

Digital Dual Output 6+1-Phase VR13 PWM Controller

ISL69127

The [ISL69127](#) is a digital dual output, multiphase PWM controller designed to be compliant with Intel VR13 specifications. The digital multiphase controller can be configured to support any desired phase assignments on the second output channel, up to a maximum of six phases. The ISL69127 supports SVID interface along with PMBus v1.3 specifications, making it ideal for controlling the microprocessor core, memory, and system agent rails per Intel VR13 platforms.

The ISL69127 utilizes Intersil's proprietary digital linear synthetic current modulation scheme to achieve the industry's best combination of transient response and ease of tuning while addressing the challenges of powering the latest generation of Intel microprocessors. Device configuration and telemetry monitoring are accomplished via Intersil's intuitive PowerNavigator™ GUI. Diode emulation and automatic phase add/drop features allow the user to extract maximum efficiency from the converter regardless of load conditions.

The ISL69127 supports a comprehensive fault management system to enable the design of highly reliable systems. From an overcurrent protection scheme including peak and average detection, to the configurable power-good and catastrophic fault protection flags, any need is accommodated.

With minimal external components, ability to store eight configurations, robust fault management, and highly accurate regulation capability, implementing a high-performance, multiphase regulator has never been easier.

Applications

- Core and memory for Intel VR13 based designs
 - High-performance server core and memory rails
 - High-performance graphics rails
- Networking, data center, storage, and general purpose

Features

- Advanced linear digital modulation scheme
 - Zero latency synthetic current control for excellent high frequency current balance
 - Auto phase add/drop for excellent load vs efficiency profile
 - Excellent DVID performance
 - Dual edge modulation for faster transient response
- Up to 1MHz operation for high density designs
- Diode braking for overshoot reduction
- Diode emulation for enhanced light-load efficiency
- Differential remote voltage sensing supports $\pm 0.5\%$ closed-loop system accuracy over load, line and temperature
- Highly accurate current sensing for excellent load line regulation and accurate OCP
 - Supports the ISL99227 60A smart power stage
 - Supports DCR sense with integrated temperature compensation
- Comprehensive fault management enables high reliability systems
 - Pulse-by-pulse phase current limiting
 - Total output current protection
 - Output and input OV/UV protection
 - Open voltage sense detect
 - Black box recording capability for faults
 - Configurable Catastrophic Failure Protection (CFP) flag output
- Intuitive configuration via [PowerNavigator™](#)
- SMBus/PMBus v1.3 compatible
 - Up to 2MHz bus interface
 - NVM to store up to 8 configurations
- Pb-free (RoHS compliant)

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