PROMs prohibit code changes after deployment. The ability to reprogram a Northrop Grumman rad-hard EEPROM makes it a superior choice for space missions, allowing more than 10,000 erase/write cycles while in use.

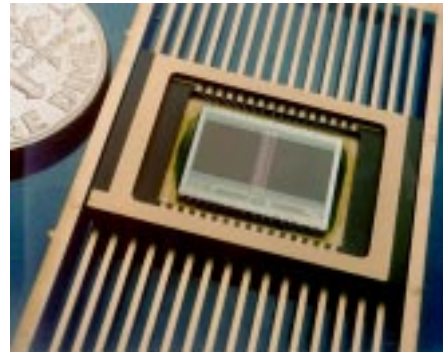
Mission life can be extended by modifying code while in orbit. Critical calibration parameters, not known until after system assembly, can be programmed without removal of the device from the system.

Northrop Grumman offers the only rad-hard EEPROMs with the ability to re-write to memory. Our radiation-hardened W28C64 (8Kx8) and W28C256 (32Kx8) EEPROMs mitigate the effects of total dose radiation and charged particles through technology co-developed by Sandia National Labs. Users have the ability to re-write to memory more than 10,000 cycles with retention of 10 years.

Manufactured in Northrop Grumman's Advanced Technology Center, these devices provide data and logic integrity up to 300 Krad (Si). Transient logic (read/write) is stable up to 5E7 rad (Si)/sec and data is protected up to 1E12 rad (Si)/sec.

In addition, our rad hard EEPROMs are immune to Single Event Upsets up to a Linear Energy Transfer threshold of 60 MeV/mg/cm² during the read cycle, and 35 MeV/mg/cm² in the address/data latches during the write cycle. Charged particles of Krypton or lighter weight will not cause permanent SEU damage during the write cycle.

Quality and reliability of these devices are ensured by processing in Class 100/10 clean rooms and certification to ISO-9001. Northrop Grumman has established a proven track record with thousands of rad-hard EEPROMs delivered to a variety of space and rad hard users.



Rad Hard 256K EEPROM

Supports these commercial features:

- Self-timed programming
- Combined erase/write
- Auto program start
- +5V only read operation
- Asynchronous addressing
- 64-word page

Other features include:

- One micron radiation-hardened CMOS on Epi
- Memory data loss >1E12 rad (Si)/sec
- Address access time <200ns
- No latchup
- Compatible with commercial EEPROMs
- Available in 32-pin flatpack; LCC (JEDEC compatible); and die form
- Full military operating temperature range, screened to specific test methods for commercial, Class B, or modified Hi Rel.

Export of these devices is subject to U.S. Government Regulation.

For more information, please contact:

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