

# Differences between the FM24C16A, FM24C16B, and FM24C16C

*Compares 16Kb 5V I<sup>2</sup>C F-RAM Devices*



## DESCRIPTION

This document points out the differences between the FM24C16A, FM24C16B, and FM24C16C devices. The three devices are identical in terms of pinout, package dimensions and composition, read/write functionality, WP pin operation, and address pin functionality. However, the data retention time is different and additional timing constraints have been added to the “B” and “C” parts.

## DROP-IN REPLACEMENT OR NOT

From a software point of view, the three devices are identical. The summary table below highlights the differences.

## COMPATIBILITY CHART

FM24C16A Feature or Spec	... is FM24C16B compatible?	... is FM24C16C compatible?
Package	Yes	Yes
Pinout	Yes	Yes
Temperature Range	Yes	Yes
Operating Voltage	Yes	Yes
Operating Current	Yes	Yes
Standby Current	Yes	Yes
R/W Function	Yes	Yes
Timing/Freq	Yes	Yes
Data Retention	Yes*	Yes*
Endurance	Yes	Yes

\* See table on next page.

**DETAILED COMPARISON TABLE**

Differences are highlighted in yellow.

	<b><u>FM24C16A</u></b>	<b><u>FM24C16B</u></b>	<b><u>FM24C16C</u></b>	<b><u>Comments</u></b>
<b>Package Types</b>	-	-	-	Same, "green" SOIC package
<b>Package Outlines</b>	SOIC-8	SOIC-8	SOIC-8	Same outline and board footprint
<b>Pinout</b>	-	-	-	Same
<b>Temperature Range</b>	-40C to +85C	-40C to +85C	-40C to +85C	Same
<b>Operating Voltage Range</b>	4.5 to 5.5V	4.5 to 5.5V	4.5 to 5.5V	Same
<b>Active Supply Current</b>	150µA @ 100kHz 1000µA @ 1MHz	100µA @ 100kHz 400µA @ 1MHz	100µA @ 100kHz 400µA @ 1MHz	The "B" and "C" parts offers lower active current at all clock rates.
<b>Standby Current</b>	10µA	10µA	10µA	Same
<b>Read/Write Function</b>	-	-	-	Same 1-byte addressing and same Slave IDs.
<b>Clock Freq</b>	1 MHz	1 MHz	1 MHz	Same
<b>Data Retention *</b>	45 yrs (+85°C)	38 yrs (+75°C)	36 yrs (+75°C)	Similar
<b>Endurance</b>	1E+12	1E+12	1E+12	All devices are virtually unlimited at 1MHz (1700 yrs for a 64-byte loop)

<b>OTHER</b>				
<b>V<sub>DD</sub> Rise/Fall Time</b>	-	30µs/V, 100µs/V	30µs/V, 100µs/V	Added power ramp specs to "B" and "C" parts
<b>t<sub>PU</sub> Power Up Time</b>	-	10 ms	1 ms	Added first access timing spec to "B" and "C" parts
<b>V<sub>IH</sub> (max)</b>	V <sub>DD</sub> +0.5V	V <sub>DD</sub> +0.3V	V <sub>DD</sub> +0.3V	