

Conv DC-DC 3V to 36V Synchronous Step Down Single-Out 3.3V/1V to 32V 2A Automotive 9-Pin VQFN-HR T/R

| | | |
|----------------------|------------------------------------------------------------------------------------------------------------|-------------------------------|
| Manufacturer: | Texas Instruments, Inc | <input type="text"/> |
| Package/Case: | VQFN9 | Images are for reference only |
| Product Type: | Power Management ICs | Inquiry |
| RoHS: | RoHS Compliant/Lead free  | |
| Lifecycle: | Active | |

General Description

The LMR436x0-Q1 is the industry's smallest 36-V, 2-A and 1-A synchronous step-down DC/DC converters in a 2-mm × 2-mm HotRod package. This easy-to-use converter supports a wide input voltage range of 3.0 V to 36 V with transients up to 42 V.

The LMR43620-Q1 is specifically designed to meet low standby power requirements for always on, automotive applications. Auto mode enables frequency foldback when operating at light loads, allowing an unloaded current consumption of 1.5 μ A at 13.5 V_{IN} and high light load efficiency. A seamless transition between PWM and PFM modes along with very low MOSFET ON resistances provide exceptional efficiency across the entire load range.

The control architecture and feature set are optimized for an ultra-small solution size. The device uses peak current mode control to minimize output capacitance. The LMR436x0-Q1 minimizes input filter size by utilizing dual random spread spectrum, a low-EMI HotRod package, and an optimized pinout. The MODE/SYNC and RT pin variants can be used to set or synchronize the frequency between 200 kHz and 2.2 MHz to avoid noise sensitive frequency bands.

The rich feature set of the LMR436x0-Q1 is designed to simplify implementation for a wide range of automotive end equipments.

Key Features

AEC-Q100-qualified for automotive applications:
Temperature grade 1: -40°C to $+125^{\circ}\text{C}$, T_{A}

Functional Safety-Capable
Documentation available to aid functional safety system design

Greater than 85% efficiency at 1 mA
 $1.2\text{-}\mu\text{A}$ total non-switching I_{Q} at $13.5 V_{\text{IN}}$, fixed $3.3 V_{\text{OUT}}$

Miniature solution size and low component cost
 $2\text{-mm} \times 2\text{-mm}$ HotRod package with wettable flanks

Internal compensation

Optimized for ultra-low EMI requirements
Spread spectrum reduces peak emissions

Meets CISPR25 Class 5 standard

Pin selectable FPWM mode for constant frequency at light loads with MODE/SYNC pin

F_{SW} synchronization with MODE/SYNC pin

Designed for automotive applications
Junction temperature range: -40°C to $+150^{\circ}\text{C}$

Supports 42-V automotive load dump

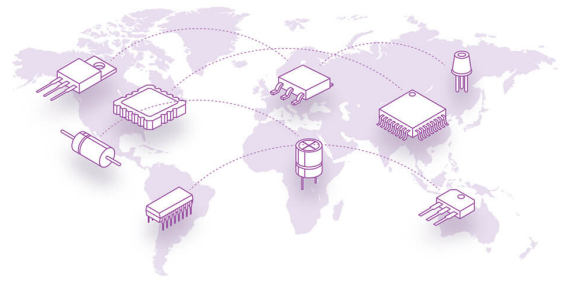
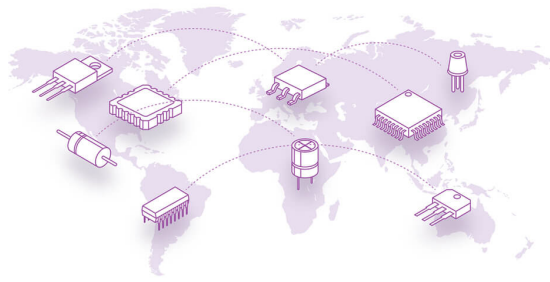
Supports $3\text{-}V_{\text{IN}}$ for automotive cold crank

Adjustable up to 95% of V_{IN} , 3.3-V and 5-V fixed V_{OUT} options available

Suitable for scalable power supplies
Adjustable F_{SW} : 200 kHz to 2.2 MHz (RT pin)

Pin compatible with:
LMR36506-Q1 (65 V, 600 mA)

LMR36503-Q1 (65 V, 300 mA)



Recommended For You

LM2637M

Texas Instruments, Inc

SOP24

LM5116MH

Texas Instruments, Inc

TSSOP20

LM234Z-3

Texas Instruments, Inc

TO-92

LM27761DSGR

Texas Instruments, Inc

WSO8

LM74700QDBVRQ1

Texas Instruments, Inc

SOT23-6

LM2991S

Texas Instruments, Inc

TO-263

LM74800QDRRRQ1

Texas Instruments, Inc

WSO-12

LMR14030SDDAR

Texas Instruments, Inc

SOP8

LM2940CT-12

Texas Instruments, Inc

TO-220

LM536035QPWPTQ1

Texas Instruments, Inc

HTSSOP-16

LM5575MH

Texas Instruments, Inc

TSSOP16

LM536013QDSXTQ1

Texas Instruments, Inc

WSO-10

LM5160QPWPRQ1

Texas Instruments, Inc

HTSSOP14

LM5576MH

Texas Instruments, Inc

TSSOP20

LMQ61460AFSQRJRRQ1

Texas Instruments, Inc

VQFN-14