Differences between Grade 1 Versions of the FM25CL64 and the FM25CL64B

Applies to 3V Grade 1 64Kb SPI F-RAM Devices

DESCRIPTION

This document points out the differences between the Grade 1 versions of the FM25CL64 and the FM25CL64B devices. The two devices are identical in terms of package/pinout, DC/AC parameters (except standby current), and read/write functionality. The endurance and data retention specifications are different on the FM25CL64B-GA.

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 two-byte address. From a hardware point of view, the key difference between the two devices is the FM25CL64B-GA's lower operating current. The summary table below highlights the differences.

COMPATIBILITY CHART

FM25CL64-GA Feature or Spec		… is FM25CL64B-GA compatible?
Packages		Yes
Pinout		Yes
Temperature Range		Yes
Operating Voltage		Yes
Operating Current		Yes
Standby Current		No
R/W Function		Yes
Timing/Freq		Yes
Data Retention		No*
Endurance		Yes*

* See table on next page.

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DETAILED COMPARISON TABLE

Differences are highlighted in yellow.

	FM25CL64-GA	FM25CL64B-GA	Comments
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	3.0 to 3.6V	3.0 to 3.6V	Same
Active Supply Current	450µA @ 1MHz 7.0mA @ 14MHz	300µA @ 1MHz 3.0mA @ 14MHz	The 25CL64B offers lower active current.
Standby Current	1 µA (+85C) 15 µA (+125C)	6 µA (+85C) 20 µA (+125C)	The FM25CL64B has higher standby current
Read/Write Function	-	-	Same 2-byte addressing, same op-codes
Clock Freq	16 MHz	16 MHz	Same
AC Timing Parameters	-	-	All spec limits are the same
Data Retention	9000 hrs (+125C) 17 yrs (+55ºC)	1000 hrs (+125C) 10000 hrs (+105C) 17 yrs (+55ºC)	Nearly the same
Endurance	Unlimited	1E+13	The "B" device is virtually unlimited (17 yrs) even for a continuous 64-byte loop at 10MHz.

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