

Synchronous Boost Converter with Ultra-Low Quiescent Current

DESCRIPTION

The JW5702x is a highly integrated synchronous boost converter with 1 μ A ultra-low quiescent current. It is designed for products powered by an alkaline battery, NiMH rechargeable battery, Li-Mn battery or rechargeable Li-Ion load battery, for which high efficiency under light load condition is critical to achieve long battery life operation.

The JW5702x adopts hysteretic control topology, which obtains maximal efficiency at minimal quiescent current. It can achieve up to 75% efficiency at 10 μ A load with fixed output current from 3.3V to 5V conversion, and achieve up to 93% at 200mA load.

The JW5702x also supports both Down Mode and Pass-Through operations for different applications. In Down Mode, the output voltage can still be regulated at target value even when input voltage is higher than output voltage. In Pass-Through Mode, the output voltage follows input voltage. The JW5702x exits Down Mode and enters into Pass-Through Mode when $V_{IN} > V_{OUT} + 0.2V$.

The JW5702x offers true shutdown function when it is disabled, which disconnects the load from the input supply to reduce the current consumption. The JW5702x supplies both adjustable output voltage version and fixed output voltage versions. It is available in WCSP1.23x0.88-6 package, DFN2x2-6 package and SOT563 package.

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FEATURES

- 700nA Ultra-low I_Q into V_{OUT} Pin
- 100nA Ultra-Low I_Q into V_{IN} Pin
- 0.9V to 4.5V Operating Input Range
- 1.8V to 5.5V Operating Output Range
- Fixed Output Voltage Versions Available
- 700mA Switch Peak Current Limit
- Output Discharge
- Regulated Output Voltage in Down Mode
- True Disconnection During Shutdown Up to 75% Efficiency at 10 μ A Load with Fixed Output Voltage Versions
- Up to 93% Efficiency at 10mA ~ 300mA Load
- Output Over-Voltage Protection
- Output Short Protection
- Thermal Shutdown
- Available in CSP1.23x0.88-6 Package, DFN2x2-6 Package and SOT563 Package

APPLICATIONS

- Memory LCD Bias
- Optical Heart Rate Monitor LED Bias
- Wearable Applications
- Low Power Wireless Applications
- Portable Products
- Battery Powered Systems