

Differences between Grade 1 Versions of the FM25040A and the FM25040B

Applies to 5V Grade 1 4Kb SPI F-RAM Devices



DESCRIPTION

This document points out the differences between the Grade 1 versions of the FM25040A and the FM25040B devices. The two devices are identical in terms of package/pinout, DC/AC parameters, and read/write functionality. The endurance is improved on the FM25040B-GA. The data retention is different.

DROP-IN REPLACEMENT OR NOT

From a software point of view, the two devices are identical. The two devices are read/write compatible. Both devices use the same one-byte address. From a hardware point of view, the key difference between the two devices is the FM25040B-GA's lower operating current. The summary table below highlights the differences.

COMPATIBILITY CHART

FM25040A-GA Feature or Spec	... is FM25040B-GA compatible?
Packages	Yes
Pinout	Yes
Temperature Range	Yes
Operating Voltage	Yes
Operating Current	Yes
Standby Current	Yes
R/W Function	Yes
Timing/Freq	Yes
Data Retention	No*
Endurance	Yes

* See table on next page.

DETAILED COMPARISON TABLE

Differences are highlighted in yellow.

	<u>FM25040A-GA</u>	<u>FM25040B-GA</u>	<u>Comments</u>
Package Types	SOIC-8	SOIC-8	Same “green” SOIC package
Package Outlines	SOIC-8	SOIC-8	Same outline and board footprint
Pinout	-	-	Same
Temperature Range	-40C to +125C	-40C to +125C	Same
Operating Voltage Range	4.5 to 5.5V	4.5 to 5.5V	Same
Active Supply Current	500µA @ 1MHz 6.0mA @ 14MHz	300µA @ 1MHz 3.0mA @ 14MHz	The 25040B offers lower active current.
Standby Current	10 µA (+85C) 30 µA (+125C)	10 µA (+85C) 30 µA (+125C)	Same
Read/Write Function	-	-	Same one-byte addressing, same op-codes
Clock Freq	14 MHz	14 MHz	Same
AC Timing Parameters	-	-	All spec limits are the same
Data Retention	9000 hrs (+125C) 17 yrs (+55°C)	1000 hrs (+125C) 10000 hrs (+105C) 17 yrs (+55°C)	Nearly the same
Endurance	1E+12	1E+13	The 25040B offers improved endurance

OTHER			
V_{DD} Rise/Fall Time	-	30µs/V, 100µs/V	Added power ramp specs
t_{PU} Power Up Time	-	10 ms	Added first access timing spec