Two Serial Non-Volatile F-RAMs

choice of two-wire or serial peripheral interface

Two serial non-volatile F-RAMs (ferroelectric random-access memories) have been added to Ramtron's V-family. The 256kbit devices are the FM24V02, a two-wire (I²C) interface, and the FM25V02 with SPI (serial peripheral interface). The devices operate at a voltage range of 2 to 3.6V in an industry standard eight-pin SOIC package. Both feature fast access, NoDelay writes, virtually unlimited read/write cycles, and low power consumption, says the company. The devices are drop-in replacements for 256kbit serial flash and serial EEPROMs in industrial-control, metering, medical, military, gaming and computing applications. According to the manufacturer, the introductions support its environmental commitment to provide power-efficient nonvolatile memory while eliminating the need for batteries. The FM24V02 performs write operations at up to the full I²C bus speed of 3.4MHz, while supporting legacy timing for 100 and 400kHz. No write delays are incurred, and the next bus cycle may commence immediately without the need for data polling. It also offers up to 100trillion read/write cycles, which are orders of magnitude higher than EEPROM. The F-RAM consumes lower power during writes than EEPROM since write operations do not require an internally elevated power-supply voltage for write circuits. It operates at 150µA at 100kHz, with 90µA in standby and 5µA during sleep mode. The FM25V02 consumes only 3mA while running at a 40MHz SPI clock rate, 90mA during standby, and 5µA during sleep mode. Typical active power consumption is 38µA/MHz, which is an order of magnitude lower current than similar serial flash or EEPROM products, says the company. A read-only device ID, standard on both serial devices, allows the host to determine the manufacturer, product density, and product revision.

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