

Migrating from FM24V01 to FM24V01A – KBA96039

Question: Is FM24V01A a drop-in replacement for the FM24V01 device? What all are differences between the new (FM24V01A) and the old (FM24V01) parts? How to differentiate between new (FM24V01A) and the old (FM24V01) in firmware?

Answer: The FM24V01A is a new silicon revision of the existing FM24V01 device and is a drop-in replacement for the FM24V01 device. The software can read the device ID to differentiate between FM24V01A and FM24V01. The device ID for the FM24V01A is 004101h and for the FM24V01 is 004100h. Apart from this change, there is no change in firmware required to migrate. However, the two silicon revisions have the following features/parameters differences, which should be evaluated before migrating from the older silicon to the newer silicon.

Features/ Parameters	FM24V01	FM24V01A
Device ID	004100h	004101h
Surface mount lead soldering temperature	260 °C for 10 seconds	260 °C for 3 seconds
Electrostatic discharge voltage (Human Body Model)	3500 V	2000 V
Electrostatic discharge voltage (Charged Device Model)	1250 V	500 V
Standby current (I_{SB} , typical)	80 μ A	90 μ A
Sleep mode current (I_{ZZ} , typical)	4 μ A	5 μ A
Output LOW voltage (for $V_{OL} = 0.2$ V, max)	$I_{OL} = 150$ μ A for $V_{DD} \geq 2.0$ V	Not specified
Output LOW voltage (for $V_{OL} = 0.4$ V, max)	$I_{OL} = 2$ mA for $V_{DD} \geq 2.7$ V	$I_{OL} = 2$ mA for $V_{DD} \geq 2.0$ V
Output LOW voltage (for $V_{OL} = 0.6$ V, max)	Not specified	$I_{OL} = 6$ mA for $V_{DD} \geq 2.0$ V
Thermal resistance (θ_{JA} , junction to ambient)	145 °C/W	146 °C/W
Data in hold ($t_{HD:DAT}$), Max @ 3.4 MHz I^2C	Not specified	70 ns
Input rise time (t_R), Min @ 3.4 MHz I^2C	Not specified	10 ns
Input fall time (t_F), Min @ 3.4 MHz I^2C	Not specified	10 ns
Input fall time (t_F), Min @ 1.0 MHz I^2C	Not specified	20 * ($V_{DD} / 5.5$ V)

ACK output valid time ($t_{VD:ACK}$)	Not specified	Specified, meets NXP I ² C spec
Output fall time from V_{IH} min to V_{IL} max	Not specified	Specified, meets NXP I ² C spec
Power-up V_{DD} (min) to first access (START condition)	250 μ s	1000 μ s