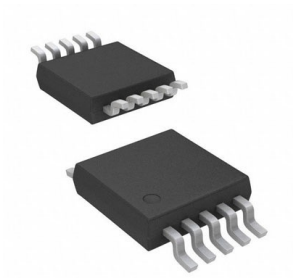


**Conv DC-DC 3V to 65V Synchronous Step Down Single-Out 3.3V
0.15A Automotive 10-Pin VSSOP T/R**



Images are for reference only

Manufacturer: [Texas Instruments, Inc](#)

Package/Case: VSSOP-10

Product Type: Power Management ICs

RoHS: RoHS Compliant/Lead free 

Lifecycle: Active

[Inquiry](#)

General Description

The LM5165-Q1 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 (900 μ s), 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-Q1 is qualified to automotive AEC-Q100 grade 1 and is available in 10-pin VSON and VSSOP packages with 0.5-mm pin pitch.

Key Features

AEC-Q100 qualified for automotive applications
Device temperature grade 1: -40°C to 125°C ambient temperature range

Device HBM ESD classification level 2

Device CDM ESD classification level C5

Wide input voltage range of 3 V to 65 V

10.5- μ A no-load quiescent current

-40°C to 150°C junction temperature range

Fixed (3.3 V and 5 V) or adjustable output voltages

Meets EN55022 / CISPR 22 EMI standards

Integrated 2- Ω PMOS buck switch
Supports 100% duty cycle for low dropout

Integrated 1- Ω NMOS synchronous rectifier
Eliminates external rectifier diode

Programmable current limit setpoint (four levels)

Selectable PFM or COT mode operation

1.223-V \pm 1% internal voltage reference

900- μ s internal or programmable soft start

Active slew rate control for low EMI

Monotonic start-up into prebiased output

No loop compensation or bootstrap components

Precision enable and input UVLO with hysteresis

Thermal shutdown protection with hysteresis

10-pin VSON and VSSOP packages

Use TPSM265R1 module for faster time to market

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