

## Features

- Optimized to work with BCM338x/BCM339x Broadcom SoCs for short loop residential gateways
- Single Channel High Voltage Ringing SLIC that is functionally equivalent to one channel of the Le9540.
- Le9541 is available in a 6x6 40-pin QFN package that is “pin-to-pin” compatible with (channel 1 of) Le9540 which enables a dual one or two channel PCB Design.
- Le9551 is available in a 4x5 28-pin QFN that is optimized for single channel applications
- High Voltage High Bandwidth Design Supports 7-kHz Wide Band Applications
  - Up to -145 V ringing battery Le9541/51D
  - Up to -100 V ringing battery Le9541/51C
- Operation Control and Status Report through Serial Interface with Reset
- Supports GR909 Testing
- DC Loop Closure/Ring Trip/Thermal Shut-down
- Loop Start, Ring Trip, and Ring-Ground Detections with Two Thresholds
- Thermal Shut down Protection with Hysteresis
- Test Load Switch Supports Integrated Test Algorithms

## Description

The Le9541 Ringing SLIC device is a single-channel device and equivalent of channel 1 of the Le9540. It is offered in the same 6x6 40-pin QFN package as the Le9540 to enable a “dual” one or two channel PCB design. The Le9551 is also the equivalent of one channel of the Le9540. It is offered in a small 4x5 28-pin QFN, and is optimized for a single channel application. These devices provide battery feed, ringing, and supervision on voice loops found in short-loop Cable applications. These devices are optimized to interface to the Broadcom BCM338x or BCM339x families of SoCs. Operational control and status report are communicated through a serial interface with reset. These devices support wide-band applications and GR909 testing.

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Version 2

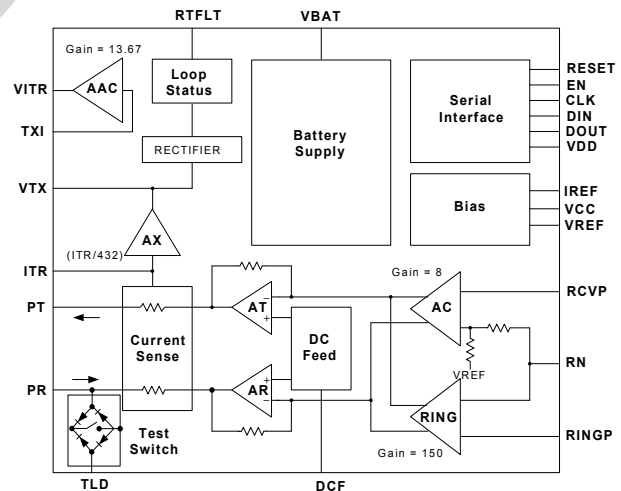
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### Ordering Information

Le9541CUQC	40-pin QFN	Tray
Le9541DUQC	40-pin QFN	Tray
Le9541CUQCT	40-pin QFN	Tape and Reel
Le9541DUQCT	40-pin QFN	Tape and Reel
Le9551CMQC	28-pin QFN	Tray
Le9551DMQC	28-pin QFN	Tray
Le9551CMQCT	28-pin QFN	Tape and Reel
Le9551DMQCT	28-pin QFN	Tape and Reel

All devices are in green package. The green package meets RoHS 2 Directive 2011/65/EU of the European Council to minimize the environmental impact of electrical equipment.

## Block Diagram



Pin Assignment

Figure 1 - 40 Pin 6x6mm QFN

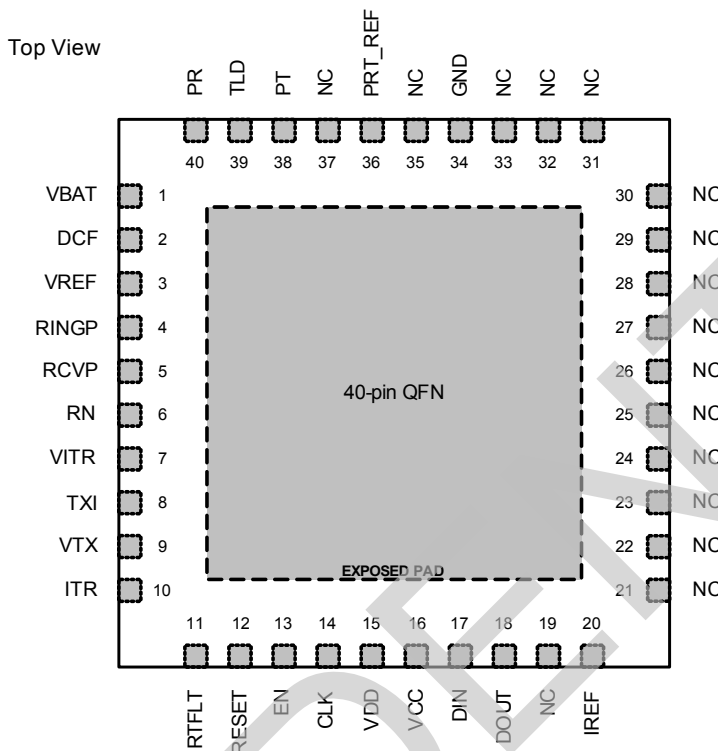
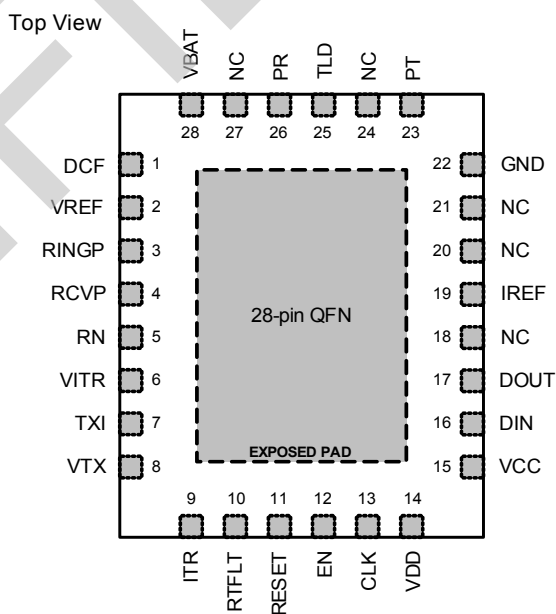


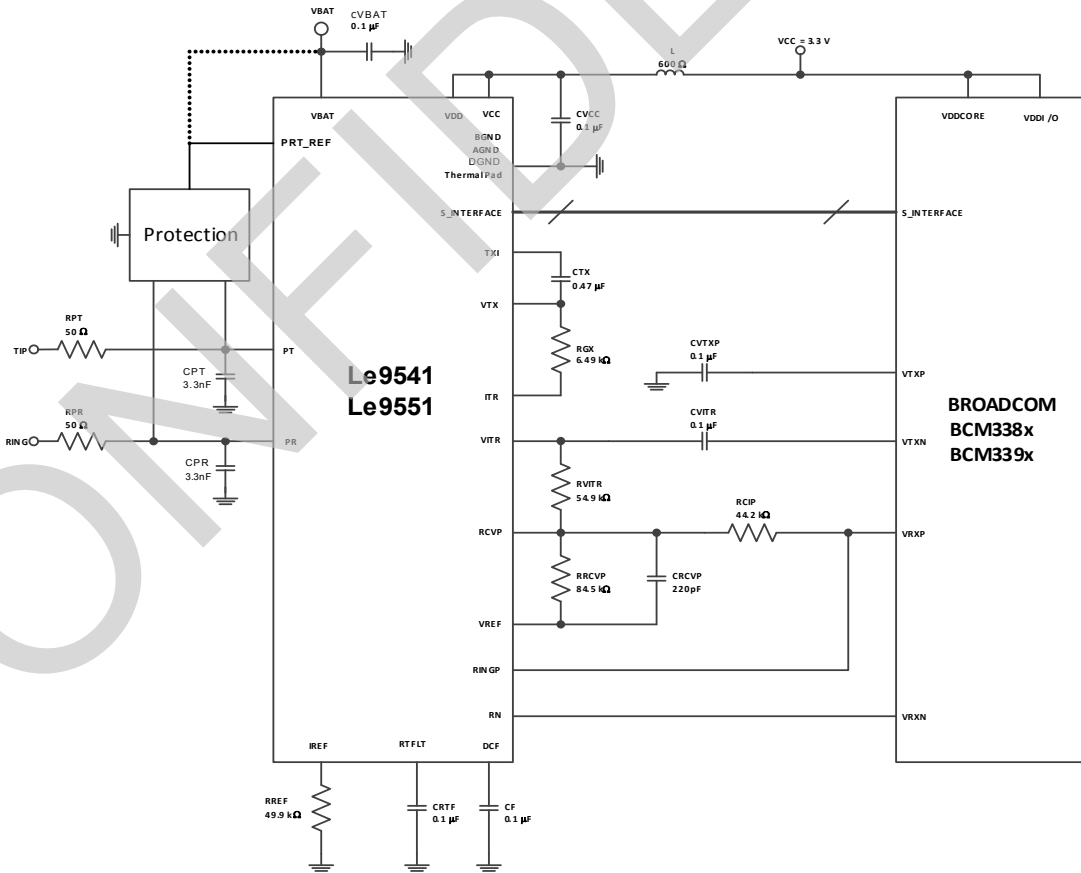
Figure 2 - 28 Pin 4x5mm QFN



**Selected Electrical Specifications**

Parameter	Min.	Typ.	Max.	Unit
Power Scan state, $V_{BAT} = -60\text{ V}$	—	30	36	mW
Power Active state, Forward/Reverse, $V_{BAT} = -60\text{ V}$	—	96	107	mW
Ring state, no load, $V_{BAT} = -100\text{ V}$ (Le9541/51C)	—	211	236	mW
Ring state, no load, $V_{BAT} = -145\text{ V}$ (Le9541/51D)	—	312	359	mW
Longitudinal to Metallic Balance at Tip/Ring	52	—	—	dB
PSRR VBAT 500Hz to 3000Hz (Active Modes)	40	—	—	dB
Gain vs. Frequency (transmit and receive), $600\ \Omega$ Termination, 1004 Hz, 1020 Hz Reference (typ):				
150 Hz to 300 Hz	-3.0	0	0.05	dB
300 Hz to 6.4 kHz	-1.0	0	0.05	
6.4 kHz to 6.8 kHz	-3.0	0	0.05	

**Reference Schematic**



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