MAX25320

ASIL D Compliant, Dual 1A Low-Voltage Buck Converter

General Description

The MAX25320 is a high-efficiency dual switching regulator which delivers up to 1A load current per output from 0.5V to 1.59375V in 6.25mV steps and 1.6V to 3.6V in 25mV steps. The IC operates from a 3.3V supply, making it ideal for on-board point-of-load and post regulation applications. Total output error is less than ±1% over load, line, and temperature.

The MAX25320 features fixed-frequency PWM mode or SKIP mode operation with a switching frequency of 2.1MHz. The high-frequency operation allows for an all-ceramic capacitor design and also allows for small-size external components.

The device features the MAXQ® technology, which provides precision transient performance and phase margin. This allows obtaining the maximum power, performance, and precision from the converter over a very wide range of configurations.

The MAX25320 provides an enable input and output. The output voltage is preset at the factory to allow customers to achieve ±1% output-voltage accuracy without using expensive 0.1% resistors. The device offers factory-programmable soft-start and $\overline{\text{RESET}}$ times.

The device includes overtemperature shutdown and overcurrent limiting. It is designed to operate from -40°C to +125°C ambient temperature range.

Applications

- Secondary Regulator for SoC/MCU Supply

Benefits and Features

- High Feature Set in Small Footprint
  - High-Efficiency, Dual 1A DC-DC Converters
  - 3.3V Operating Supply Voltage
  - Factory Preset Output Voltage
  - 2.1MHz Switching Frequency
  - Individual Enable Inputs
  - $\overline{\text{RESET}}$ and $\overline{\text{INT}}$ Open-Drain Outputs
  - Spread-Spectrum Oscillator
  - I^2C Interface
  - Peak Current Mode Architecture
  - PWM and SKIP Mode Operation
  - 4mm x 4mm, 20-Pin TQFN
- High Precision
  - ±1% OV/UV Accuracy
  - ±1% Output Voltage Accuracy
  - Excellent Load Transient Performance
  - MAXQ Power Architecture
- ASIL D Compliant
  - Redundant Reference
  - BIST Diagnostics
  - PEC on I^2C
  - Programmable OV/UV Thresholds
- High Efficiency
  - Up to 91% Efficiency 3.3V to 1.8V
  - Up to 85% Efficiency 3.3V to 0.825V
- -40°C to +125°C Operating Temperature Range
- AEC-Q100 Qualified

Visit Web Support to complete the nondisclosure agreement (NDA) required to receive additional product information.

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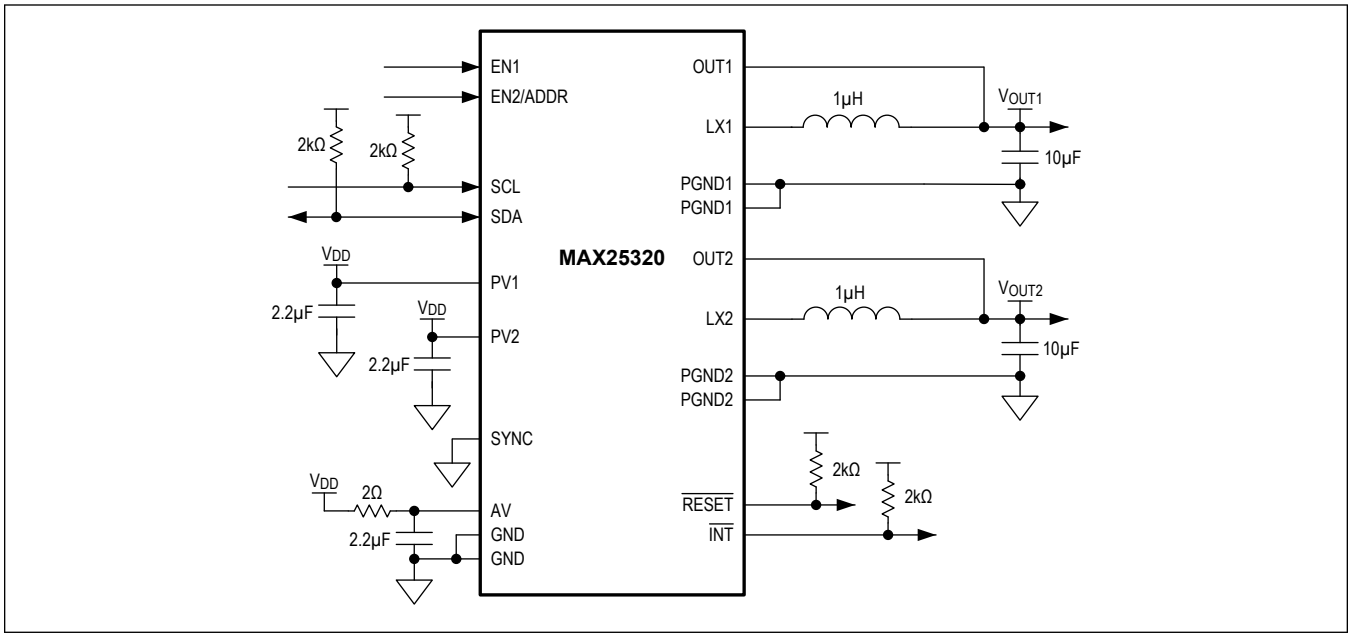
***Ordering Information** appears at end of data sheet.*

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Simplified Block Diagram



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