

MAX20430

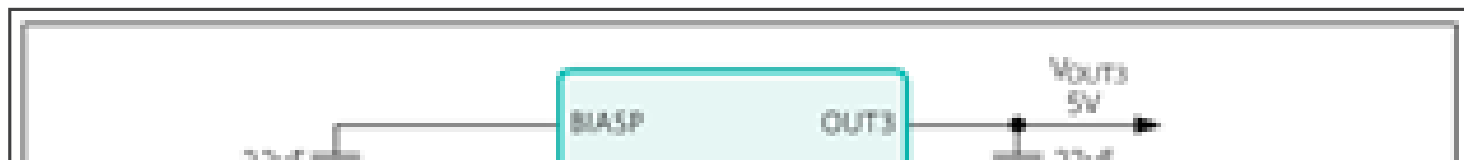
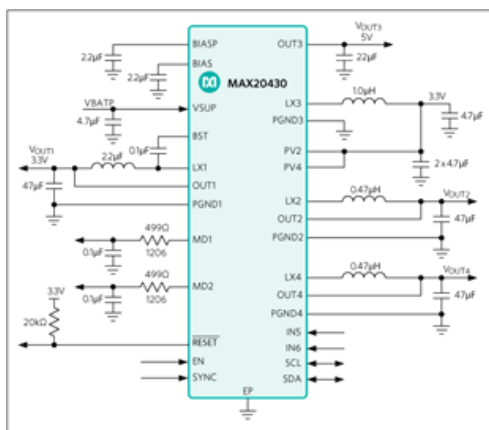
Four-Output Mini PMIC for Safety Applications

ASIL-C Compliant PMIC with Watchdog for ADAS Applications

BUY NOW



Production



Overview

Features and Benefits Product Details

- Multiple Functions for Small Size
 - Synchronous High-Voltage Buck Converter up to 2.5A
 - Input Voltage Range 3.5V to 40V
 - Output Voltage of 3.3V
 - 5V, Synchronous 500mA Boost Converter
 - Dual Synchronous Buck Converters up to 3A
 - 0.8V to 3.9875V in 12.5mV Steps
 - Flexible Power Sequencer for OUT2, OUT3, and OUT4
 - Programmable Challenge/Response or Windowed Watchdog
 - Two Free Programmable UV/OV Voltage Monitors
 - 0.8V to 3.9875V in 12.5mV Steps
 - I²C Fast Mode Plus-Compatible Interface with Packet Error-Checking Option (PEC)
 - 2.1MHz Internal Operation with Spread-Spectrum Option
 - Active-Low RESET Output
- Current-Mode, Forced-PWM Operation
- High Precision for ASIL Applications
 - ±1.5% Output Voltage Accuracy
 - ±1% OV/UV Monitoring
- Diagnostics and Redundant Circuits
 - ASIL C Compliant
 - Redundant Reference
 - BIST Diagnostics
 - Fail Safe on Open Pins
 - Shorted Pin Detection on Active-Low RESET
- Mount ID Location Detection
- Robust for the Automotive Environment
- Overtemperature and Short-Circuit Protection
- 5mm x 5mm Side-Wettable TQFN Package
- 40°C to +125°C Grade 1 Automotive Temperature Range

The MAX20430 is a high-efficiency, four-output DC-DC converter and windowed watchdog. OUT1 is a synchronous step-down converter that converts vehicle battery voltage to 3.3V at up to 2.5A. OUT3 boosts OUT1 to 5V at up to 500mA, while OUT2 and OUT4 low-voltage synchronous step-down converters operate from OUT1 and provide a 0.8V to 3.9875V output voltage range at up to 3A. All outputs achieve ±1.5% output error

over load, line, and temperature range.

The device features 2.1MHz fixed-frequency PWM mode for all DC-DC outputs for better noise immunity and load-transient response. The 2.1MHz frequency operation allows for the use of all ceramic capacitors and minimizes external components. The programmable spread-spectrum frequency modulation minimizes radiated electromagnetic emissions. Integrated low $R_{\text{DS(on)}}$ switches improve efficiency at heavy loads and make the layout much simpler with respect to discrete solutions.

The device is offered with factory-preset output voltages. Other features include soft-start, overcurrent, and overtemperature protections.

Applications

- ADAS

Product Categories

[Power Management](#)

[Multitopology DC/DC](#)

Complete documentation is available upon completion of a Non-Disclosure Agreement (NDA). To request an NDA, [click here](#).

Product Lifecycle ☒ [Production](#)

At least one model within this product family is in production and available for purchase. The product is appropriate for new designs but newer alternatives may exist.

Evaluation Kits (1)

MAX20430EVKIT

The MAX20430 evaluation kit (EV Kit) is a fully assembled and tested application circuit for the MAX20430 high-efficiency four-output PMIC. The EV Kit operates to full load within the normal operating input range of 3.5V to 36V. The IC features two modes of watchdog operation, challenge/response and simple which can also be disabled for simplified evaluation. I²C communication must be used to configure the MAX20430 and monitor errors. A PC-to-I²C interface (MINIUSB or MAX32625PICO) and software for reading and writing to I²C registers (such as SimpleI2C) may simplify testing.

Applications

ADAS - Sensors
Low power clusters
Medium/Short Range Radar

Features & Benefits

- Integrated IC Minimizes Board Area and Layout
- Input Voltage Range from 3.5V to 36V
- User-Programmable Settings through I²C
- Challenge/Response or Simple Windowed Watchdog

- 2.1MHz Fixed-Frequency Switching with Spread-Spectrum Option
- Status Monitoring through Active-Low RESET Pin and I²C Status Registers
- Fully Assembled and Tested
- Proven PCB Layout with Automotive-Grade Components

Resources



MAX20430EVKIT Gerber Files - Design Files

ZIP
967.62K

Documentation & Resources

[View All \(1\)](#)

[Videos \(1\)](#)

DOCUMENT TYPE

VIDEOS



Design Resources

ADI has always placed the highest emphasis on delivering products that meet the maximum levels of quality and reliability. We achieve this by incorporating quality and reliability checks in every scope of product and process design, and in the manufacturing process as well. "Zero defects" for shipped products is always our goal.



[MAX20430 Material Declaration](#)



[Quality And Reliability](#)



[Symbols and Footprints](#)

PCN-PDN Information

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