

HL8743

Automotive Single and Dual-Channel Antenna LDO with Current Sensing

Description

HL8743 features a high input voltage single low-dropout regulator (HL8743SC01 / HL8743SC03) / dual channel low-dropout regulator (HL8743SC02 / HL8743SC04) with accurate current sensing, designed to operate with a wide input voltage range from 4.5V to 40V. The device has 45V load dump protection at power input pin. These devices provide power to the low-noise amplifiers of the active antenna through a coaxial cable with 350mA per channel current. Each channel provides an adjustable output voltage from 1.5V to 20V through resistor divider on FB pin.

These devices provide diagnostics through the current sense and nERR pins. To monitor the load current, a high-side current sense circuitry provides a proportional analog output to the sensed load current. The accurate current sense allows detection of open, normal and short-

circuit conditions without the need for further calibration. Current sense can be multiplexed between channels to save analog-to-digital converter (ADC) resources. Each channel also implements adjustable current limit with an external resistor on each LIM pin.

An integrated reverse polarity diode eliminates the need for an external diode. These devices feature standard thermal shutdown, short-to-battery protection on the output and reverse current protection. Each channel has internal inductive clamp protection on the output during the inductive switch off.

These devices operate over a -40°C to +125°C ambient temperature.

HL8743 is available in a 16-pin HTSSOP package.

Features

- Single and Dual-Channel LDO with current sense and adjustable current limit
- Wide input voltage range: 4.5V to 40V
- 45V Load dump
- Adjustable LDO VOUT: 1.5V to 20V
- Power load switch mode by shorting FB to GND
- Up to 350mA Output current
- Adjustable Current-Limit with external Resistor
- High Accuracy Current-Sense to Detect Antenna Open Condition at Low Current
- High PSRR: 80dB at 100Hz
- Reverse-Polarity protection, down to - 40V
- 500mV max dropout voltage at 100mA load
- Stable with wide output capacitor, 2.2uF to 100uF (ESR 1m Ω to 5 Ω)
- Integrated Protection and Diagnostics
 - Thermal Shutdown
 - Input Undervoltage Lockout (UVLO)
 - Short-Circuit Protection
 - Reverse Battery Polarity Protection
 - Reverse Current Protection
 - Output Short-to-Battery Protection
 - Output inductive Load Clamp
 - Ability to Distinguish All Faults with Current Sense pin

- Qualified for Automotive Applications
- AEC-Q100 Qualified with the Following Results:
 - Device Temperature Grade 1: - 40°C to 125°C Ambient Operating Temperature Range
 - Device HBM ESD Classification 2
 - Device CDM ESD Classification C4B
- 16-Pin HTSSOP PowerPAD package

Applications

- Infotainment Active-Antenna Power Supplies
- Surround-view Camera Power Supplies
- High-side power switch

Typical Application Diagram

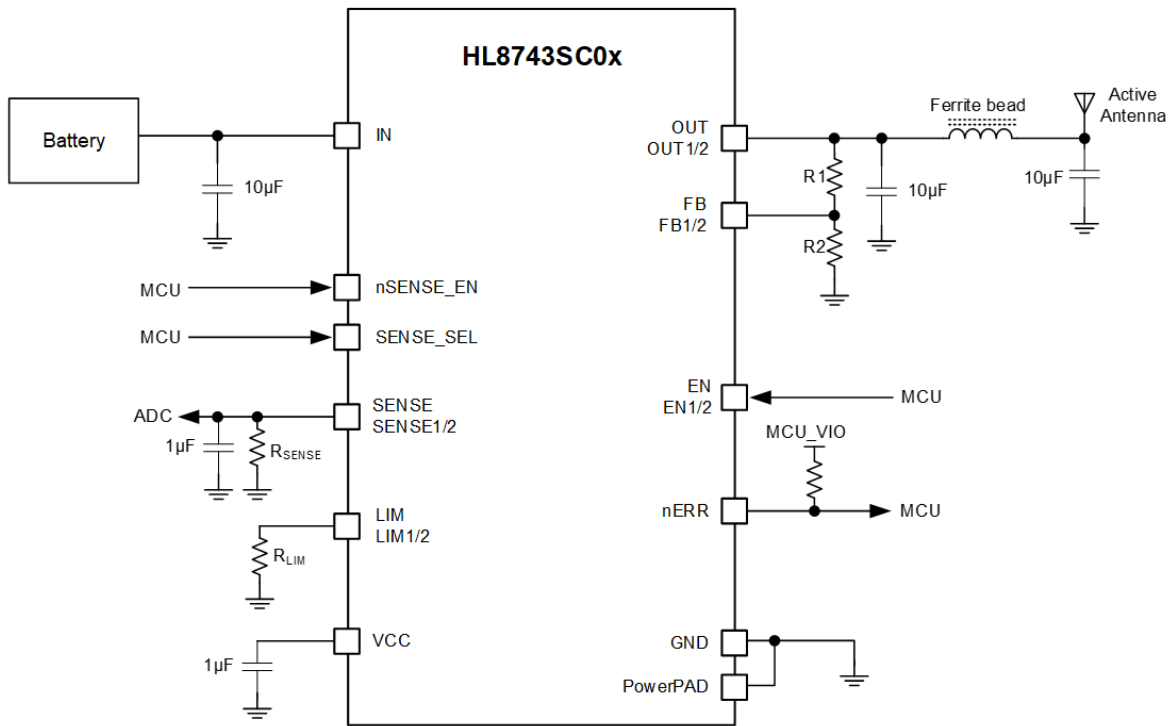


Figure 1. Typical Application Diagram

Order Information

Part Number	# of LDO	STB/RCP fault	Package	Op Temp
HL8743SC01Q1	Single	Latched OFF	HTSSOP, 16pin	-40 to 125°C
HL8743SC02Q1	Dual	Latched OFF	HTSSOP, 16pin	-40 to 125°C
HL8743SC03Q1	Single	Auto Retry	HTSSOP, 16pin	-40 to 125°C
HL8743SC04Q1	Dual	Auto Retry	HTSSOP, 16pin	-40 to 125°C

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