Single-Supply, High-Speed, Precision LOGARITHMIC AMPLIFIER

FEATURES

- EASY-TO-USE COMPLETE FUNCTION
- TWO OUTPUT, WIDE BW SCALING AMPLIFIERS
- WIDE INPUT DYNAMIC RANGE: 8 Decades, 100pA to 10mA
- 2.5V REFERENCE
- EXCELLENT GAIN STABILITY OVER TEMPERATURE
- LOW QUIESCENT CURRENT: 10mA
- DUAL OR SINGLE SUPPLY: ±5V, +5V
- PACKAGE: Small QFN-16 (4mm x 4mm)
- SPECIFIED TEMPERATURE RANGE: −5°C to +75°C

APPLICATIONS

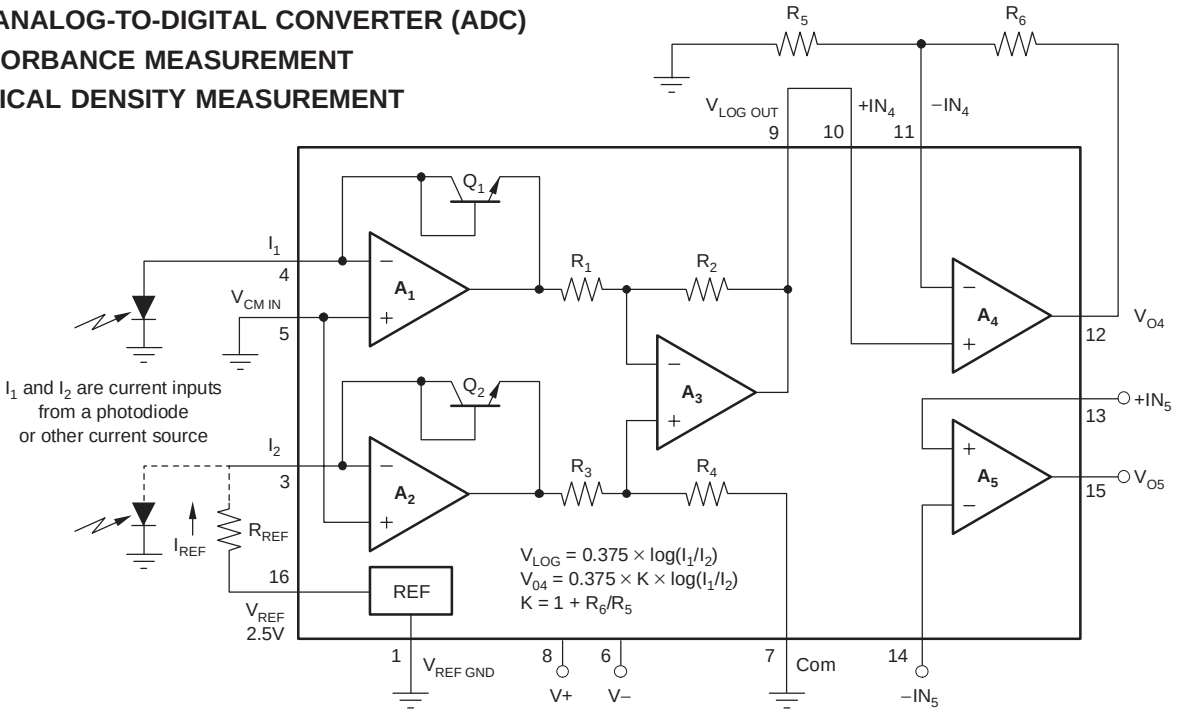
- LOG, LOG-RATIO FUNCTION FOR TEST, GENERAL INSTRUMENTATION
- PHOTODIODE SIGNAL COMPRESSION AMP
- ANALOG SIGNAL COMPRESSION IN FRONT OF ANALOG-TO-DIGITAL CONVERTER (ADC)
- ABSORBANCE MEASUREMENT
- OPTICAL DENSITY MEASUREMENT

DESCRIPTION

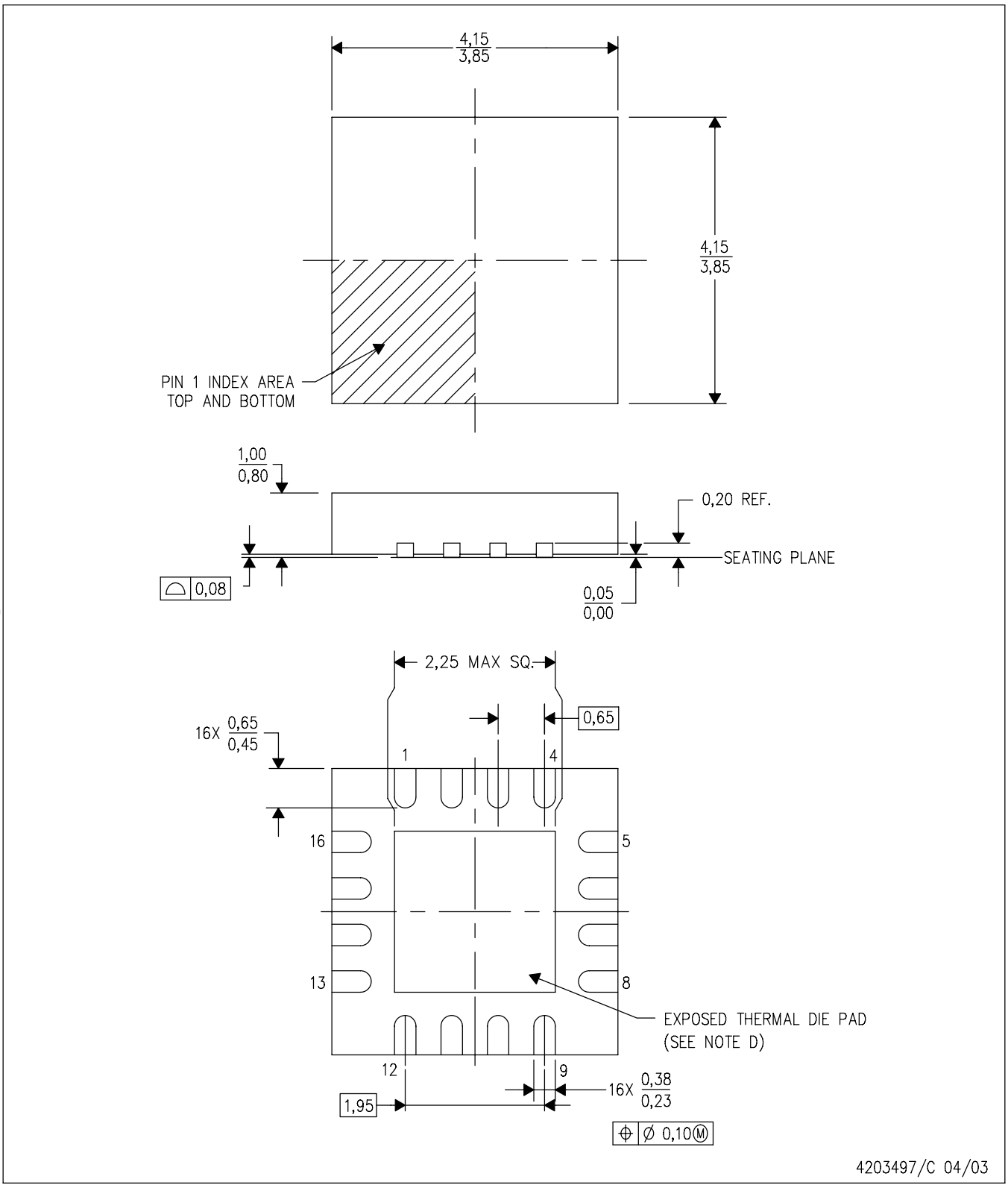
The LOG114 computes the logarithm or log-ratio of an input current or voltage relative to a reference current or voltage.

High precision is ensured over a wide dynamic range of input signals on either bipolar or single supply. Special temperature drift compensation circuitry is included on-chip. In log-ratio applications, a signal current can come from a photodiode, and a reference current from a resistor in series with a precision internal voltage refernce.

The output signal at V_{LOGOUT} is trimmed to 0.375V out per decade of input current. If more range is needed, the supply voltage can be increased on the LOG114 and the output can be scaled with one of the available additional amplifiers, if desired. Low dc offset voltage and temperature drift allow accurate measurement of low-level signals over a wide environmental temperature range. The LOG114 is specified over a −5°C to +75°C temperature range.



RGV (S–PQFP–N16) PLASTIC QUAD FLATPACK



NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Quad Flatpack, No–leads (QFN) package configuration.
D. The package thermal performance may be enhanced by bonding the thermal die pad to an external thermal plane.
E. Falls within JEDEC MO–220.

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