

Advance Data CLC945/CLC946

APPLICATIONS:

- Digital cameras
- Optical scanners
- DSP front ends
- Mobile telecommunications
- Data acquisition
- Instrumentation
- Medical imaging

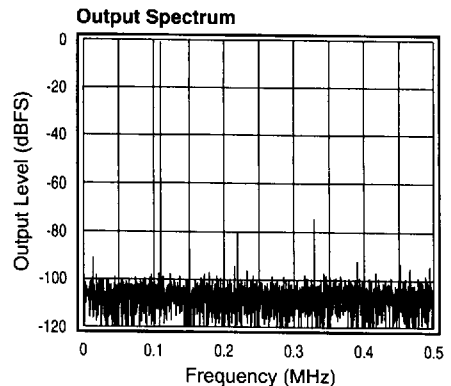
FEATURES:

- Low-power
- SNR of 72dB
- THD of -82dB
- Single +5V power supply
- Internal sample & hold
- Internal 2:1 analog multiplexer
- Low power standby mode

DESCRIPTION

Featuring an internal 2:1 multiplexer, internal sample and hold amplifier and a complete A/D converter, the CLC945 and CLC946 make data acquisition system design easy. The CLC945 is capable of a maximum conversion rate of 1 Mega Sample-per-Second (MSPS) whereas the CLC946 is able to convert signals at rates up to 1.5MSPS. The low power of these parts (75mW for the CLC945 and 200mW for the CLC946) is a feature that will help to extend the battery life in battery powered applications. In addition there is a mode in which the devices may be powered down to dissipate only 250 μ W with a simple digital power down signal. Further enhancing the suitability of these devices for battery powered applications is the fact that they require only one power supply.

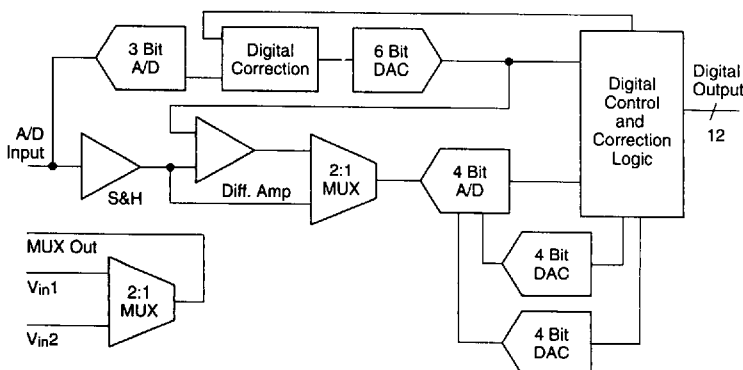
The CLC945 and CLC946 are fabricated in a fine line CMOS technology. The CLC945AJQ, CLC945BJQ and CLC946AJQ are specified over the industrial temperature range of -40°C to +85°C and are packaged in the 44-pin PLCC plastic chip carrier.



Applications Support

Comlinear maintains a staff of applications engineers who are available for design and applications assistance. To make use of this service call (800) 776-0500 or (970) 225-7422.

BLOCK DIAGRAM



CLC945/CLC946 Electrical Characteristics ($V_{CC} = +5V$, $V_{REF+} = 4.096V$, $F_{IN} = 100KHz$, $F_S = 1MSPS$, $V_{REF-} = 0V$)

| PARAMETERS | CONDITIONS | TYP | GUARANTEED MIN/MAX | | UNITS | NOTES |
|--|-----------------------|---------------|--------------------|-------------|----------|-------|
| Ambient Temperature | CLC945/CLC946 | +25°C | +25°C | -40 to 85°C | | |
| DYNAMIC CHARACTERISTICS | | | | | | |
| overvoltage recovery time | | | | | ns | |
| effective aperture delay | | 20 | | | ns | |
| DISTORTION AND NOISE RESPONSE | | | | | | |
| SINAD | CLC945/CLC946 | 71/70 | | | dB | |
| intermodulation distortion | | 80 | | | dB | |
| total harmonic distortion | CLC945/CLC946 | 82/80 | | | dB | |
| DC ACCURACY AND PERFORMANCE | | | | | | |
| differential non-linearity | | 0.4 | | | LSB | |
| integral non-linearity | CLC945 | 0.4 | | | LSB | |
| | CLC946 | 0.4 | | | LSB | |
| missing codes | | 0 | | | Codes | |
| gain error | CLC945 | 0.2 | | | LSB | |
| | CLC946 | 0.3 | | | LSB | |
| power supply sensitivity | CLC945/CLC946 | | | 0.75/1.0 | LSB | |
| VOLTAGE REFERENCE CHARACTERISTICS | | | | | | |
| reference resistance | | 750 | | | Ω | |
| reference input range | | 0- V_{CC} | | | | |
| ANALOG INPUT CHARACTERISTICS | | | | | | |
| input range | | GND- V_{CC} | | | | |
| input leakage | | 0.1 | | | μA | |
| MUX on channel leakage | | 0.1 | | | μA | |
| MUX off channel leakage | | 0.1 | | | μA | |
| MUX input capacitance | | 7 | | | pF | |
| MUX off isolation | | 92 | | | dB | |
| analog input capacitance | | 25 | | | pF | |
| DIGITAL INPUTS | | | | | | |
| input voltage, logic low | | | | 0.8 | V | |
| input voltage, logic high | | | | 2.0 | V | |
| input current, logic low | | 0.1 | | 1.0 | μA | |
| input current, logic high | | 0.1 | | | μA | |
| digital input capacitance | | 4 | | | pF | |
| DIGITAL OUTPUT | | | | | | |
| output voltage, logic low | | | | 0.4 | V | |
| output voltage, logic high | $I_{out} = -100\mu A$ | | | 4.25 | V | |
| output voltage, logic low | $I_{out} = -360\mu A$ | | | 2.4 | μA | |
| TRI-STATE* output leakage current | | 0.1 | | | μA | |
| TRI-STATE* output capacitance | | 5 | | | pF | |
| TIMING | | | | | | |
| maximum conversion rate | CLC945/CLC946 | 1.0/1.5 | | | MSPS | |
| conversion time | CLC945/CLC946 | 740/580 | | | ns | |
| S/H pulse width maximum | CLC945/CLC946 | 550/400 | | | ns | |
| S/H pulse width minimum | | 5 | | | ns | |
| S/H to EOC low | CLC945/CLC946 | 95/90 | | | ns | |
| access time | | 10 | | | ns | |
| TRI-STATE* control time | | 25 | | | ns | |
| delay from RD low to INT high | | 35 | | | ns | |
| EOC high to data valid | | 5 | | | ns | |
| MUX address setup time | | | | 50 | ns | |
| MUX address hold time | | | | 50 | ns | |
| CS setup time | | | | 20 | ns | |
| CS hold time | | | | 20 | ns | |
| wakeup time | | 1 | | | μs | |
| data hold time | | | | | | |
| POWER REQUIREMENTS | | | | | | |
| supply current | CLC945 | 12 | | | mA | |
| | CLC946 | 34 | | | mA | |

Comlinear reserves the right to change specifications without notice.