

## Conv DC-DC 3V to 65V Synchronous Step Down Single-Out 5V 0.15A Automotive 10-Pin VSON EP T/R

<b>Manufacturer:</b>	<a href="#">Texas Instruments, Inc</a>	<a href="#">LM5165XQDRCRQ1 Image</a>
<b>Package/Case:</b>	VSON-10	Images are for reference only
<b>Product Type:</b>	Power Management ICs	<a href="#">Inquiry</a>
<b>RoHS:</b>	RoHS Compliant/Lead free 	
<b>Lifecycle:</b>	Active	

### General Description

The LM5165 device is a compact, easy-to-use, 3-V to 65-V, ultra-low IQ synchronous buck converter with high efficiency over wide input voltage and load current ranges. With integrated high-side and low-side power MOSFETs, up to 150-mA of output current can be delivered at fixed output voltages of 3.3 V or 5 V or at an adjustable output. The converter is designed to simplify implementation while providing options to optimize the performance for the target application. Pulse Frequency Modulation (PFM) mode is selected for optimal light-load efficiency or Constant On-Time (COT) control for nearly constant operating frequency. Both control schemes do not require loop compensation while providing excellent line and load transient response and short PWM on-time for large step-down conversion ratios.

The high-side P-channel MOSFET can operate at 100% duty cycle for lowest dropout voltage and does not require a bootstrap capacitor for gate drive. Also, the current limit setpoint is adjustable to optimize inductor selection for a particular output current requirement. Selectable and adjustable start-up timing options include minimum delay (no soft start), internally fixed (900µs), and externally programmable soft start using a capacitor. An open-drain PGOOD indicator can be used for sequencing, fault reporting, and output voltage monitoring. The LM5165 buck converter is available in a 10-pin, 3-mm × 3-mm, thermally-enhanced VSON-10 package with 0.5-mm pin pitch.

## Key Features

Wide Input Voltage Range of 3 V to 65 V

10.5- $\mu$ A No-Load Quiescent Current

Fixed (3.3-V, 5-V) or Adjustable Output Voltages

Meets EN55022 / CISPR 22 EMI Standards

Integrated 2- $\Omega$  PMOS Buck Switch

Supports 100% Duty Cycle for Low Dropout

Integrated 1- $\Omega$  NMOS Synchronous Rectifier

Eliminates External Rectifier Diode

Programmable Current Limit Setpoint (4 Levels)

Selectable PFM or COT Mode Operation

1.223-V  $\pm$ 1% Internal Voltage Reference

900- $\mu$ s Internal or Programmable Soft Start

Active Slew Rate Control for Low EMI

Diode Emulation Mode and Pulse Skipping for Ultra-High Light-Load Efficiency Performance

Monotonic Start-Up into Prebiased Output

No Loop Compensation or Bootstrap Components

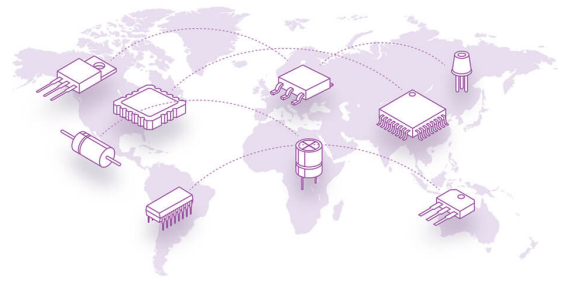
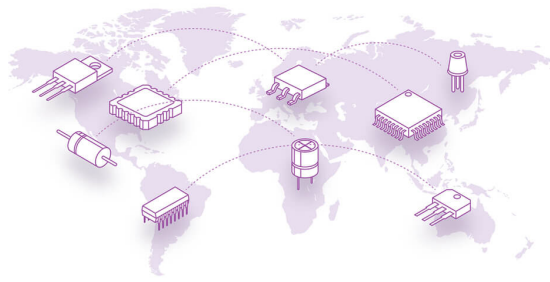
Precision Enable and Input UVLO With Hysteresis

Pin-to-pin Compatible With the LM5166

Thermal Shutdown Protection With Hysteresis

10-Pin, 3-mm  $\times$  3-mm VSON Package

Create a Custom Regulator Design Using WEBENCH Power Designer



## 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

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

### LM5160QPWPRQ1

Texas Instruments, Inc

HTSSOP14

### LM5576MH

Texas Instruments, Inc

TSSOP20

### LMQ61460AFSQRJRRQ1

Texas Instruments, Inc

VQFN-14