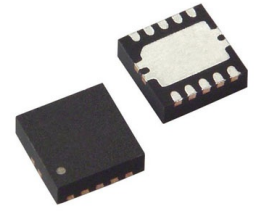


**Conv DC-DC 3.6V to 65V Synchronous Step Down Single-Out 5V  
0.6A Automotive 9-Pin VQFN-HR T/R**



Images are for reference only

**Manufacturer:** [Texas Instruments, Inc](#)

**Package/Case:** VQFN-HR9

**Product Type:** Power Management ICs

**RoHS:** RoHS Compliant/Lead free 

**Lifecycle:** Active

[Inquiry](#)

## General Description

The LMR36506-Q1 is the industry's smallest 65 V, 0.6 A synchronous step-down DC/DC converter in 2-mm x 2-mm HotRod package. This easy-to-use converter can handle input voltage transients up to 70 V, provide excellent EMI performance and support fixed 3.3 V, 5 V and other adjustable output voltages. The LMR36506-Q1 uses peak current mode control architecture with internal compensation and maintains stable operation with minimal output capacitance. The wide input operating range of the LMR36506-Q1 helps it remain functional during a deep input voltage sag condition, making it an excellent choice for automotive applications withstanding severe cold crank start impulses. The PGOOD flag in the LMR36506-Q1 provides precise indication of the output voltage status, eliminating the requirement for an external supervisor. A seamless transition from FPWM to PFM, with an ultra-low standby quiescent current allows the LMR36506-Q1 to support much higher system efficiency at low output loads. The MODE/SYNC pin variant helps to synchronize the LMR36506-Q1 to an external clock. With the right resistor selection, the LMR36506-Q1 RT pin variant can also be externally programmed to any desired switching frequency of operation. The rich feature set of the LMR36506-Q1 is designed to simplify implementation for a wide range of automotive end equipments.

## Key Features

AEC-Q100-qualified for automotive applications:  
Device temperature grade 1:  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ ,  $T_A$

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

$>80\%$  efficiency at 1 mA  
 $4\ \mu\text{A}$   $I_Q$  (switching) at 24  $V_{IN}$  to 3.3  $V_{OUT}$  (fixed output option)

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

Internal compensation

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

Pseudo-random spread spectrum compatible with CISPR 25 EMI standard

Wide input voltage range: 3.0 V (falling threshold) to 65 V

Adjustable, 3.3-V and 5-V fixed output voltage options available

Synchronizable with MODE/SYNC pin variant

Adjustable  $F_{SW}$ : 200 kHz to 2.2 MHz with RT pin variant

Pin compatible with LMR36503-Q1 (65 V, 300 mA)

## Recommended For You

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### 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

WSO8-12

### 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

WSO8-10

**LM5160QPWRQ1**

Texas Instruments, Inc

HTSSOP14

**LM5576MH**

Texas Instruments, Inc

TSSOP20

**LMQ61460AFSQRJRRQ1**

Texas Instruments, Inc

VQFN-14