

TECHNICAL NOTE

MICRON®/INTEL® EVEN-SECTORED FLASH COMPATIBILITY

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INTRODUCTION

Micron's even-sectored 16Mb Flash memory device, MT28F016S5, is organized as 32 separately erasable 64KB blocks. It is similar to Intel's 28F016S5, 28F016SA, and 28F008SA devices and can be used in applications that specify these Intel part numbers. However, there are some differences between the Micron and Intel parts that should be noted before identifying Micron as a replacement for these Intel devices.

MICRON MT28F016S5 AND INTEL 28F016S5

Micron's MT28F016S5 and Intel's 28F016S5 have the same pinout and both come in a 40-pin TSOP.

The difference between the command sets of the two devices is:

- Micron's MT28F016S5 supports the 28F016S5 basic command set but does not support extended operations such as set block lock-bit, set master lock-bit, and clear block lock-bits commands.

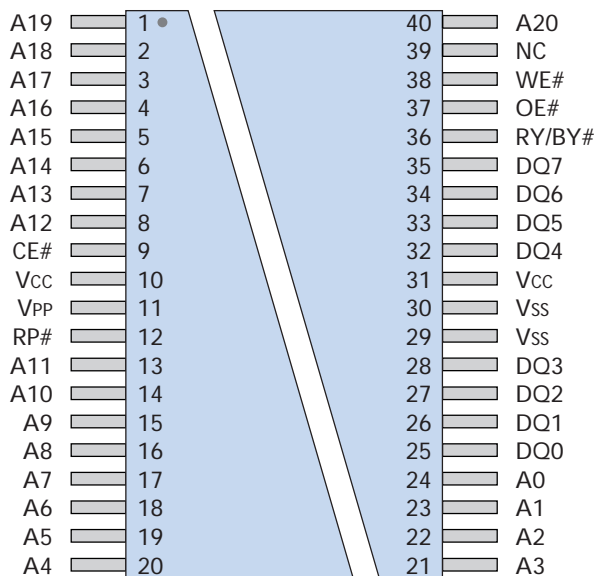


Figure 1
Micron and Intel 28F016S5 Pinout

- Micron's MT28F016S5 only supports the ERASE SUSPEND command; it does not support the WRITE command when in the erase suspend mode or the WRITE SUSPEND command.

Micron's MT28F016S5 is designed primarily for 5V V_{PP} operation. For backward compatibility with SmartVoltage technology, 12V V_{PP} is supported for a maximum of 100 cycles and may be connected for up to 100 cumulative hours.

Micron's MT28F016S5 and Intel's 28F016S5 manufacturer ID = 89h. Micron's device ID = A0h; Intel's device ID = AAh.

MICRON MT28F016S5 AND INTEL 28F016SA

Micron's MT28F016S5 comes in a 40-pin TSOP; Intel's 28F016SA comes in a 56-pin TSOP package. The Micron device can be used in 16Mb even-sectored applications that specify the Intel device, but a board redesign is required.

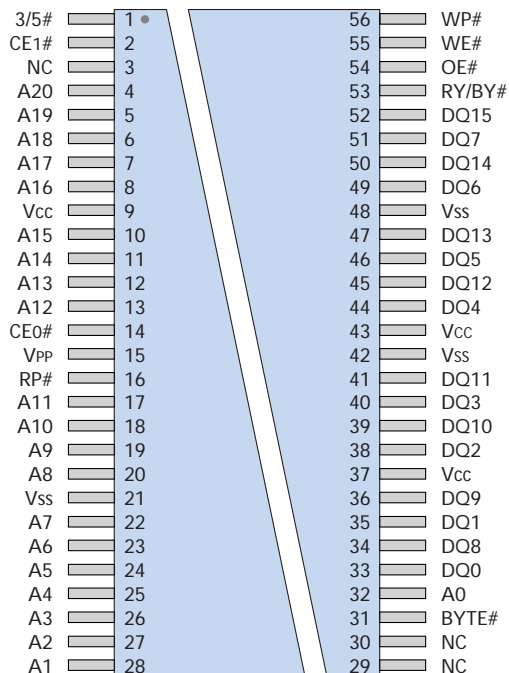


Figure 2
Intel 28F016SA Pinout

The difference between the command sets is:

- Micron's MT28F016S5 supports the 28F008SA basic command subset but does not support the "Performance Enhancement Commands," which include the extended status register commands, page buffer commands, lock commands, extended ready/busy commands, two byte program, up-load, erase unlocked, sleep and abort.

The Intel device supports 3V or 5V operation by changing the state of pin 1, the "3/5#" pin. Micron's MT28F016S5 is an 8-bit device; Intel's 28F016SA can be operated as a x8 or x16 device by changing the state of the BYTE# pin.

For both the Micron and Intel devices, the manufacturer ID = 89h and the device ID = A0h.

MICRON MT28F016S5 AND INTEL 28F008SA

Both devices come in a 40-pin TSOP package.

Micron's MT28F016S5 can be considered a pin-for-pin, drop-in replacement for Intel's 28F008SA with the following caveat: the MT28F016S5 is a 16Mb device, and the 28F008SA is an 8Mb device. Pin 40 on the MT28F016S5 is the additional address line required for 16Mb operation; pin 40 on the 28F008SA is a NC.

Both Micron's MT28F016S5 and the 28F008SA operate at 5V V_{CC}. Both can be programmed and erased with 12V V_{PP}, although Micron's MT28F016S5 is designed primarily for 5V V_{PP}. (The Intel device is 12V only.) This allows the V_{CC} and V_{PP} pins to use a common supply voltage. For backward compatibility with SmartVoltage technology, 12V V_{PP} is supported for a maximum of 100 cycles and may be connected for up to 100 cumulative hours.

Micron's MT28F016S5 and Intel's 28F008SA manufacturer ID = 89h. Micron's device ID = A0h, and Intel's device ID = A2h.

SUMMARY

Micron's MT28F016S5 device is Intel-compatible, with the exceptions outlined above. In all cases, Micron recommends tying V_{PP} to 5V rather than 12V. For a complete description of our 16Mb even-sectored Flash device, please see the latest data sheet, which is available on our Web site at www.micron.com/flash.

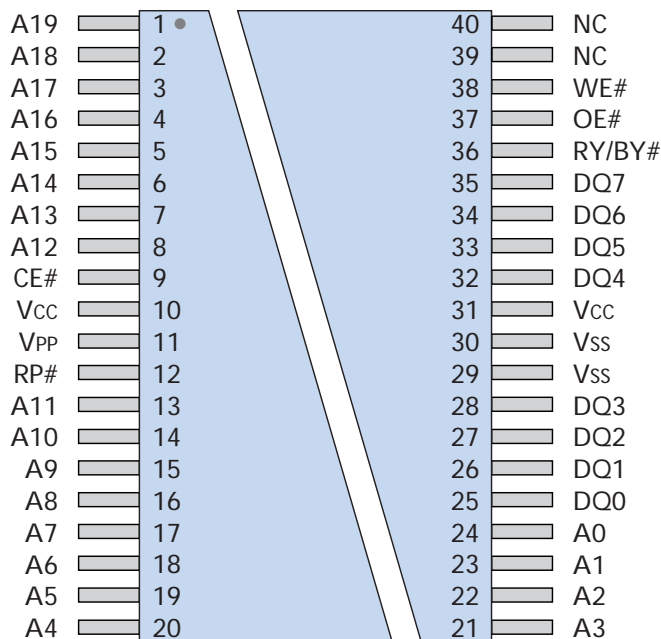


Figure 3
Intel 28F008SA Pinout



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