Low Cost/High Accuracy 18-Bit D/A/ Converter

DAC1146

FEATURES
Integral Nonlinearity: ±0.00076% FSR max
Differential Nonlinearity: ±0.00076% FSR max
Low Differential Nonlinearity T.C.: ±1 ppm/°C max
Wide Power Supply Operation: ±11.5V to ±16V
Fast Settling: 6μS to ±0.00076% FSR
Small Size 2" x 2" x 0.4"

APPLICATIONS
Automatic Test Equipment
Digital Audio
Sonar
Robotics
Nuclear Instrumentation

GENERAL DESCRIPTION

The DAC1146 is a low cost, 18-bit resolution (1 part in 262,144), digital-to-analog converter that provides high accuracy, high stability and is contained in a 2" x 2" x 0.4" module.

Integral and differential nonlinearity are both guaranteed at ±0.00076% FSR maximum. Additional guaranteed performance features include: differential nonlinearity T.C. ±1ppm/°C maximum, offset T.C. ±30μV/°C maximum, gain T.C. ±12ppm/°C maximum, bipolar offset T.C. ±7ppm/°C maximum.

The DAC1146 makes use of CMOS integrated circuits, thin-film resistor technology and proprietary CMOS current-steering switches to obtain high resolution, high reliability and small size. The calculated MTBF for the DAC1146 is 275,445 hours, per Mil Handbook 217C.

The DAC1146 can operate with power supplies ranging from ±11.5V to ±16.0V. An internal precision reference is provided, an external reference can be used. The external reference voltage input range is -12V to +12V. The analog output ranges include: +5V, +10V, ±5V, ±10V, - 2mA and ±1mA, and are selectable via pin programming (see Figure 1). Digital input coding for unipolar operation is true binary, bipolar input coding is offset binary or 2's complement.

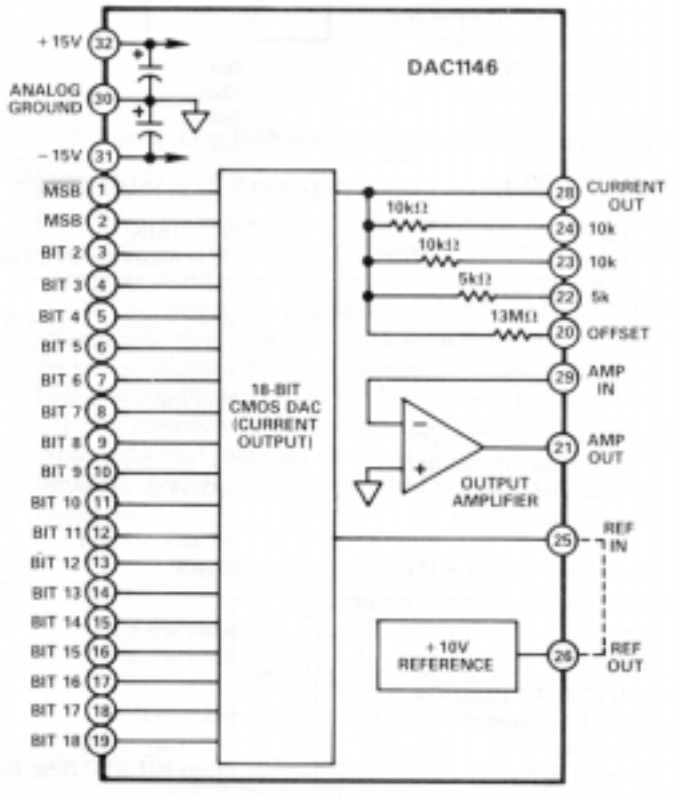

Figure 1. DAC1146 Block Diagram

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