

Differences in FM1608 and FM1608B

Compares 256Kb F-RAM Devices



DESCRIPTION

There are differences between the 5V FM1608 and FM1608B F-RAM devices.

DROP-IN REPLACEMENT OR NOT

From a software point of view, the two devices are identical. From a hardware point of view, the differences between the two devices include standby current and some timing parameters. The summary table below highlights the differences.

COMPATIBILITY CHART

| FM1608 Feature or Spec | ... is FM1608B compatible? |
|-----------------------------------|---------------------------------------|
| Package | Yes |
| 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.

| | <u>FM1608</u> | <u>FM1608B</u> | <u>Comment</u> |
|------------------------------------|---------------|----------------------------|------------------------------------------------------------------------------------|
| Package Outlines | SOIC-28 | SOIC-28 | Same |
| Pinout | - | - | Same |
| Temp. Range | -40C to +85C | -40C to +85C | Same |
| Operating Voltage Range | 4.5 to 5.5V | 4.5 to 5.5V | Same |
| Active Supply Current (I_{DD}) | 25 mA | 15 mA | Lower operating current at 130ns cycle on 1608B. |
| Standby Current (CMOS) | 1 μ A | 6 μ A | FM1608B has higher I_{SB} currents. |
| Standby Current (TTL) | 0.4 mA | 1.8mA | |
| Input Levels | TTL | TTL | Same |
| Access Time | 70ns | 70ns | Same |
| Precharge Time | 60ns | 60ns | Same |
| Cycle Time | 130ns | 130ns | Same |
| Read/Write Function | - | - | Same number of address pins, same control pins. |
| Address Setup Time (t_{AS}) * | 4 ns | 0 ns | Improved timing on 1608B. |
| Address Hold Time (t_{AH}) * | 10 ns | 15 ns | Slower timing on 1608B, however address is typically held throughout entire cycle. |
| Output Enable Access Time * | 10 ns | 12 ns | Slightly slower on 1608B |
| Data Hold (t_{DH}) * | 5 ns | 0 ns | Improved data hold for writes on 1608B |
| Data Retention * | 45 yrs | 38 yrs | Nearly the same |
| Endurance | 1E+12 | 1E+12 | Same |
| OTHER | | | |
| V_{DD} Rise/Fall Time | - | 30 μ s/V, 30 μ s/V | Added power ramp specs to 1608B |
| t_{PU} Powerup to First Access | 1 μ s | 500 μ s | Longer 1 st access time on 1608B |