MAX20076E

36V, 600mA/1.2A Mini Buck Converter with 3.5µA I_Q

Best-in-Class Ultra Low I_Q Mini Buck Ideal for Automotive Applications

NDA Required. Request Full Data Sheet

Description

Create a design and simulate using EE-Sim® tools: MAX20076E

The MAX20075/MAX20076/MAX25276 are small, synchronous buck converters with integrated high-side and low-side switches. The MAX20076/MAX25276 are designed to deliver up to 1.2A and the MAX20075 up to 0.6A, with 3.5V to 36V input voltages, while using only 3.5µA quiescent current at no load. The devices provide an accurate output voltage of ±2% within the normal operation input range of 6V to 18V. With 20ns minimum on-time capability, the converter is capable of large input-to-output conversion ratios. Voltage quality can be monitored by observing the PGOOD signal. The devices can operate in dropout by running at 99% duty cycle, making them ideal for automotive and industrial applications. The devices offer two fixed output voltages of 5V and 3.3V. In addition, the devices can be configured for 1V to 10V output voltages using an external resistor-divider. Frequency is internally fixed at 2.1MHz, which allows for small external components and reduced output ripple, and guarantees no AM interference. The devices automatically enter skip mode at light loads with ultra-low quiescent current of 3.5µA at no load. The devices offer pin-enabled spread-spectrum-frequency modulation designed to minimize EMI-radiated emissions due to the modulation frequency.

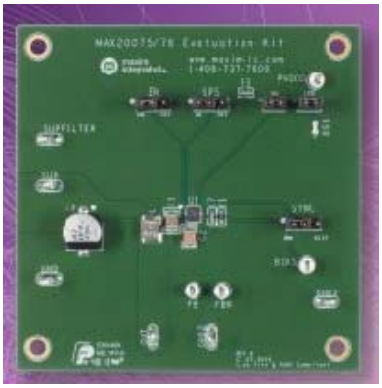
The MAX20075/MAX20076 /MAX25276 are available in small (3mm × 3mm) 12-pin TDFN and side-wettable TDFN packages with an exposed pad, and use very few external components.

Design Solution: How to Shrink Your ADAS ECUs: Wrap the Power Management Around the Signal Chain ›

https://www.maximintegrated.com/content/dam/files/design/technical-documents/design-solutions/DS104-How-to-Shrink-Your-ADAS-ECUs-Wrap-the-Power-Management-Around-the-Signal-Chain.pdf

Design Solution: Improve Your Automotive ECU Design with a Low-I_Q Buck Converter ›

https://www.maximintegrated.com/content/dam/files/design/technical-documents/design-solutions/DS54-Improve-Your-Automotive-ECU-Design-with-a-Low-IQ-Buck-Converter.pdf



Key Features

- Synchronous DC-DC Converter with Integrated FETs
  - MAX20075 = 0.6A I_{OUT}
  - MAX20076/MAX25276 = 1.2A I_{OUT}
  - 3.5µA Quiescent Current when in Standby Mode
- 20ns Minimum On-Time Small Solution Size Saves Space
  - 2.1MHz Frequency
  - Programmable 1V to 10V Output for the Buck, or Fixed 5V/3.3V Options Available
  - Fixed 2.5ms Internal Soft-Start
  - Fixed Output Voltage with ±2% Output Accuracy (5V/3.3V), or Externally Resistor Adjustable (1V to 10V) with ±1.5% FB Accuracy
  - Innovative Current-Mode-Control Architecture Minimizes Total Board Space and BOM Count
- PGOOD Output and High-Voltage EN Input Simplify Power Sequencing
- Protection Features and Operating Range Ideal for Automotive Applications
  - 3.5V to 36V Operating V_{IN} Range
  - 40V Load-Dump Protection
  - 99% Duty-Cycle Operation with Low Dropout
  - -40°C to +125°C Automotive Temperature Range
  - AEC-Q100 Qualified

Applications/Uses

- ADAS
- CAN
- Cluster
- Navigation
- Point of Load

Part Number	V_{IN} (V)	V_{IN} (V)	V_{OUT1} (V)	V_{OUT1} (V)	Preset V_{OUT} (V)	Output Adjust. Method	I_{OUT1} (A)	Switch Type	Synchronous Switching	Power Good Signal	DC-DC Outputs	Oper. Freq. (kHz)	Design Tools	Package/Pins
	min	max	min	max			max							
MAX20075D NEW!	3.5	40	1	10	3.3	Preset	0.6	Internal	Yes	Yes	1	2100	EE-Sim	TDFN-CU/12
MAX20076D NEW!	3.5				5	Resistor	1.2							TDFN-CU/12
MAX25276D NEW!	3						1.2							TDFN-CU/12

https://www.maximintegrated.com/en/products/power/switching-regulators/MAX20076E.html/6-3-20