Product Brief
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Lucent Technologies
Bell Labs Innovations

L8560 Low-Power SLIC with Ringing

Features

- Full-feature set for central office applications
- Also ideal for ISDN terminal adapters, pair gain, and cable telephony applications
- Auxiliary input for second battery, and internal switch to enable its use to save power in short telephone loops
- 5 V only operation or optional ±5 V operation for reduced power consumption
- Low active power (85 mW typical) and scan power (61 mW typical) with 5 V only operation
- Low active power (68 mW typical with auxiliary battery) and scan power (45 mW typical) with ±5 V operation
- Quiet tip/ring polarity reversal
- Per-line ringing available for short loops
- Reduced overhead and increased current limit during ring mode for lower-battery operation or increased ring loop length
- Supports meter pulse injection
- 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

Description

The L8560 full-feature, low-power subscriber line interface circuit (SLIC) is optimized for low power consumption while providing an extensive set of features. This part is ideal for ISDN terminal adapter 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.

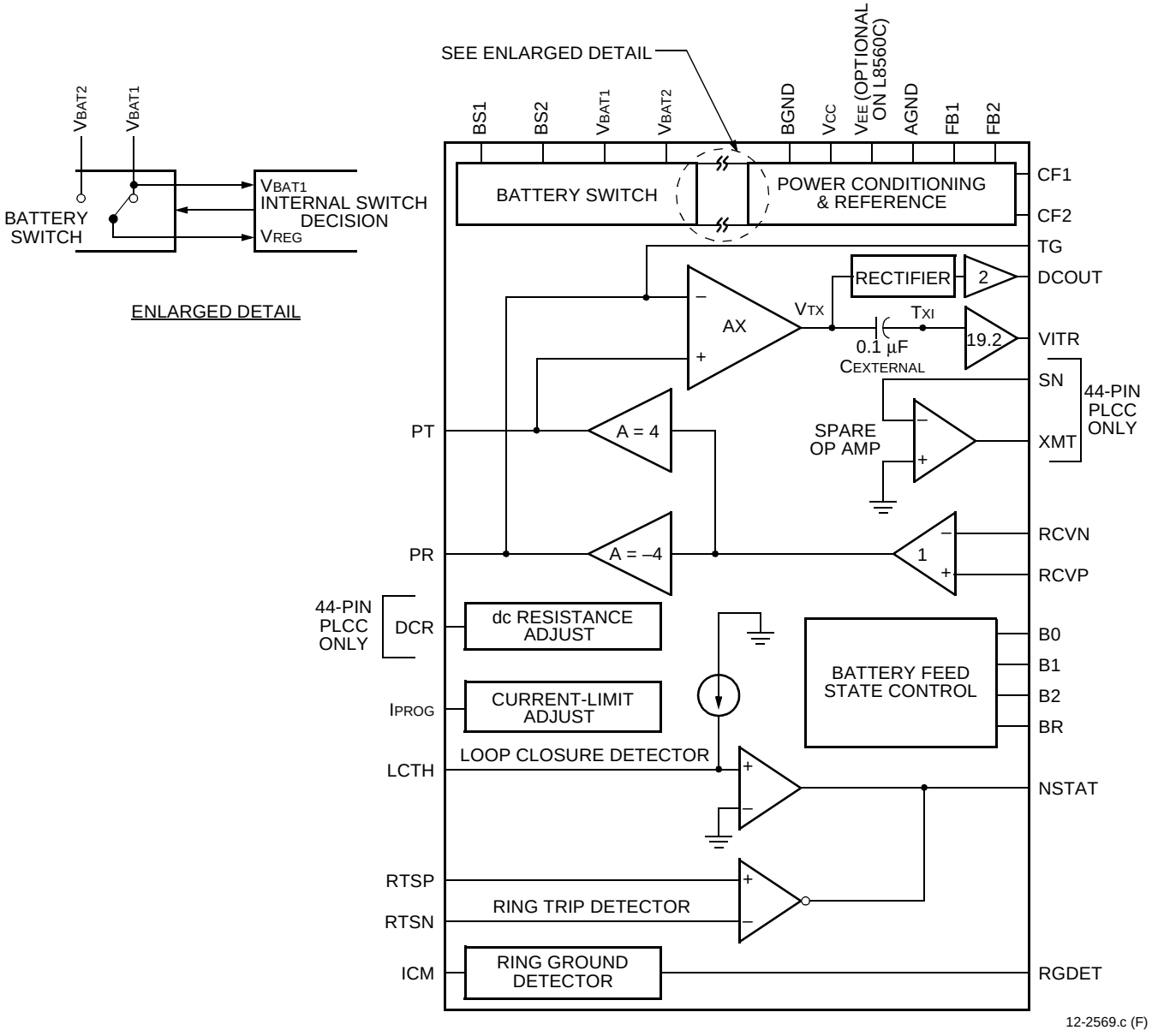
The SLIC includes an auxiliary battery input and a battery switch. In short-loop applications, SLICs can be used in high battery to present a high on-hook voltage, and then switched to low battery to reduce off-hook power.

To help minimize the required auxiliary battery voltage, the dc feed resistance and overhead voltage are set at 55 Ω 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 L8560 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 L8560 can provide sufficient power to ring a true North American 5 REN load of 1386 Ω + 40 µF.

The device offers ring trip and loop closure supervision with 0.3 V and 2 mA hysteresis, respectively. 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.

Functional Diagram



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