# OFF THE WIRE

## First Ramtron FRAM Memory Device Qualified to Grade 1 Automotive

February 14, 2007 | 12:16 PM

Demanding qualification is testimony to FRAM's reliability under the hood.

Ramtron International Corporation, a leading developer and supplier of nonvolatile ferroelectric random access memory (FRAM) and integrated semiconductor products, today announced its first +125 degrees C FRAM memory device. The FM25C160 – a grade 1- and AEC-Q100-qualified, 16Kb, 5V, serial peripheral interface (SPI) FRAM – is now specified to operate over the entire automotive temperature range of -40 to +125 degrees C. This extended operating temperature range moves FRAM into applications beyond the passenger cab and under the hood.

"The recent qualification of a FRAM component to +125C means FRAM technology is suitable for almost all automotive applications," says Ramtron vice president Mike Alwais. "Areas opened by this milestone include the most stringent automotive environments, such as steering, braking, tire pressure monitoring and certain transmission applications, as well as many others in the cockpit. This benchmark qualification is testimony to FRAM's reliability under the hood."

FRAM's fast writes and very high endurance make it an ideal memory for data collection and storage. As more sensors are designed into the car, more data needs to be collected. FRAM NoDelay writes facilitates the collection of more data a higher frequencies, allowing intelligent automotive applications to act on the timeliest information available. Already a mature technology, FRAM is designed into a multitude of sophisticated automotive electronics systems worldwide, such as smart airbags, event data recorders, adaptive cruise control, infotainment systems, occupant sensors, diagnostics and anti-pinch/trap windows/sunroof, etc. The current grade 1 qualification will enable designers to benefit from FRAM in systems throughout the car.

The FM25C160 is a 16-kilobit nonvolatile RAM with an industry-standard SPI that leverages the high-speed write capability of FRAM technology. A direct hardware replacement for equivalent EEPROMs, yet far superior, the FM25C160 reads and writes at bus speeds up to 20MHz with virtually unlimited endurance (1 trillion writes), 45-year data retention and low power. It operates at 5 volts over the automotive temperature range and is available in a "green" 8-pin SOIC package.