

HL7543

Ultra Low Iq 600mA Buck Converter

Description

HL7543 is a synchronous buck converter optimized to supply different sub systems of portable applications. Its input voltage range is 2.3V to 5.5V.

HL7543 can deliver up to 600mA with high efficiency, while maintaining over 90% efficiency at load currents as low as 10uA. It operates at a high frequency of 1.2MHz, which greatly reduces the value of the external components. A wide range of output capacitors can be used to optimize VOUT stability during load transients. Inductors 2.2μH may be used without affecting loop stability.

At moderate to light loads, Pulse Frequency Modulation (PFM) is used to maintain conversion efficiency with a typical non-switching quiescent current of 370nA. Even with such a low quiescent current, HL7543 maintains excellent load and line transient responses. At higher loads, the system automatically switches to fixed-frequency Pulse Width Modulation (PWM) operation at 1.2MHz for minimum VOUT ripple and optimal load transient response. In Shutdown Mode, the supply current drops below 270nA, reducing power consumption.

The HL7543 is available in a 1.6mm x 0.9mm WLCSP-8 package.

Features

- 370nA operational Quiescent current
- Input Voltage Range: 2.3V~5.5V
- Output Voltage Range: 0.66V~3.4V
- Selectable Output Voltages via VSEL1-3
 - HL7543WL01: 8 options 1.2V – 3.3V
 - HL7543WL02: 8 options 1.3V – 3.1V
 - HL7543WL03: 8 options 0.7V – 3.1V
 - HL7543WL04: 8 options 0.66V – 2.95V
- Maximum Output Current:
 - 600mA for $V_{IN} > V_{OUT} + 500mV$
 - 1A for $V_{IN} > V_{OUT} + 1V$
- 1.2MHz PWM with Seamless PWM/PFM Switching for Light-load Efficiency
- Automatic transition to 100% mode
- Good Load and Line Transient
- Comprehensive Protections
 - Input Under-Voltage Lockout (UVLO)
 - Short-Circuit Protection
 - Thermal Shutdown
- 1.6 x 0.9mm 8-Bump WLCSP

Applications

- Wearables
- Fitness Trackers
- Smart Watches

Typical Application Diagram

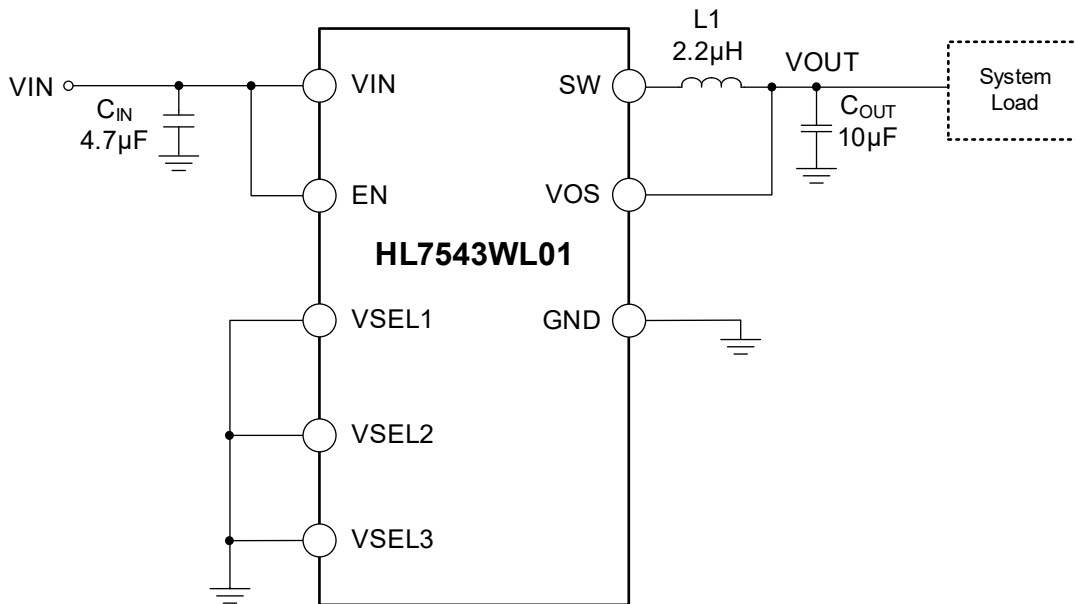


Figure 1. Typical Application Diagram

Order Information

Part Number	Output Voltage Option (VSEL 1 - 3) See Table 5	I _{OUT} Max	Package	Packing Method
HL7543WL01	1.2V, 1.5V, 1.8V, 2.1V, 2.5V, 2.8V, 3.0V, 3.3V	600mA	WLCSP-8	Tape & Reel
HL7543WL02	1.3V, 1.4V, 1.6V, 1.7V, 1.9V, 2.0V, 2.9V, 3.1V	600mA	WLCSP-8	Tape & Reel
HL7543WL03	0.7V, 1.0V, 1.3V, 1.6V, 1.9V, 2.0V, 2.9V, 3.1V	600mA	WLCSP-8	Tape & Reel
HL7543WL04	0.66V, 0.95V, 1.23V, 0.71V, 1.8V, 1.0V, 2.75V, 2.95V	600mA	WLCSP-8	Tape & Reel

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