Advance Data Sheet
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microelectronics group

Lucent Technologies
Bell Labs Innovations

L8567 SLIC for People's Republic of China Applications

Features

- Low active power (typical 154 mW during on-hook transmission)
- Sleep state for low idle power (65 mW typical)
- Quiet Tip/Ring polarity reversal
- Distortion-free on-hook transmission
- –35 V to –65 V battery operation
- Convenient operating states:
  - — Forward active
  - — Polarity reversal active
  - — Sleep
  - — Forward disconnect
- Supervision functions:
  - — Fixed threshold off-hook detector with longitudinal rejection and hysteresis
  - — Ring trip detector
  - — Thermal shutdown indication
- Adjustable loop current limit
- Three driver outputs for relay driver
- LED driver output to indicate off-hook
- Latched parallel data interface
- Battery and +5 V required
  - — Optional auxiliary lower voltage battery to reduce short loop power
- –40 °C to +85 °C operational temperature range
- User-selectable power management techniques
- Thermal protection
- 32-pin PLCC or 44-pin PLCC packaging

Description

General

This electronic subscriber loop interface circuit (SLIC) is optimized for low cost and low power consumption while providing a full-feature set.

Included in the feature set is quiet reverse battery. Quiet polarity reversal is possible because the ac path is uninterrupted during transmission. The dc loop current limit is user-adjustable via a single external resistor. The maximum battery voltage is specified as –65 V for long loop applications. The L8567 supports on-hook transmission.

The total short loop off-hook power may be reduced by use of a lower voltage auxiliary battery supply. If, when using the 32-pin PLCC, the user does not wish to supply an auxiliary battery, the component of the total short loop off-hook power that is dissipated on the L8567 SLIC is controlled by use of an external power resistor. Either the auxiliary battery or power control resistor is connected to a common power control package pin. With the 44-pin PLCC, a power resistor is not necessary.

Included are both the loop closure and ring trip supervision functions. The loop closure threshold is fixed internally, which eliminates the need for an external precision resistor to set the threshold. To minimize noise at the supervision output, hysteresis is included on the loop closure function. The loop closure and ring trip outputs are multiplexed into a single NSTAT output. Also included is a thermal shutdown mechanism. If device temperature exceeds 165 °C, as may be the case under an extended power cross fall, the SLIC will shutdown (i.e., enter a high-impedance state) to provide protection against the fault. A logic output will indicate the SLIC is in thermal shutdown.

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Description (continued)

General (continued)

This device uses a latched parallel data input interface and a gated parallel output data interface. Level sensitive data latches are used for state control inputs and level sensitive control gates are used for supervision outputs. Latch and gate control are through an ENABLE pin. When the ENABLE pin is high, input data is latched and the SLIC will not respond to changes at its logic input. When ENABLE is low, input control data will flow through the latch. Valid supervision data will appear at the NSTAT and NTSD outputs only when ENABLE is low. In this manner, the data input and data output of four SLICs can be serviced by a single codec package pin per input or output. The L8567 is designed to be controlled/supervised using control/supervision outputs and inputs from the T7507 codec. Three relay drivers are also included. These drivers are meant to drive electromechanical relays (EMRs). State control of the relay drivers is also included. State control of the relay drivers is also via latched parallel data inputs. Data control leads from the T7507 codec drive these inputs. The T7507 relay driver control outputs are meant to control the associated control input on all four of the L8567 SLICs associated with the T7507 codec.

If an L7583 solid-state switch is used (instead of EMRs), the data control outputs from the T7507 codec will drive the latched state control inputs of the L7583 directly. Again, one data control output from the T7507 will drive the corresponding data input on four channels of the L7583. In the case of using the L7583, tie RD1I, RD2I, and RD3I relay driver control inputs of the L8567 to ground.

Included are two NSTAT outputs. One (NSTAT) is used as a data control output and is gated via the EN input. The other (NLED) can be used to drive an LED to indicate loop states. The NLED driver is an open collector output, so multiple outputs may be used to drive a single LED. NLED is not gated, so valid supervision data appears at NLED regardless of the state of EN. NLED can be used as an alternative, nongated, data control output.

The L8567 is available in a 32-pin PLCC or 44-pin PLCC package.

Application for People's Republic of China

This SLIC may be used with any commercially available codec, however when used with the Lucent T7507, the two devices form a complete line circuit optimized for requirements in the People's Republic of China. The interface between the two components is extremely simple, requiring only a single capacitor in the transmit direction and a short circuit connection, using no external components in the receive direction.

The complex 200 Ω + 680 Ω ||100 nF termination and hybrid balance is digitally synthesized by the T7507 codec. Additionally, the Tip/Ring to PCM (transmit) gain is fixed and set digitally by the T7507 codec at 0 dB. The PCM to Tip/Ring (receive) gain is also digitally set by the T7507 codec and is programmable via a bit in the codec serial data control stream to either –3.5 dB or –7.0 dB.

Both the L7507 codec and L8567 SLIC require only battery and +5 V to operate. When both devices are used, no –5 V supply is required.

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Application for People's Republic of China (continued)

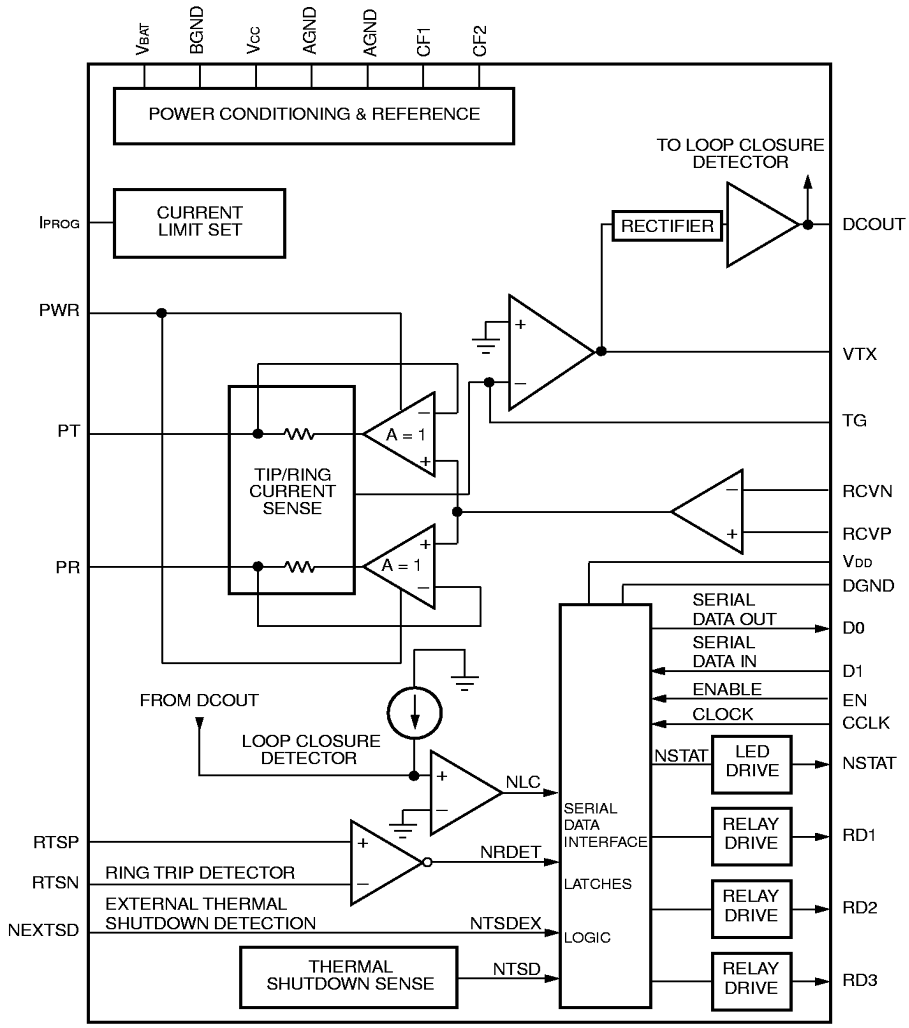

Figure 1. Functional Diagram

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