

Monolithic CMOS A/D Converter 8 Bit, 30 Msps

The TMC1175 is a two-step CMOS analog-to-digital converter with an integral track-and-hold amplifier. It converts an analog signal with full-power bandwidths of 7 MHz into an 8-bit data stream at rates up to 30 MegaSamples Per Second (Msps). This conversion rate is sufficient for sampling video signals at 8 times the NTSC, PAL, or SECAM subcarrier frequency.

The TMC1175 comprises an integrated track-and-hold amplifier, two quantizers, a reference voltage generator, and digital encoding logic. The T/H holds the input signal stable while the coarse quantizer estimates the input value. The references of the fine quantizer are then set to bound this initial estimate and the fine quantizer completes the conversion. An on-chip reference source is provided for medium-performance applications; alternatively, an external reference may be used.

The two-step architecture, implemented in TRW's Omicron-C™ 1μCMOS process, results in low 200mW power dissipation. Operation is controlled by a single CONVert signal. All digital inputs and outputs are TTL compatible.

Features

- 8-Bit Resolution
- 30 Msps Conversion Rate
- Internal Track/Hold

- 7 MHz Full Power Bandwidth
- Linearity Error Less Than $\pm 1/2$ LSB
- 0.5° Differential Phase
- 1% Differential Gain
- Single +5V Power Supply
- 200mW Power Dissipation
- Three-State TTL Outputs
- TTL/CMOS Compatible
- Low Cost

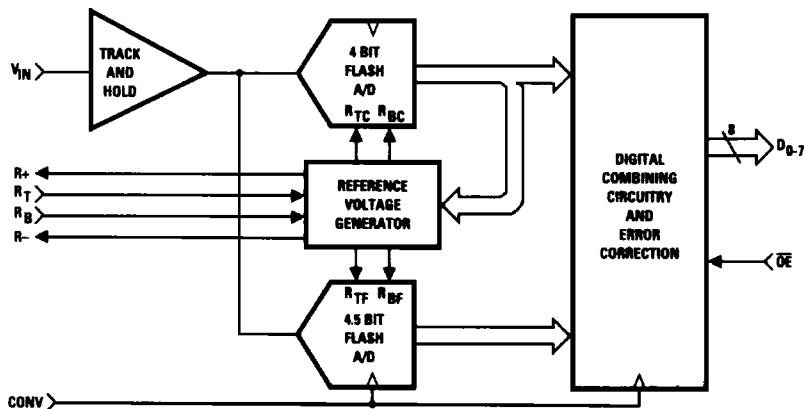
Applications

- Digital Television
- Ultrasound Systems
- High Speed Data Acquisition
- Video Frame Grabbers
- Image Scanners

Associated Products

- TDC1041 D/A Converter
- TDC4614 Reference/Amplifier
- TMC2242 Half-Band Filter

Simplified Block Diagram



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