

16K-bit Standard FRAM Memory with I²C Bus

MB85RC16

We have added products of 16K-bit memory capacities with a serial communication I²C bus to the lineup of standard FRAM memory products.

Overview

In the past, FUJITSU has provided products that support three types of interfaces (parallel communication and serial communication SPI buses and a serial communication I²C bus) as standard FRAM memory with high-speed writing, high rewrite endurance and low power consumption features. We have now added “MB85RC16” with a serial FRAM Series 16K-bit I²C bus to our lineup as a product that contributes to energy and resource saving and promotes ecological and economical improvements. This product has further expanded our I²C device family.

This product has pins that are compatible with E²PROM, a general external memory with a I²C bus, and it can thus easily replace E²PROM. By utilizing the high rewrite endurance, which is a feature of FRAM, the lifetime of part can be extended longer than that of E²PROM, thereby contributing to resource and cost saving. Furthermore, it is also possible to back up the data in case of momentary outage as it is capable of fast data writing. Major applications that this product is suited to include those that require fast data writing and many rewrites such as log management and data backup in navigation systems, copy machines, measuring instruments and so forth.

Our serial FRAM Series, which is capable of 10 billion rewriting cycles, is optimal for applications such as meters and other equipment in which the successive logging of condition changes and frequent data writing are required. We hope to expand the application of this product in this field.

Product Features

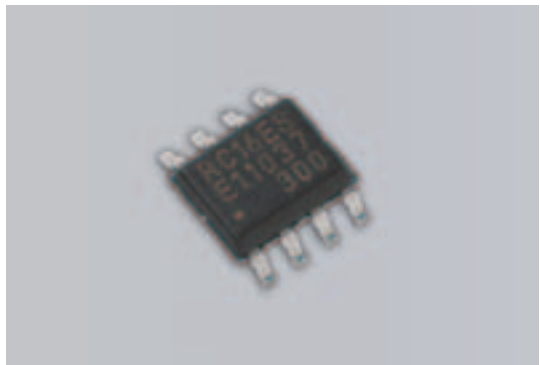
■ FRAM is a nonvolatile memory that combines the advantages of ROM and RAM

The serial communication interface FRAM Series is capable of real-time reading and writing (within the I²C communication rate of 1MHz). The rewrite count of FRAM is 10¹⁰ (10 billion) cycles, 10,000 cycles higher than E²PROM's 10⁶ cycles. It also delivers the advantages of nonvolatile memory by maintaining data even when the power supply is cut off or if there is a momentary outage.

■ Fast rewrite with no writing busy status

Since FRAM is capable of data rewriting and fast writing, writing busy status does not occur as it would in E²PROM or

Photo 1 External View



Flash memory. Data writing is completed immediately after completion of the ACK (Acknowledge) response. Compared to E²PROM, the generation of read/write error can be minimized.

Direct replacing of E²PROM

This Series has a serial communication interface I²C bus and it is pin (package: SOP-8; size: width × length = 3.90mm × 5.05mm) and command compatible with E²PROM. It can replace E²PROM in a simple manner.

Low power consumption

The operating current of this product is 500μA or lower (at 1MHz operation) and the standby current is 1μA or lower. This will contribute to reduced power consumption for devices in which current consumption is important, such as battery-operated mobile devices and portable devices for industrial purposes.

Table 1 presents the product specifications.

Future Developments

FUJITSU will continue to develop products with serial communication interface SPI buses and parallel communication interface as standard FRAM memory in addition to this serial communication interface I²C bus product to improve our lineup of standard memory that are useful to our customers.

Figure 1 presents the lineup of our standard FRAM memory. *

Figure 1 Lineup of Standard FRAM Memory

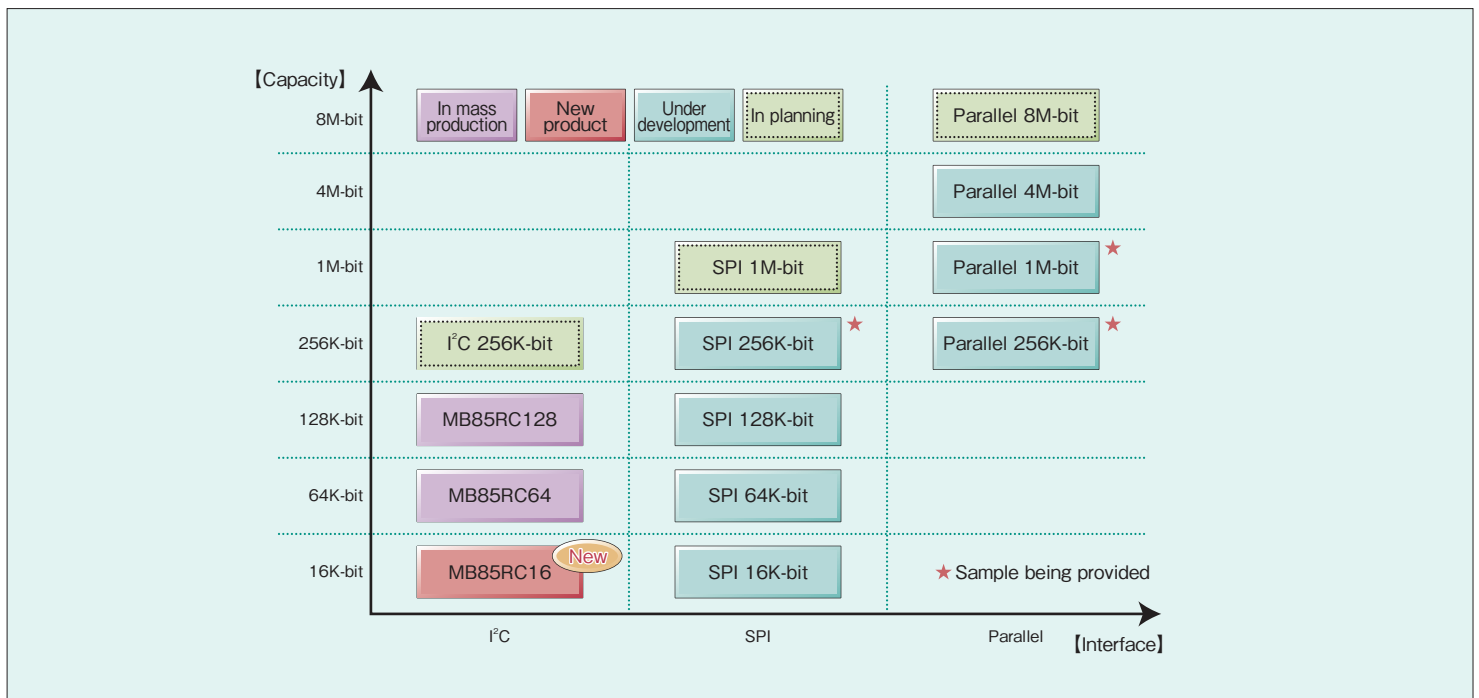


Table 1 Product Specifications

Model	Memory capacity	Power supply voltage	Operating frequency (max.)	Operating temperature range	Endurance	Guaranteed data retention	Package
MB85RC16	16K-bit	2.7 to 3.6V	1MHz	-40 to +85°C	10 billion cycles	10 years	SOP-8