**Product Brief**
**April 1998**

microelectronics group

Lucent Technologies
Bell Labs Innovations

# L7556, L7557 Low-Power SLICs with Battery Switch

## Features

- Auxiliary input for second battery, and internal switch to enable its use to save power
- Low active power (typical 125 mW during on-hook transmission)
- Supports meter pulse injection
- Spare op amp for meter pulse filtering
- –16 V to –60 V power supply operation
- Distortion-free on-hook transmission
- Convenient operating states:
  — Forward powerup
  — Disconnect (high impedance)
  — 2-wire wink (zero loop voltage)
- Adjustable supervision functions:
  — Off-hook detector with longitudinal rejection
  — Ground key detector
  — Ring trip detector
- Independent, adjustable, dc and ac parameters:
  — dc feed resistance
  — Loop current limit
  — Termination impedance
- Thermal protection

## Description

These electronic subscriber line interface circuits (SLICs) are optimized for low power consumption while providing an extensive set of features.

The SLICs include an auxiliary battery input and a built-in 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.

The SLICs also include a summing node for meter pulse injection to 2.2 Vrms. A spare, uncommitted op amp is included for meter pulse filtering.

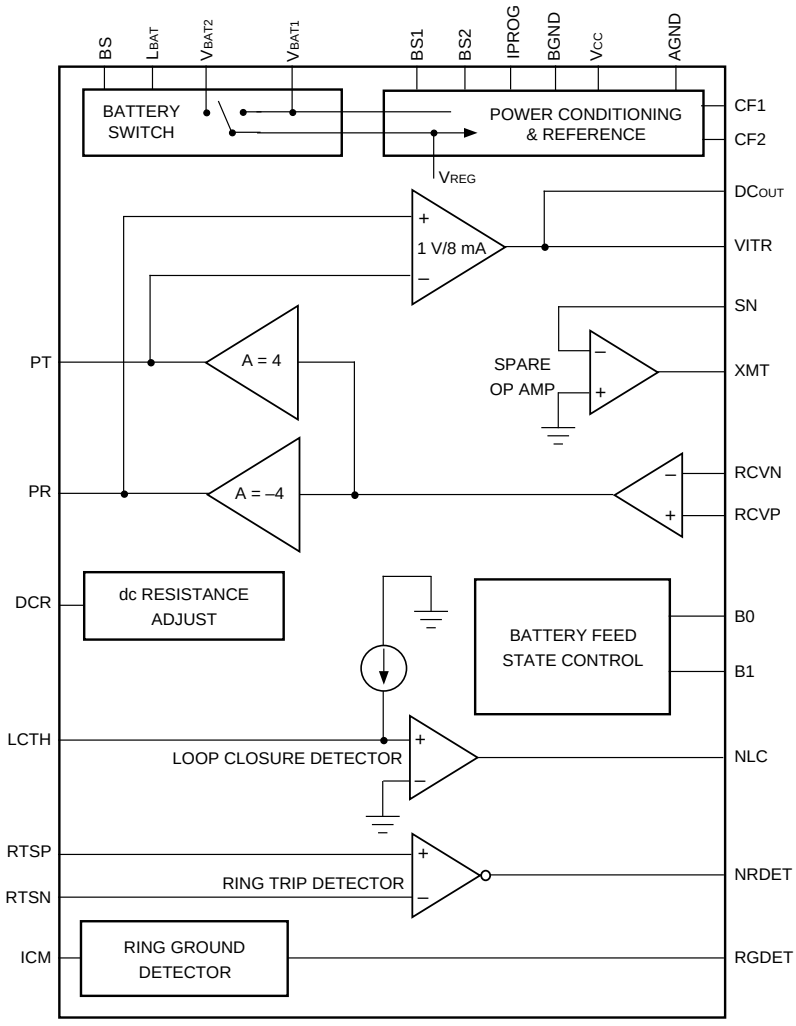
The switched battery is applied to the power amplifiers of the device. There are two versions: the L7556 has the battery switch completely under processor control. The L7557 can automatically switch to lower battery when appropriate and includes hysteresis to avoid frequent switching. To make the switch silent, an external capacitor can be added to slow the transition.

The L7556 is suited for applications serving only short loops, where a high on-hook voltage is required for compatibility with preexisting standards.

The L7557 is suited for applications where a full loop range is needed, but low short-loop power is desired. It is a much lower-cost solution than a switching regulator, and also occupies much less PCB area, needing only a battery filter capacitor and a diode for implementation.

The device is available in a 32-pin PLCC package. It is built by using a 90 V complementary bipolar integrated circuit (CBIC) process.

## Functional Diagram




12-2551.a (C)

For additional information, contact your Microelectronics Group Account Manager or the following:

INTERNET: **http://www.lucent.com/micro**
E-MAIL: **docmaster@micro.lucent.com**
N. AMERICA: Microelectronics Group, Lucent Technologies Inc., 555 Union Boulevard, Room 30L-15P-BA, Allentown, PA 18103
**1-800-372-2447**, FAX 610-712-4106 (In CANADA: **1-800-553-2448**, FAX 610-712-4106)
ASIA PACIFIC: Microelectronics Group, Lucent Technologies Singapore Pte. Ltd., 77 Science Park Drive, #03-18 Cintech III, Singapore 118256
**Tel. (65) 778 8833**, FAX (65) 777 7495
CHINA: Microelectronics Group, Lucent Technologies (China) Co., Ltd., A-F2, 23/F, Zao Fong Universe Building, 1800 Zhong Shan Xi Road, Shanghai 200233 P. R. China **Tel. (86) 21 6440 0468**, **ext. 316**, FAX (86) 21 6440 0652
JAPAN: Microelectronics Group, Lucent Technologies Japan Ltd., 7-18, Higashi-Gotanda 2-chome, Shinagawa-ku, Tokyo 141, Japan
**Tel. (81) 3 5421 1600**, FAX (81) 3 5421 1700
EUROPE: Data Requests: MICROELECTRONICS GROUP DATALINE: **Tel. (44) 1189 324 299**, FAX (44) 1189 328 148
Technical Inquiries: GERMANY: **(49) 89 95086 0** (Munich), UNITED KINGDOM: **(44) 1344 865 900** (Bracknell),
FRANCE: **(33) 1 41 45 77 00** (Paris), SWEDEN: **(46) 8 600 7070** (Stockholm), FINLAND: **(358) 9 4354 2800** (Helsinki),
ITALY: **(39) 2 6601 1800** (Milan), SPAIN: **(34) 1 807 1441** (Madrid)



April 1998
PN98-105ALC

microelectronics group

Lucent Technologies
Bell Labs Innovations