Device Information

ISL6364C Print Page

Dual 4-Phase + 1-Phase PWM Controller for VR12 Desktop Applications

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Datasheet



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V _{IN} (min) (V)	4.75
V _{OUT} (min) (V)	.25
V _{OUT} (max) (V)	1.52
I _{OUT} (max) (A)	130
V _{BIAS} (V)	5
Applications	VR12
Max # of outputs	2
Max # of phases	4
Droop	Y
Integrated MOSFET Driver	N

Product Information

Key Features

Support Intel VR12 for 0/1 Address

SerialVID with Programmable IMAX, TMAX, and BOOT Registers

Intersils Proprietary Enhanced Active Pulse Positioning (EAPP) Modulation Scheme (Patented)

Variable Frequency Control During Load Transients to Reduce Beat Frequency Oscillation

Linear Control with Evenly Distributed PWM Pulses for Better Phase Current Balance During Load Transients

Voltage Feed-Forward and Adjustable Ramp Options

High Frequency and PSI Compensation Options

Dual Outputs

Output 1 (VR0): 1 to 4-Phase for Core or Memory

Output 2 (VR1): Single Phase for Graphics, System Agent, or Processor I/O

Differential Remote Voltage Sensing

±0.5% Closed-loop System Accuracy Over Load, Line and Temperature

Proprietary Active Phase Adding and Dropping Scheme For Enhanced Light Load Efficiency

Droop Option

Programmable 1 or 2-Phase Operation in Low Power Mode

Precision Resistor or DCR Differential Current Sensing

Integrated Programmable Current Sense Resistors

Integrated Thermal Compensation

Accurate Load-Line (Droop) Programming

Accurate Channel-Current Balancing

Accurate Current Monitoring

Average Overcurrent Protection and Channel Current Limit With Internal Current Comparators Independent Oscillators, up to 1MHz Per Phase, for Cost, Efficiency, and Performance Optimization

Dual Thermal Monitoring and Thermal Compensation

Start-up Into Pre-Charged Load

Pb-Free (RoHS Compliant)

Not Controlled by Intersil Standard PCN Process

Description

The ISL6364C is a dual PWM controller; its 4-phase PWMs control the microprocessor core or the memory voltage regulator, while its single-phase PWM controls the peripheral voltage regulator for graphics, system agent, or processor I/O.

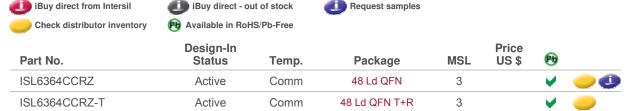
The ISL6364C utilizes Intersils proprietary Enhanced Active Pulse Positioning (EAPP) modulation scheme to achieve extremely fast transient response with fewer output capacitors.

The ISL6364C is designed to support Intel VR12 Desktop specifications. It accurately monitors the load current via the IMON pin and reports this information via the IOUT register to the microprocessor, which sends a PSI# signal to the controller at low power mode via SVID bus. The controller enters 1 or 2-phase operation in low power mode. In low power modes, the magnetic core and switching losses are significantly reduced, yielding high efficiency at light load. After the PSI# signal is de-asserted, the dropped phase(s) are added back to sustain heavy load transient response and efficiency.

Todays microprocessors require a tightly regulated output voltage position versus load current (droop). The ISL6364C senses the output current continuously by measuring the voltage across a dedicated current sense resistor or the DCR of the output inductor. The sensed current flows out of the FB pin to develop a precision voltage drop across the feedback resistor for droop control. Current sensing also provides information for channel-current balancing, average overcurrent protection and individual phase current limiting. The TM and TMS pins sense an NTC thermistors temperature, which is internally digitized for thermal monitoring and for integrated thermal compensation of the current sense elements of the respective regulator.

The ISL6364C features remote voltage sensing and completely eliminates any potential difference between remote and local grounds. This improves regulation and protection accuracy. The threshold-sensitive enable input is available to accurately coordinate the start-up of the ISL6364C with other voltage rails.

Pricing / Packaging / Samples / Ordering



The price listed is the manufacturer's suggested retail price for quantities of 1K units. However, prices in today's market are fluid and may change without notice.

MSL = Moisture Sensitivity Level - per IPC/JEDEC J-STD-020

SMD = Standard Microcircuit Drawing

Technical Documentation

Datasheet(s):

Dual 4-Phase + 1-Phase PWM Controller for VR12 Desktop Applications

Tools And Support

iSim Design Simulation

No Models Available



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