

Product Overview

FAN53763: 1.5A Synchronous Buck Regulator

For complete documentation, see the data sheet.

The FAN53763 is a Super Low I_q, step-down switching voltage regulator, that delivers a fixed output from an input voltage supply of 2.3V to 5.5 V. Using a proprietary architecture with synchronous rectification, the FAN53763 is capable of delivering a peak efficiency of 93%, while maintaining efficiency over 90% at load currents as low as 1 mA.

The regulator operates with 0402 and 0603 input and output capacitors, respectively, which reduces the total solution size to 5.5mm². At moderate and light load, Pulse Frequency Modulation (PFM) is used to operate the device with a low quiescent current. Even with such a low quiescent current, the part exhibits excellent transient response during load swings. In Shutdown Mode, the supply current drops to 100nA, reducing power consumption. The Mode pin allows the part to be in a Super Low IQ (SLIQ) mode with a typical quiescent current of 2 μA.

The part enters PWM mode when load current exceeds 50 mA typically. At light load operation in Auto Mode, the device enters PFM mode when load current is below 20 mA typically. PFM mode reduces switching frequency as well as battery current draw, which yields high efficiency.

When Mode pin goes High, the part will transition from SLIQ Mode into normal PFM mode within 10μs.

In SLIQ Mode the device acts in a modified PFM mode with a super low I_q state. The part draws 2μA with no load. The part enters SLIQ Mode when the Mode pin is set to logic "LOW". Before pulling the Mode Pin Low, the load current should drop below 1mA to maintain output voltage regulation in SLIQ mode. The maximum load current in SLIQ Mode that the device can support is 1mA. If load current exceeds 1mA, it is recommended to place part in Auto Mode by pulling Mode pin High so that the device can support more current.

Features

- 2μA Typical Quiescent Current
- 5.5mm² total solution size
- 1.5 A Output Current Capability
- 0.6V to 1.8V Fixed Output Voltage
- 2.3V to 5.5V Input Voltage Range
- Best-in-Class Load Transient Response
- Best-in-Class Efficiency with Sub 1mA Output Currents
- Internal Soft-Start Limits Battery Current Below 150mA to avoid Brown-out Scenarios
- Protection Faults (UVLO, OCP and OTP)
- Thermal Shutdown and Overload Protection

For more features, see the data sheet

Applications

- Wearables
- Smart Watch
- Health Monitoring
- Sensor Drive
- Energy Harvesting

End Products

- Wearables
- Smart Watch
- Cellular Phones, Smart Phones, and PDAs
- Portable Media Players

Part Electrical Specifications

| Product | Compliance | Status | Topology | Control Mode | V _{CC} Min (V) | V _{CC} Max (V) | V _O Typ (V) | I _O Typ (A) | Efficiency (%) | f _{sw} Typ (kHz) | Package Type |
|---------------|------------------------|--------|-----------|--------------|-------------------------|-------------------------|------------------------|------------------------|----------------|---------------------------|--------------|
| FAN53763UC24X | Pb-free Halide free | Active | Step-Down | Voltage Mode | 2.3 | 5.5 | 1.8 | 1.5 | 90 | 2500 | WLCS-6 |

For more information please contact your local sales support at www.onsemi.com.

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