

FAN53202

FAN53202 5 A, 2.4 MHz, Digitally Programmable TinyBuck® Regulator

Product Overview

For complete documentation, see the data sheet.

The FAN53202 is a step-down switching voltage regulator that delivers a digitally programmable output from an input voltage supply of 2.5 V to 5.5 V. The output voltage is programmed through an I2C interface capable of operating up to 3.4 MHz.

Using a proprietary architecture with synchronous rectification, the FAN53202 is capable of delivering 5 A continuous at over 80% efficiency, while maintaining over 80% efficiency at load currents as low as 10 mA. The device can also support a 7 A 500 ms pulse. The regulator operates at a nominal fixed frequency of 2.4 MHz, which reduces the value of the external components to 330 nH for the inductor and as low as 22 μ F for the output capacitor. Additional output capacitance can be added to improve regulation during load transients without affecting stability. Inductance up to 1.2 μ H may be used with additional output capacitance.

At moderate and light loads, Pulse Frequency Modulation (PFM) is used to operate in Power-Save Mode with a typical quiescent current of 60 μ A. Even with such a low quiescent current, the part exhibits excellent transient response during large load swings. At higher loads, the system automatically switches to fixed-frequency control, operating at 2.4 MHz. In Shutdown Mode, the supply current drops below 1 μ A, reducing power consumption. PFM Mode can be disabled if constant frequency is desired. The FAN53202 is available in a 20-bump, 1.6 x 2 mm, WLCSP.

Features

- Up to 91% Efficiency
- Quiescent Current in PFM Mode: 60 μ A (Typical)
- Digitally Programmable Output Voltage:
- 0.6-1.3875 V in 12.5 mV Steps
- Best-in-Class Load Transient
- Continuous Output Current Capability: 5 A
- 2.5 V to 5.5 V Input Voltage Range
- Programmable Slew Rate for Voltage Transitions
- Fixed-Frequency Operation: 2.4 MHz
- I2C-Compatible Interface Up to 3.4 Mbps

For more features, see the data sheet