



MP76L90

Low Voltage CMOS, Programmable Input Range 8-Bit
High-Speed Analog-to-Digital Converter

FEATURES

- Sampling Rates from 1 kHz to 5 MHz
- Interface to any Input Range between GND and V_{DD}
- Input Op Amp Not Required
- Monotonic; No Missing Codes
- Single Power Supply (3.3 V)
- Low Power CMOS (45 mW)
- ESD Protection: 4000 Volts Minimum
- Latch-Up Free

BENEFITS

- Reduced Board Space (small package)
- Excellent Accuracy Without High System Power
- Reduced External Parts, No Sample/Hold Needed
- Designer Can Adapt Input Range and Scaling

GENERAL DESCRIPTION

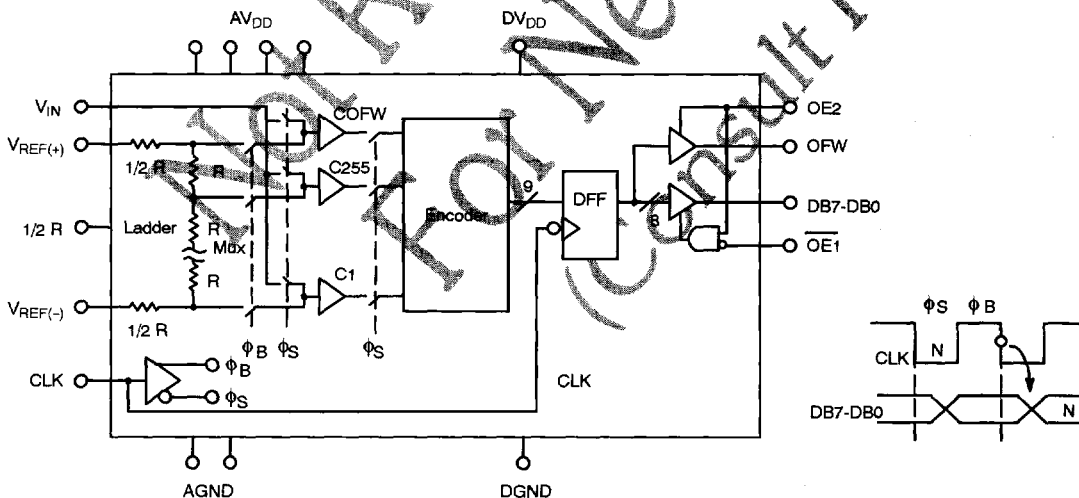
The MP76L90 is an 8-bit CMOS single step high speed Analog-to-Digital Converter designed for precision applications in video and data acquisition requiring conversion rates to 5 MHz with differential linearity error less than 1/2 LSB and low power consumption. The input architecture of the MP76L90 allows direct interface to any analog input range between AGND and AV_{DD} (50 mV to

AV_{DD}). The user simply sets $V_{REF(+)}$ and $V_{REF(-)}$ to encompass the desired input range.

The MP76L90 includes 256 clocked comparators, encoders, 2-state output buffers, a reference ladder resistor and associated timing circuitry. An overflow bit (or flag) is provided.

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SIMPLIFIED BLOCK AND TIMING DIAGRAM

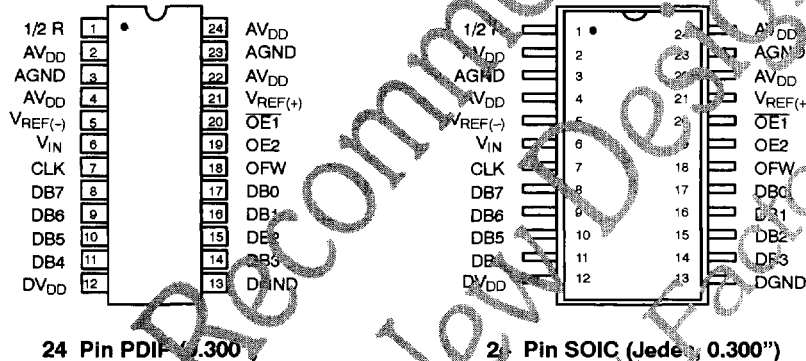


ORDERING INFORMATION

Package Type	Temperature Range	Part No.	DNL (LSB)	INL (LSB)
Plastic Dip	-40 to +85°C	MP76L90AN	±1	
SOIC	-40 to +85°C	MP76L90AS	±1	1

PIN CONFIGURATIONS

See Packaging Section for Package Dimensions



PIN OUT DEFINITIONS

PIN NO.	NAME	DESCRIPTION
1	1/2R	Center of Reference Voltage
2	AV _{DD}	Analog Power Supply Voltage
3	AGND	Analog Ground Return
4	AV _{DD}	Analog Power Supply Voltage
5	V _{REF(-)}	Lower Reference Voltage Input
6	V _{IN}	Analog Input Voltage
7	CLK	Sampling Clock Input
8	DB7	Data Output Bit 7 (MSB)
9	DB6	Data Output Bit 6
10	DB5	Data Output Bit 5
11	DB4	Data Output Bit 4
12	DV _{DD}	Digital Power Supply Voltage

PIN NO.	NAME	DESCRIPTION
13	DGND	Digital Ground Return
14	DB3	Data Output Bit 3
15	DB2	Data Output Bit 2
16	DB1	Data Output Bit 1
17	DB0	Data Output Bit 0 (LSB)
18	OFW	Overflow flag
19	OE2	Output Enable Control Pin
20	OE1	Output Enable Control Pin
21	V _{REF(+)}	Upper Reference Voltage Input
22	AV _{DD}	Analog Power Supply Voltage
23	AGND	Analog Ground Return
24	AV _{DD}	Analog Power Supply Voltage