UCC28180DR

Power Factor Correction Controller 0.075mA 18kHz to 250kHz 8-Pin SOIC T/R

Manufacturer:	Texas Instruments, Inc
Package/Case:	SOP8
Product Type:	Power Management ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The UCC28180 is a flexible and easy-to-use, 8-pin, active Power-Factor Correction (PFC) controller that operates under Continuous Conduction Mode (CCM) to achieve high Power Factor, low current distortion and excellent voltage regulation of boost pre-regulators in AC - DC front-ends. The controller is suitable for universal AC input systems operating in 100-W to few-kW range with the switching frequency programmable between 18 kHz to 250 kHz, to conveniently support both power MOSFET and IGBT switches. An integrated 1.5-A and 2-A (SRC-SNK) peak gate drive output, clamped internally at 15.2 V (typical), enables fast turn-on, turn-off, and easy management of the external power switch without the need for buffer circuits.

Low-distortion wave shaping of the input current using average current mode control is achieved without input line sensing, reducing the external component count. In addition, the controller features reduced current sense thresholds to facilitate the use of small-value shunt resistors for reduced power dissipation, especially important in high-power systems. To enable low current distortion, the controller also features trimmed internal current loop regulation circuits for eliminating associated inaccuracies.

Simple external networks allow for flexible compensation of the current and voltage control loops. In addition, UCC28180 offers an enhanced dynamic response circuit that is based on the voltage feedback signal to deliver improved response under fast load transients, both for output overvoltage and undervoltage conditions. An unique VCOMP discharge circuit provided in UCC28180 is activated whenever the voltage feedback signal exceeds VOVP_L thus allowing a chance for the control loop to stabilize quickly and avoid encountering the overvoltage protection function when PWM shutoff can often cause audible noise. Controlled soft start gradually regulates the input current during start-up and reduces stress on the power switches. Numerous system-level protection features available in the controller include VCC UVLO, peak current limit, soft overcurrent, output open-loop detection, output overvoltage protection and open-pin detection (VISNS). A trimmed internal reference provides accurate protection thresholds and regulation set-point. The user can control low-power standby mode by pulling the VSENSE pin below 0.82 V.

Key Features

8-Pin Solution (No AC Line Sensing Needed)

Wide Range Programmable Switching Frequency (18 kHz to 250 kHz for MOSFET and IGBT-based PFC Converters)

Trimmed Current Loop Circuits for Low iTHD

Reduced Current Sense Threshold (Minimizes Power Dissipation in Shunt)

Average Current-Mode Control

Soft Over Current and Cycle-by-Cycle Peak Current Limit Protection

Output Overvoltage Protection With Hysteresis Recovery

Audible Noise Minimization Circuitry

Open Loop Detection

Enhance Dynamic Response During Output Overvoltage and Undervoltage Conditions

Maximum Duty Cycle of 96% (Typical)

Burst Mode for No Load Regulation

VCC UVLO, Low ICC Start-Up (< 75 µA)

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Recommended For You

UCC28064ADR	**UC3637N**	**UCC27517DBVR**
Texas Instruments, Inc	Texas Instruments, Inc	Texas Instruments, Inc
SOP16	DIP-18	SOT23-5

UCC2946TPWRQ1

Texas Instruments, Inc

TSSOP8

UCC28730QDRQ1

Texas Instruments, Inc

SOP7

UCC21222QDRQ1

Texas Instruments, Inc

SOP16

UCD9090QRGZRQ1

Texas Instruments, Inc

VQFN-48

UCC27531QDBVRQ1

Texas Instruments, Inc

SOT23-6

UCC27511AQDBVRQ1

Texas Instruments, Inc

SOT23-6

UCC2803QDRQ1

Texas Instruments, Inc

SOP8

UCC28951QPWRQ1

Texas Instruments, Inc

TSSOP24

UCC21320QDWKRQ1

Texas Instruments, Inc

SOIC-14

UCC27322QDGNRQ1

Texas Instruments, Inc

HVSSOP-8

UCC28950QPWRQ1

Texas Instruments, Inc

TSSOP24

UCC2808AQDR-2Q1

Texas Instruments, Inc

SOP8