

# Differences between the FM25L16 and the FM25L16B

*Applies to 3V 16Kb SPI F-RAM Devices*



## DESCRIPTION

This document points out the differences between the FM25L16 and FM25L16B devices. The two devices are identical in terms of pinouts and read/write functionality. In terms of speed, both operate up to 20MHz and have the same timing specifications.

## 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 differences between the two devices are the FM25L16B's higher standby current and the DFN packages are different. The summary table below highlights the differences.

## COMPATIBILITY CHART

FM25L16 Feature or Spec	... is FM25L16B compatible?
Packages	Yes (SOIC) No (TDFN)
Pinout	Yes
Temperature Range	Yes
Operating Voltage	Yes
Operating Current	Yes
Standby Current	No
R/W Function	Yes
Timing/Freq	Yes
Data Retention	Yes*
Endurance	Yes*

\* See table on next page.

## DETAILED COMPARISON TABLE

Differences are highlighted in yellow.

	<b>FM25L16</b>	<b>FM25L16B</b>	<b>Comments</b>
<b>Package Types</b>	SOIC8, 3x6 DFN	SOIC8, 4x4.5 DFN	Same "green" SOIC package, different DFN package (4x4.5mm)
<b>Package Outlines</b>	SOIC8, 3x6 DFN	SOIC8, 4x4.5 DFN	Same outlines and board footprints for SOIC, different for DFN.
<b>Pinout</b>	-	-	Same
<b>Temperature Range</b>	-40C to +85C	-40C to +85C	Same
<b>Operating Voltage Range</b>	2.7 to 3.65V	2.7 to 3.65V	Same
<b>Active Supply Current</b>	300 $\mu$ A @ 1MHz 5.5mA @ 20MHz	200 $\mu$ A @ 1MHz 3.0mA @ 20MHz	The 25L16B-G offers lower active current especially at higher freq.
<b>Standby Current</b>	1 $\mu$ A	6 $\mu$ A (max) 3 $\mu$ A (typ)	FM25L16B has higher I <sub>SB</sub> , typical is 3 $\mu$ A.
<b>Read/Write Function</b>	-	-	Same 2-byte addressing, same op-codes
<b>Clock Freq</b>	20 MHz	20 MHz	Same
<b>Data Retention</b>	45 yrs (+85°C)	38 yrs (+75°C)	Nearly the same
<b>Endurance</b>	"Unlimited"	1E+14	FM25L16B-G is virtually unlimited at 20MHz (85 yrs for a 64-byte loop)
<b>OTHER</b>			
<b>V<sub>DD</sub> Rise/Fall Time</b>	-	30 $\mu$ s/V, 100 $\mu$ s/V	Added power ramp specs
<b>t<sub>PU</sub> Power Up Time</b>	-	10 ms	Added first access timing spec