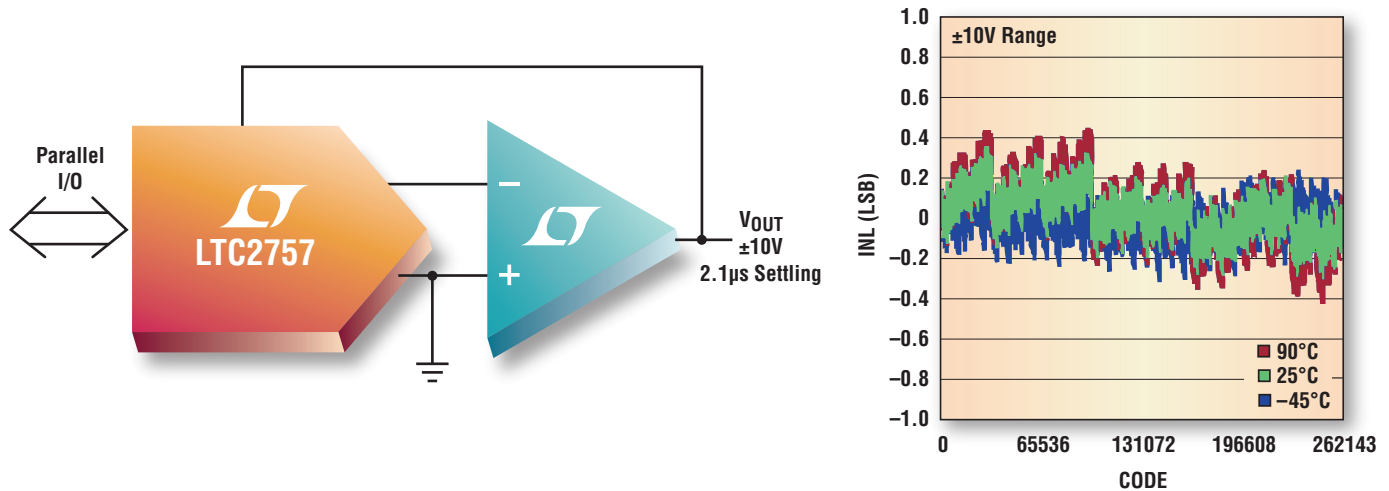


±1LSB 18-Bit DAC



Guaranteed ±1LSB INL & DNL Over Temperature

The LTC[®]2757 is the first monolithic 18-bit DAC to offer precision DC specifications of ±1LSB INL (max) and ±1LSB DNL (max). The LTC2757 provides better than ±4ppm accuracy over four bipolar and two unipolar output ranges for precision adjustment in open loop applications. Excellent temperature drift and power supply rejection simplify system design.

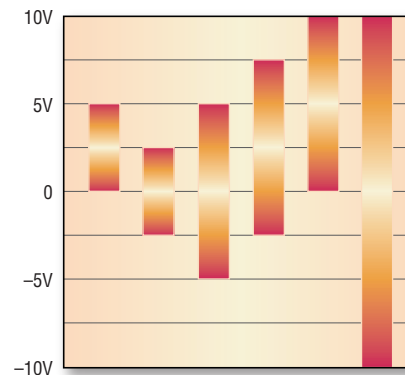
Features

- Program or Pin-Strap Six Output Ranges:
0V to 5V, 0V to 10V, -2.5V to 7.5V, ±2.5V, ±5V, ±10V
- 18-Bit Settling Time: 2.1µs
- Glitch Impulse: 1.4nV•s (3V), 3nV•s (5V)
- Output Noise: 14nV/√Hz with LT[®]1468 Output Amp
- 1MHz Reference Multiplying Bandwidth
- Temperature Drift:
 - ±0.2 LSB INL Drift from -40°C to 85°C
 - ±0.25 ppm/°C Gain Drift
 - ±0.15 ppm/°C Bipolar Zero Drift
- Power Supply Rejection: ±0.8 LSB/V
- Voltage-Controlled Offset and Gain Trims
- Parallel Interface with Readback of All Registers
- Reset to 0V Regardless of Output Range
- 2.7V to 5.5V Single Supply Operation
- Maximum Supply Current: 1µA
- 48-Pin 7mm x 7mm LQFP Package

Applications

- ATE
- Precision Instrumentation
- Galvanometer Scanners
- DAQ Modules
- Calibration Equipment

SoftSpan™ Selectable Output Spans

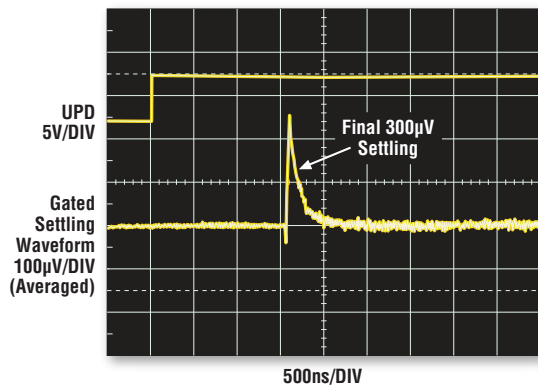
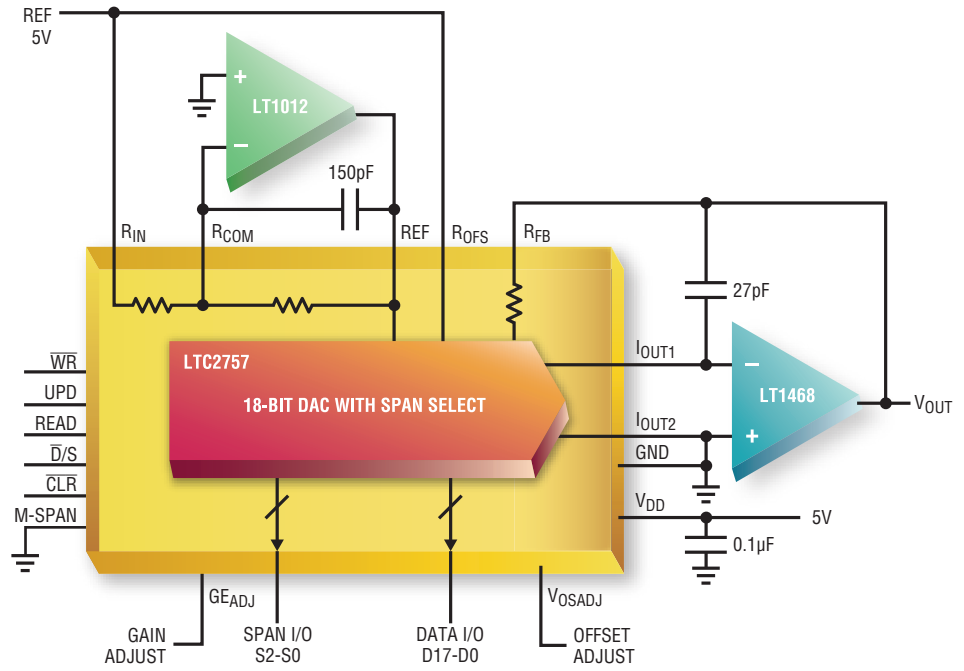


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DAC Architecture

The LTC2757 uses a current output R-2R or 4-quadrant multiplying DAC architecture. This architecture offers many advantages for high precision applications. The reference load impedance is constant and can be driven with an unbuffered reference or a slow low precision op amp with no impact on static or dynamic performance.

Internal feedback and level-shift resistors simplify the output loop design and eliminate the need for external precision resistors. The unbuffered output and selectable voltage range give designers maximum flexibility to choose the best amplifier for their applications.



$t_{SETTLE} = 1.8\mu s$ to 0.0004% (18 Bits)

Fast Settling, Low Noise Output Waveforms

The LTC2757 also offers excellent AC specifications. When combined with an LT1468 amplifier, the DAC output settles from a 10V step to within 1LSB in less than 2.1µs. The glitch impulse at major carry transitions is limited to 1.4nV•s, and the output noise density is 14nV/√Hz. Fast settling and low glitch reduce harmonic distortion, making it possible to produce higher frequency, lower noise output waveforms.

Single/Dual/Quad, I_{OUT} R-2R Multiplying DACs

	Single Serial I/O	Single Parallel I/O	Dual Serial I/O	Dual Parallel I/O	Quad Serial I/O	Quad Parallel I/O
18-Bit	2756	2757	2758			
16-Bit	1592	2751-16	2752	2753-16	2754-16	2755-16
14-Bit	1589	2751-14		2753-14		2755-14
12-Bit	1588	2751-12	1590	2753-12	2754-12	2755-12