

## FEATURES

- 3.3 V Operation
- 10-Bit Resolution
- 2 MHz Sampling Rate
- $DNL = \pm 1$  LSB,  $INL = \pm 2$  LSB
- Internal S/H Function
- $V_{IN}$  DC Range: 0 V to  $V_{DD}$
- $V_{REF}$  DC Range: 1 V to  $V_{DD}$
- Low Power: 25 mW (typ)
- Bipolar Range using RTS & RBS; +1.4 V to -1.4 V
- R1 - R7 Reference Ladder Taps (1/8th - 7/8th points)
- Aperture Delay Sync Signal
- MINV & LINV Digital Output Format Controls
- PHASE Control
- Overflow and Underflow bits
- Dual 3-State Controls ( $\overline{OE1}$  & OE2)
- Three-State Digital Outputs
- Latch-Up Free

## APPLICATIONS

- Digital Color Copiers
- Digital Cellular Telephones
- Precision CCDs and Scanners
- Medical Scanners
- Ultrasonics
- Digital Radio

## BENEFITS

- Simplified Analog Design
- Rugged
- Few External Components, no S/H Needed
- Reduced Board Space

## GENERAL DESCRIPTION

The MP87L82 is a full featured 10-bit, 2 MSPS, Analog-to-Digital Converter for applications which require high speed and high accuracy and operate at 3.3 V. Designed using an advanced CMOS process, this part offers excellent performance, low power consumption and latch-up free operation.

The MP87L82 uses a subranging architecture to maintain low power consumption at high conversion rates. Our proprietary comparator design achieves a low analog input capacitance. The input circuitry of the MP87L82 includes a S/H function and internal resistors that allow this part to digitize analog input signals between  $V_{RB}$  to

$V_{RT}$  using a single supply.  
(Unipolar and Bipolar Conversion capability)

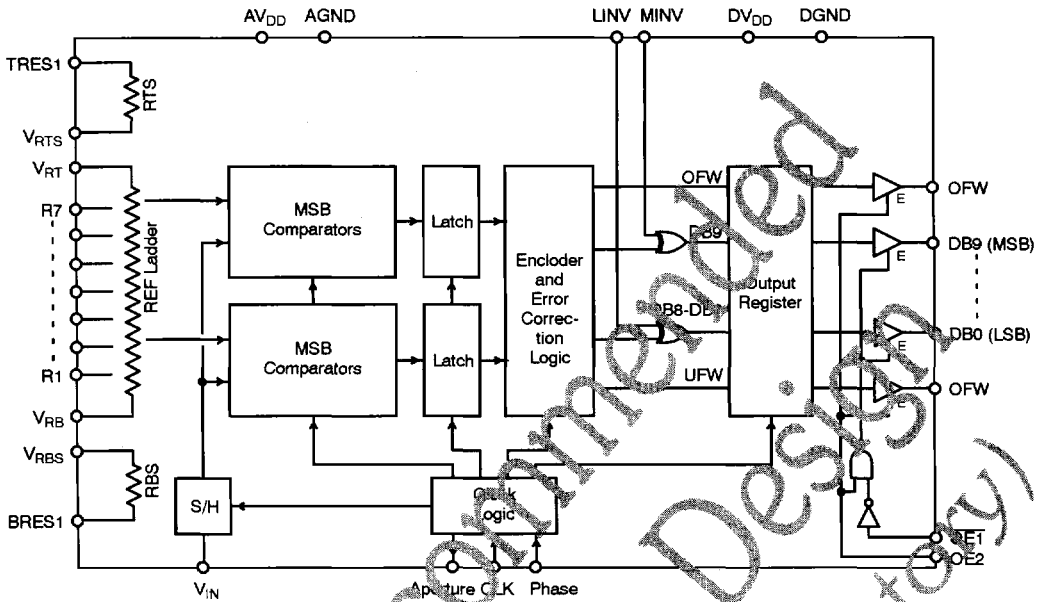
The designer can choose the internally generated reference voltages, or provide external reference voltages to the  $V_{RB}$  and  $V_{RT}$  pins. The internal reference generates 0.6 V at  $V_{RB}$  and 2.4 V at  $V_{RT}$ . Providing external reference voltages allows easy interface to any input signal range between AGND and  $AV_{DD}$ . This also allows the system to cancel zero scale and full scale errors. The Reference Ladder taps (R1 to R7) can be used to externally trim any INL errors, or to shape the A/D converter transfer function.

This device operates from a single 3.3 V supply  $\pm 10\%$ .

## ORDERING INFORMATION

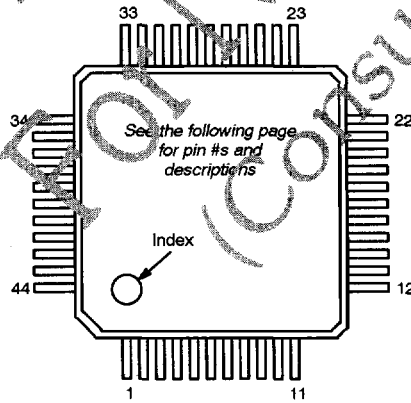
Package Type	Temperature Range	Part No.	DNL (LSB)	INL (LSB)
PQFP	-40 to +85°C	MP87L82AE	$\pm 1$	2

## SIMPLIFIED BLOCK DIAGRAM



## PIN CONFIGURATIONS

See Packaging Section for  
Package Dimensions



44 Pin PQFP (14 mm x 14 mm)