

## Triple Output, Low-Noise LDO Regulator with Integrated Reset Circuit

The ISL6414 is an ultra low noise triple output LDO regulator with microprocessor reset circuit and is optimized for powering wireless chip sets. The IC accepts an input voltage range of 3.0V to 3.6V and provides three regulated output voltages: 1.8V (LDO1), 2.84V (LDO2), and another ultra clean 2.84V (LDO3). On chip logic provides sequencing between LDO1 and LDO2 for BBP/MAC and I/O supply voltage outputs. LDO3 features ultra low noise that does not typically exceed 30 $\mu$ V RMS to aid VCO stability. High integration and the thin Quad Flat No-lead (QFN) package makes ISL6414 an ideal choice to power many of today's small form factor industry standard wireless cards, such as PCMCIA, mini-PCI and Cardbus-32.

The ISL6414 uses an internal PMOS transistor as the pass device. The SHDN pin controls LDO1 and LDO2 outputs whereas SHDN3 controls LDO3 output. Internal voltage sequencing insures that LDO1 output (1.8V supply) is always stabilized before LDO2 is turned on. When powering down, power to the LDO2 is removed before the LDO1 output goes off. The ISL6414 also integrates RESET function, which eliminates the need for additional RESET IC required in WLAN applications. The IC asserts a RESET signal whenever the  $V_{IN}$  supply voltage drops below a preset threshold, keeping it asserted for at least 25ms after  $V_{IN}$  has risen above the reset threshold. An output fault detection circuit indicates loss of regulation on LDO1. Other features include an over current protection, thermal shutdown and reverse battery protection.

## Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. DWG. #
ISL6414IR	-40 to +85	16 Ld QFN	L16.4x4
ISL6414IRZ	-40 to +85	16 Ld QFN	L16.4x4

NOTE: "Z" Suffix: Intersil Lead Free products employ special lead free material sets; molding compounds / die attach materials and 100% matte tin plate termination finish, which is compatible with both SnPb and lead free soldering operations. Intersil Lead Free products are MSL classified at lead free peak reflow temperatures that meet or exceed the lead free requirements of IPC/JEDEC J Std-020B. Tape and Reel available. Add " - T " suffix for tape and reel packing option. (eg. ISL6414IRZ-T for lead free tape and reel)

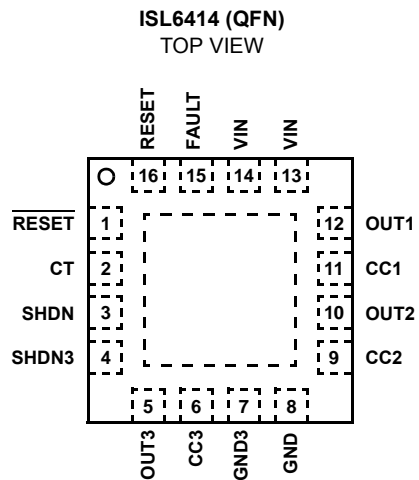
## Features

- Small DC-DC Converter Size
  - Three LDOs and RESET Circuitry in a Low-Profile 4x4mm QFN Package
- High Output Current
  - LDO1, 1.8V . . . . . 500mA
  - LDO2, 2.84V . . . . . 300mA
  - LDO3, 2.84V . . . . . 200mA
- Ultra-Low Dropout Voltage
  - LDO2, 2.84V . . . . . 125mV (typ.) at 300mA
  - LDO3, 2.84V . . . . . 100mV (typ.) at 200mA
- Ultra-Low Output Voltage Noise
  - <30 $\mu$ V<sub>RMS</sub> (typ.) for LDO3 (VCO Supply)
- Stable with Smaller Ceramic Output Capacitors
- Voltage Sequencing for BBP/MAC and Analog Supplies
- Extensive Protection and Monitoring Features
  - Over current and short circuit protection
  - Thermal shutdown
  - Reverse battery protection
  - FAULT indicator
- Logic-Controlled Dual Shutdown Pins
- Integrated Microprocessor Reset Circuit
  - Programmable Reset Delay
  - Complimentary Reset Outputs
- Proven Reference Design for Total WLAN System Solution
- QFN Package Option
  - Compliant to JEDEC PUB95 MO-220 QFN - Quad Flat No Leads - Product Outline
  - Near Chip-Scale Package Footprint Improves PCB Efficiency and Is Thinner in Profile
  - Lead-Free Option Available ("Z" suffix)

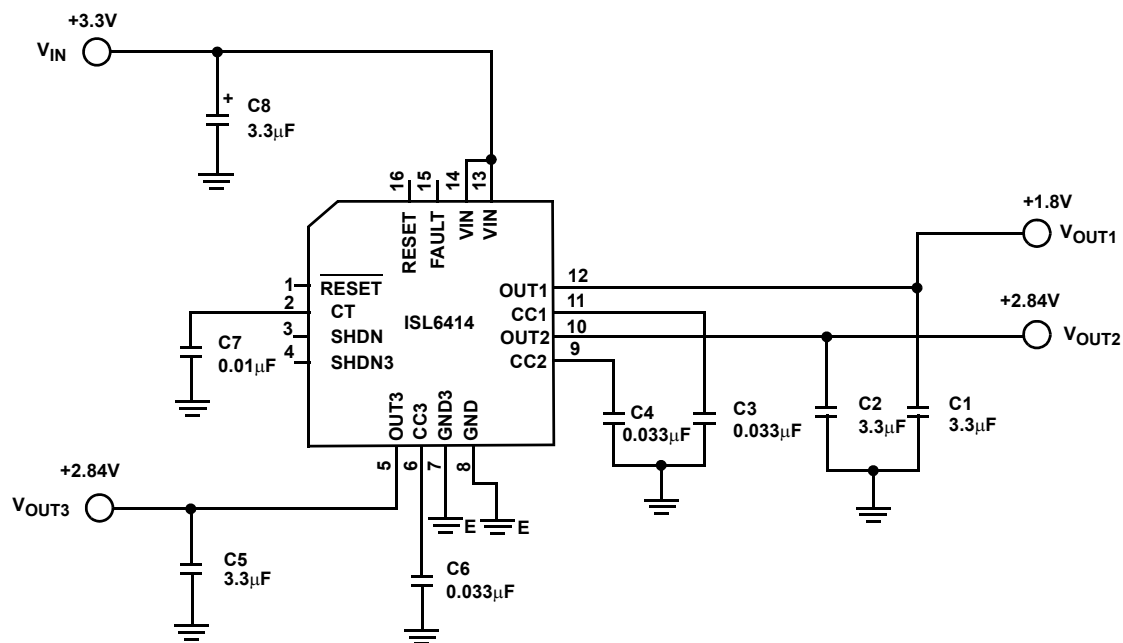
## Applications

- PRISM® 3, PRISM GT™, and PRISM WWR Chipsets
- WLAN Cards
  - PCMCIA, Cardbus32, MiniPCI Cards
  - Compact Flash Cards
- Hand-Held Instruments

## Pinout



## Typical Application Schematic



# Functional Block Diagram

