

## 32-pin TSOP Pinouts

Applies to FM18L08 and FM20L08 Devices



### DESCRIPTION

The FM18L08 (32Kx8) and FM20L08 (128Kx8) devices are offered in the 32-pin TSOP-I package. The package body size is a 8.0 x 13.4 mm and the pin pitch is 0.5 mm. The two devices are not pin compatible with each other, but they are compatible with the industry standard pinouts at their respective densities.

### FRAM PINOUTS DERIVED FROM INDUSTRY STANDARDS

The SRAM market first defined the pinouts for the nvSRAM and bitwise EEPROM and FRAM devices. The 28-pin DIP and SOIC pinouts were standardized many years ago. The pinouts were identical between the DIP and SOIC packages since the same die could be placed in either package. The TSOP Type 1, or TSOP-I, package was then added by many suppliers, 28-pin version (shown by dotted lines). Yet again, the same die (rotated) was placed into the 28-pin TSOP-I package, and therefore the ordering of the pins remained the same.

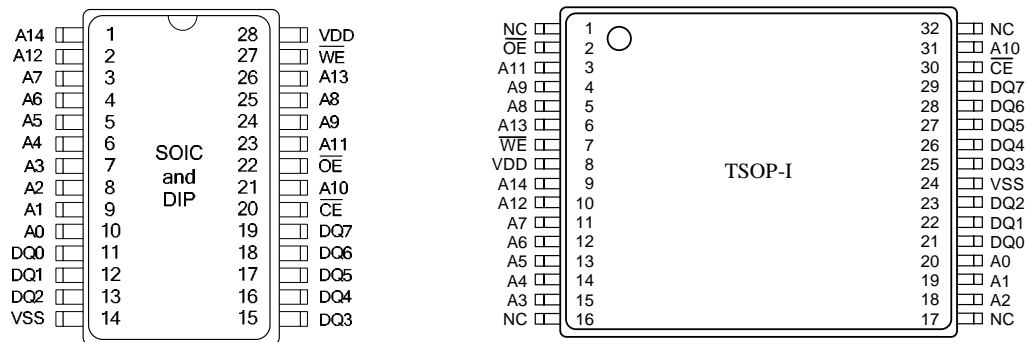


Figure 1. FM18L08 in 28-pin DIP/SOIC and 32-pin TSOP-I

The 32-pin TSOP-I followed since a 32Kx8 is the highest density for 28 leads. The extra pins support 128Kx8, 256Kx8, and 512Kx8 configurations. Unfortunately the industry did not create a backward compatible TSOP32 pinout to the TSOP28 pinout. The pinouts for the SOIC28/TSOP28 and TSOP32 have a different pin rotation. The FM18L08 in 32-pin TSOP is compatible with the TSOP28, and simply adds NC's to the corner pins. Comparing the FM20L08 and FM18L08 pinouts, you will notice that power, ground, data are located on the same pins, but some of the address and control pins are shifted by two pin locations and /OE is moved to pin 32. A board designed for both devices will need 0-ohm jumpers to accommodate these pinout differences.

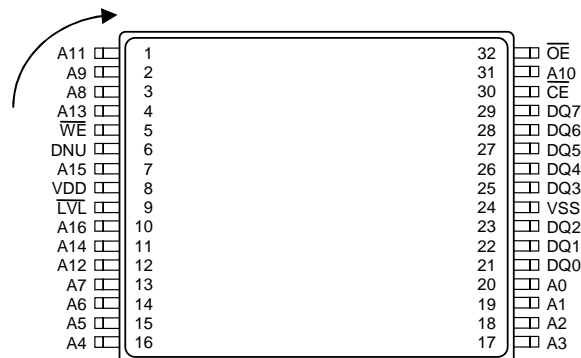


Figure 2. FM20L08 in 32-pin TSOP-I

Shown below are the 32-pin FM18L08 and FM20L08 pinouts with pin numbers and associated pin names. Also shown is the pin numbering for the 28-pin TSOP. The pin names for the 28-pin TSOP exactly match those of the FM18L08.

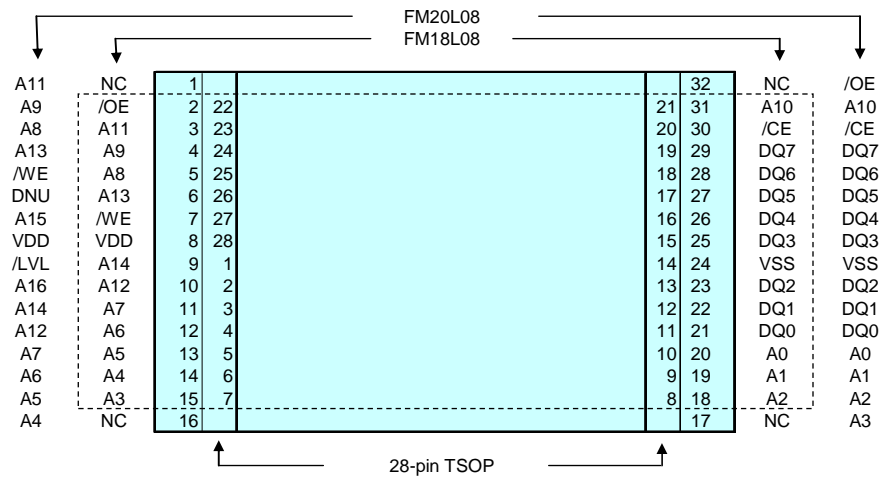


Figure 3. FM18L08 and FM20L08 Pinouts with 28-pin TSOP Standard