

Conv DC-DC 6V to 100V Synchronous Step Down Single-Out 1.2V to 90V 1A Automotive 8-Pin HSOIC EP T/R

Manufacturer:	Texas Instruments, Inc	LM5164QDDARQ1 Image
Package/Case:	HSOIC-8	Images are for reference only
Product Type:	Power Management ICs	Inquiry
RoHS:	RoHS Compliant/Lead free 	
Lifecycle:	Active	

General Description

The LM5164-Q1 synchronous buck converter is designed to regulate over a wide input voltage range, minimizing the need for external surge suppression components. A minimum controllable on-time of 50 ns facilitates large step-down conversion ratios, enabling the direct step-down from a 48-V nominal input to low-voltage rails for reduced system complexity and solution cost. The LM5164-Q1 operates during input voltage dips as low as 6 V, at nearly 100% duty cycle if needed, making it an excellent choice for high-performance 48-V battery automotive applications and MHEV/EV systems.

With integrated high-side and low-side power MOSFETs, the LM5164-Q1 delivers up to 1-A of output current. A constant on-time (COT) control architecture provides nearly constant switching frequency with excellent load and line transient response. Additional features of the LM5164-Q1 include ultra-low IQ and diode emulation mode operation for high light-load efficiency, innovative peak and valley overcurrent protection, integrated VCC bias supply and bootstrap diode, precision enable and input UVLO, and thermal shutdown protection with automatic recovery. An open-drain PGOOD indicator provides sequencing, fault reporting, and output voltage monitoring.

The LM5164-Q1 is qualified to automotive AEC-Q100 grade 1 and is available in a 8-pin SO PowerPAD package. Its 1.27-mm pin pitch provides adequate spacing for high-voltage applications.

Key Features

AEC-Q100-qualified for automotive applications

Device temperature grade 1: -40°C to $+125^{\circ}\text{C}$, ambient temperature range

Designed for reliable and rugged applications

Wide input voltage range of 6 V to 100 V

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

Fixed 3-ms internal soft-start timer

Peak and valley current-limit protection

Input UVLO and thermal shutdown protection

Suited for scalable automotive power supplies

Low minimum on- and off-times of 50 ns

Adjustable switching frequency up to 1 MHz

Diode emulation for high light-load efficiency

10.5- μA no-load input quiescent current

3- μA shutdown quiescent current

Optimized for CISPR 25 EMI standard

Integration reduces solution size and cost

COT mode control architecture

Integrated 0.725- Ω NFET buck switch supports wide duty cycle range

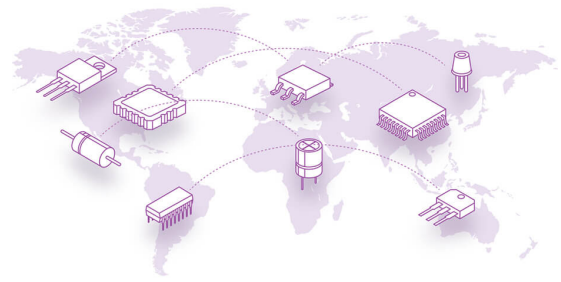
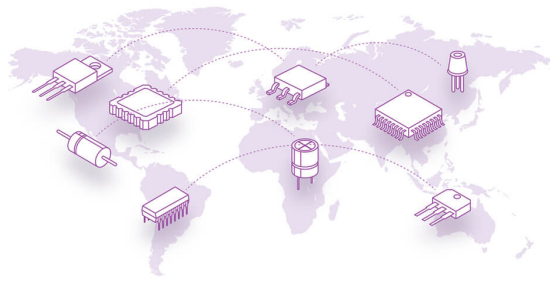
Integrated 0.34- Ω NFET synchronous rectifier eliminates external Schottky diode

1.2-V internal voltage reference

No loop compensation components

Internal VCC bias regulator and boot diode

Create a custom 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

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