CHANGE NOTIFICATION

Linear Technology Corporation
1630 McCarthy Blvd., Milpitas, CA 95035-7417
(408) 432-1900

August 26, 2016

Dear Sir/Madam:

PCN#082616

Subject: Notification of Change to LTC6363 Die and Datasheet

Please be advised that Linear Technology Corporation has made improvements to the shutdown circuit of the LTC6363. The new die version no longer requires a bypass capacitor or other board circuitry to ensure proper operation, so the Applications Information of page 11 of the datasheet has been updated (see attached). Circuitry used for the previous die revision will continue to work, but is now optional for the new revision. This new revision silicon will ship with an approximate date code of 1701. The data sheet specifications are unaffected by these changes.

Should you have any further questions, please feel free to contact me at 408-432-1900 ext. 2374, or by e-mail at djani@linear.com. If I do not hear from you by before October 11, 2016, we will consider this change to be approved by your company.

Sincerely,

Daksha Jani
Quality Assurance Engineer

OLD

APPLICATIONS INFORMATION

Functional Description

The LTC6363 is a fully-differential, low power, low-noise, precision amplifier. The amplifier is optimized to convert a fully differential or single-ended signal to a low impedance, balanced differential output suitable for driving high performance, low power differential ΣΔ or SAR ADCs. The balanced differential nature of the amplifier also provides even-order harmonic distortion cancellation, and low susceptibility to common mode noise (e.g. power supply noise).

The outputs of the LTC6363 are capable of swinging rail-to-rail and can source up to 90mA or sink up to 40mA of current. The LTC6363 is optimized for high bandwidth and low power applications. Load capacitances above 50pF to ground or 25pF differentially should be decoupled with 10Ω to 50Ω of series resistance from each output to prevent oscillation or ringing.

$\overline{\text{SHDN}}$ Pin

The LTC6363 has a $\overline{\text{SHDN}}$ pin which, when tied to V^- or driven to below $(V^+ + V^-)/2 + 0.4V$, will shut down amplifier operation such that only 20µA (at $V_S = 3V$) to 70µA (at $V_S = 10V$) is drawn from the supplies. Pull-down circuitry should be capable of sinking at least 12µA to guarantee complete shutdown over all conditions. For normal amplifier operation, the $\overline{\text{SHDN}}$ pin should be either:

a) Bypassed with a 0.1uF capacitor to ground

b) Driven to $(V^+ + V^-)/2 + 1.2V$ after supply voltages have been established for 30ms or longer.

This will ensure that the LTC6363 will power up in normal operation under any operating condition of temperature and supply voltage and will additionally prevent noise pickup and supply rail transients from inadvertently shutting down the amplifier. Do not tie the $\overline{\text{SHDN}}$ pin directly to the positive supply (V^+).

General Amplifier Applications

In Figure 1, the gain to $V_{OUTDIFF}$ from V_{INP} and V_{INM} is given by:

$$V_{OUTDIFF} = V_{+OUT} - V_{-OUT} \approx \left(\frac{R_F}{R_I}\right) \bullet (V_{INP} - V_{INM})$$

Note from the previous equation, the differential output voltage ($V_{+OUT} - V_{-OUT}$) is independent of input and output common mode voltages, or the voltage at the common mode pin. This makes the LTC6363 ideally suited for pre-amplification, level shifting and conversion of single-ended signals to differential output signals for driving differential input ADCs.

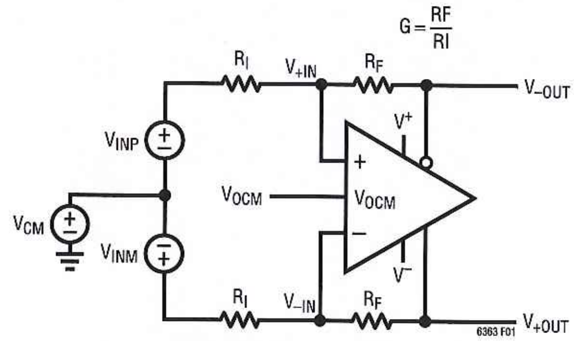

Figure 1. Definitions and Terminology

Output Common Mode and V_{OCM} Pin

The output common mode voltage is defined as the average of the two outputs:

$$V_{OUTCM} = \left(\frac{V_{+OUT} + V_{-OUT}}{2}\right) = V_{OCM}$$

As the equation shows, the output common mode voltage is independent of the input common mode voltage, and is instead determined by the voltage on the V_{OCM} pin, by means of an internal common mode feedback loop.

If the V_{OCM} pin is left open, an internal resistor divider develops a default voltage of approximately halfway between V^+ and V^-. The V_{OCM} pin can be overdriven to another voltage if desired for greater accuracy or flexibility. For example, when driving an ADC, if the ADC makes a reference available for setting the common mode voltage, it can be directly tied to the V_{OCM} pin, as long as the ADC is capable of driving the 1.8M input resistance presented by the V_{OCM} pin. The Electrical Characteristics table specifies the valid range that can be applied to the V_{OCM} pin (V_{OUTCMR}).

NEW

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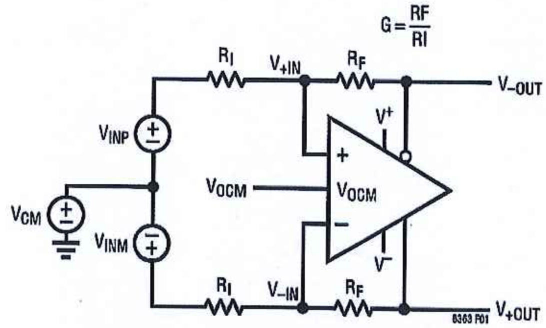

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