Advance Data Sheet
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microelectronics group

Lucent Technologies
Bell Labs Innovations

LUCL8560 Low-Power SLIC with Ringing for ISDN TA, Pair Gain and Cable Telephony

Features

- Ideal for ISDN terminal adaptors, pair gain, and cable telephony applications
- Low active power (typical 167 mW during on-hook transmission)
- Sleep state for low idle power (88 mW)
- Quiet TIP/RING polarity reversal
- Auxiliary input for second battery, and internal switch to enable its use to save power in short telephone loops
- Per line ringing available for short loops
- Supports meter pulse injection
- Spare op amp (44-pin PLCC package only)
- –24 V to –65 V power supply operation
- Distortion-free full duplex from 0 mA dc loop current on-hook transmission
- Convenient operating states:
  - — Forward powerup
  - — Polarity reversal powerup
  - — Forward sleep
  - — Ground start
  - — Disconnect
- Adjustable supervision functions:
  - — Off-hook detector with longitudinal rejection
  - — Ground key detector with longitudinal rejection
  - — Ring trip detector
- Independent, adjustable, dc and ac parameters:
  - — dc feed resistance (44-pin PLCC version)
  - — Loop current limit
  - — Termination impedance
- Thermal protection
- 32-pin PLCC or 44-pin PLCC packaging

Description

The LUCL8560 full-feature, low-power subscriber loop interface circuit (SLIC) is optimized for low-power consumption while providing an extensive set of features. This part is ideal for ISDN terminal adaptors applications and short loop power sensitive applications such as pair gain and cable telephony. This part is also designed for PBX, DLC, or CO applications.

The SLIC includes an auxiliary battery input and a battery switch. In short loop applications, they can be used in high battery to present a high on-hook voltage, then switched to low battery to reduce off-hook power.

To help minimize the required auxiliary battery voltage, the dc feed resistance and overhead voltage are set at 55 ohms and 6.7 V, respectively. This allows an undistorted on-hook transmission of a 3.14 dBm signal into a 900 Ω loop impedance.

The device offers the reverse battery function. Using the reverse battery, the device can provide a balanced power ring signal to Tip and Ring. In this mode of operation, the battery switch is used to apply a high-voltage battery during ringing and a lower voltage battery during the talk and idle states. Also included in the LUCL8560 is a dc current limit switch, which increases the dc current limit during power ringing. In addition, dc overhead voltage is reduced during the ring state. With the battery and current limit switches, and overhead reduction, the LUCL8560 can provide sufficient power to ring a true North America 5 REN load of 1380 Ω + 40 µF.

The device offers ring trip and loop closure supervision. It also includes the ground start state and ring ground detection. A summing node for meter pulse injection to 2.2 Vrms is also included. The 44-pin PLCC version also has a spare uncommitted op-amp, which may be used for ac gain setting or meter pulse filtering.

The LUCL8560 requires +5 V and battery to operate. The LUCL8560 does not require an additional –5 V supply. It is built in a 90 V complementary bipolar process. The device is available in a 32-pin PLCC or a 44-pin PLCC package.

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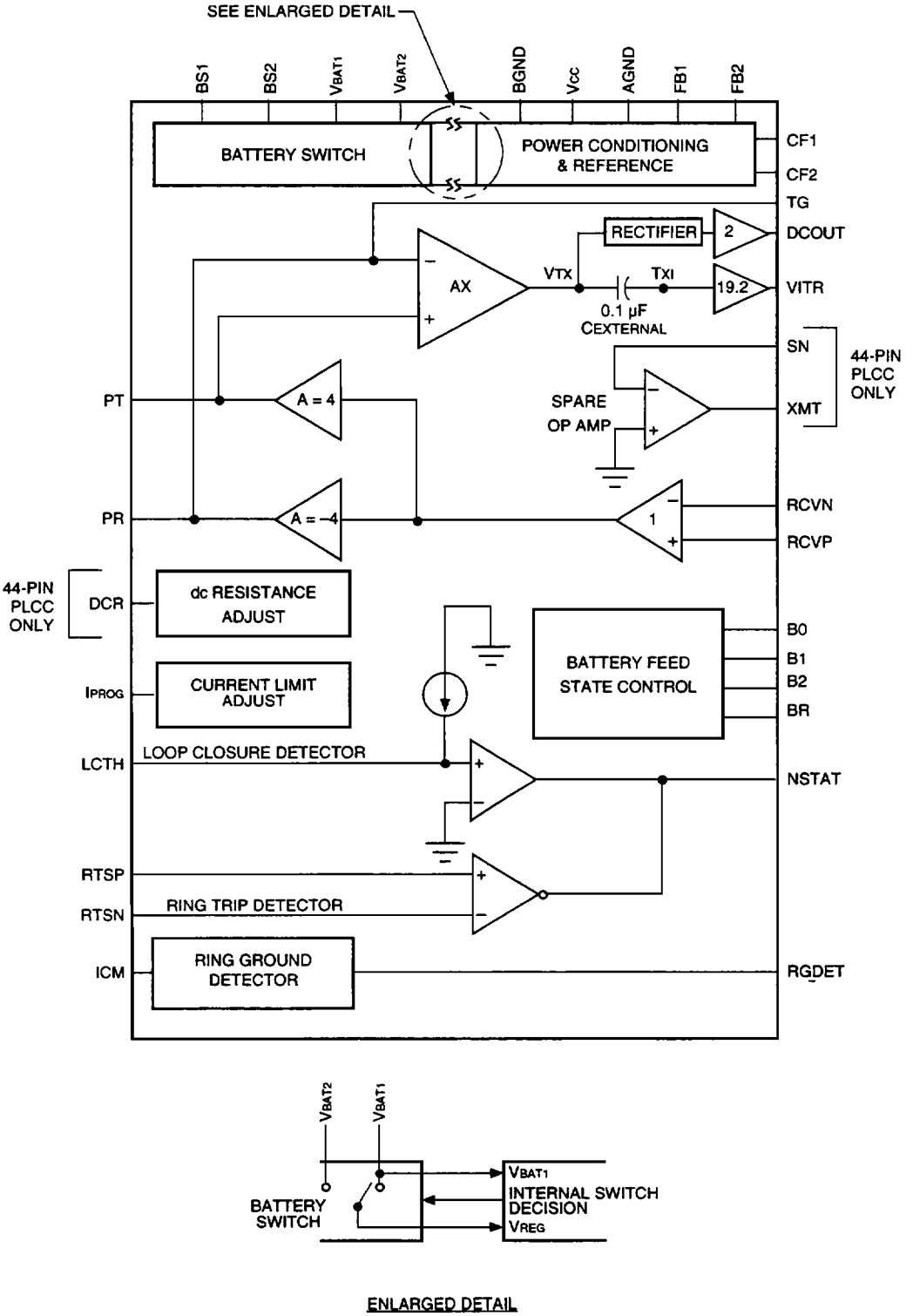

Figure 1. Functional Diagram