



4180/4182 10/12-Bit Hybrid A/D Converter With Tri-State Latches

The 4180 and 4182 are 10/12-bit high-speed hybrid A/D converters having latched tri-state outputs. This latched output feature enables the designer to produce accurate and fast computer and microprocessor systems.

These hybrid units are fully self-contained in a 32-pin hermetically-sealed DIP including an internal precision reference and clock circuitry. Each unit is available in three versions as shown in Table 1.

Model	Temperature Range
4180/4182	0°C to +70°C
4180-80/4182-80	-55°C to +125°C
4180-83/4182-83	-55°C to +125°C, processed to MIL-STD-883

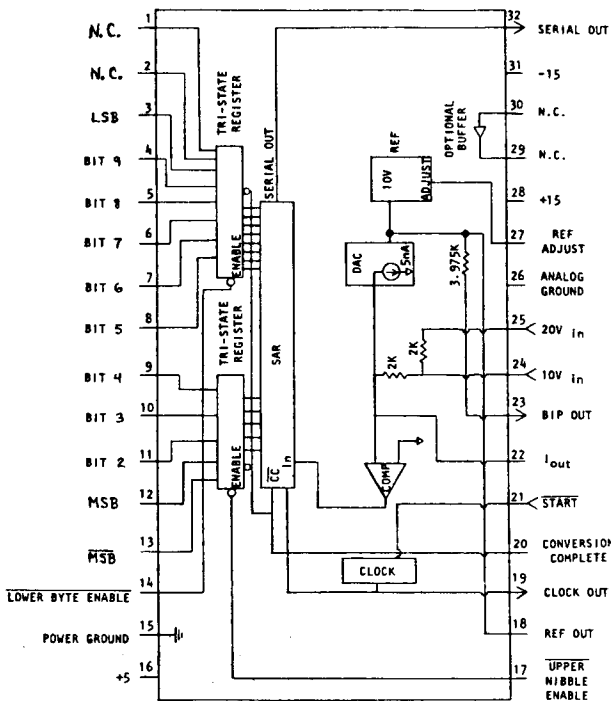
Table 1.

FEATURES

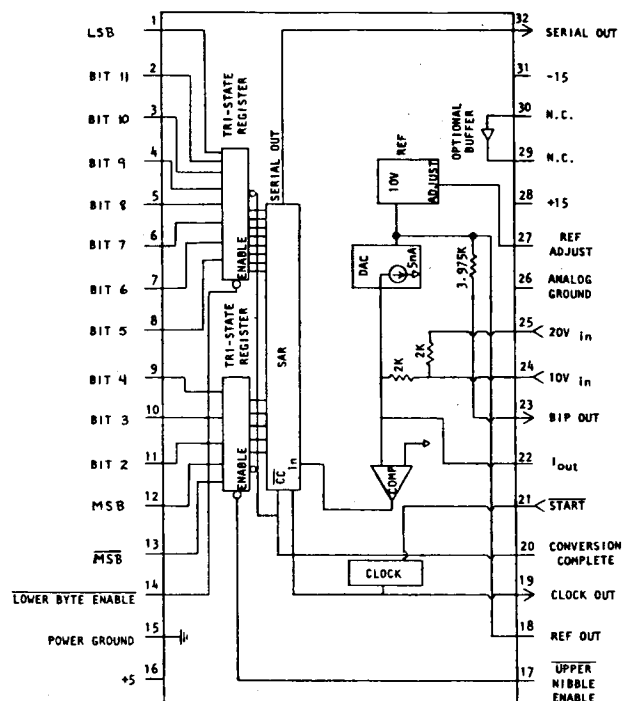
- o Latched Tri-State Outputs
- o Nonlinearity $\pm 1/2$ LSB Max.
- o Guaranteed Monotonicity over Temperature
- o Fast Conversion Time (4 to 6 μ s)
- o Hermetically Sealed 32-Pin DIP
- o Five Input Voltage Ranges

APPLICATIONS

- o Microprocessor Controlled Data Acquisition Systems
- o High Speed/High Accuracy Systems
- o High Reliability Industrial Equipment
- o Medical Instrumentation
- o Military Systems



4180 FUNCTIONAL PINOUT



4182 FUNCTIONAL PINOUT

Figure 1.

SPECIFICATIONS

4180/4182

Specifications are tested at +25°C, ±15 V and +5 V, unless otherwise indicated.

	4180		4182	
	Typ.	Guar.	Typ.	Guar.
RESOLUTION	10 Bits		12 Bits	

INPUTS

Analog Input/Impedance	+5V/2KΩ, +10V/2KΩ, +10V/4KΩ, ±2.5V/1KΩ, +5V/1KΩ		
Power	+15V @ 30mA -15V @ 30mA +5V @ 138mA		
Digital			
Start Convert			
Initiation	"1" to "0"		
Pulse width Min.	50 ns		
Enable Control			
"0" State	Parallel Outputs Enabled		

TRANSFER CHARACTERISTICS

Accuracy			
Nonlinearity Max.	+1/2 LSB		
Differential Nonlinearity Max.	±1/2 LSB		
Monotonicity	Over the operating temp. range		
Zero Offset Error (adj. to zero)			
Unipolar	+0.05%		
Bipolar	±0.1%		
Gain Error (adj. to zero)	±0.1% FS		
Stability			
Gain Error T.C.	+30 PPM/°C		
Offset Error T.C.	±10 PPM/°C		
Dynamic Characteristics			
Conversion Time	4 μs	6 μs	6 μs 8 μs

OUTPUTS

Reference			
Voltage	10 V		
Current	5 mA		
Digital			
Logic Codes			
Parallel, Unipolar	Binary		
Parallel, Bipolar	Offset Binary		
Output Drive	2TTL Loads		
Serial Data, Unipolar	Binary		
, Bipolar	Offset Binary		
Output Drive	4TTL Loads		
Switching Levels, all digital outputs			
"0" State	< 0.4V		
"1" State	> 2.4V		
Status			
"0" State	During Conversion		
Output Drive	4TTL Loads		
Clock Output			
Output Drive	8TTL Loads		
Frequency	Variable = 600 ns to 300 ns		
Logic	Positive TTL		

ENVIRONMENTAL SPECIFICATIONS

Operating Temp. Range 4180/4182	0°C to +70°C
4180-80/83; 4182-80/83	-50°C to +125°C
Storage Temp. Range	-65°C to +150°C

ABSOLUTE MAXIMUM RATINGS

Supply Voltage to Ground	
+15V	+18V
±5V	±7V
Digital Input Voltage	Digital Supply
Analog Input Voltage	Analog Supply

REPRESENTATIVE
TELEPHONE 408-257-8333



Allied Drive at Route 128, Dedham, Massachusetts 02026
Tel: (617)329-1600 TWX:(710)348-6726 Telex: 92-4439

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