

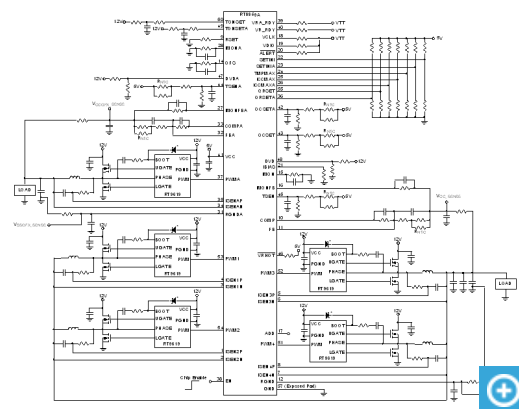
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Multi-Phase PWM Controller for CPU Core Power Supply

RT8859A

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The RT8859A is a VR12/IMVP7 compliant CPU power controller which includes two voltage rails : a 4/3/2/1 phase synchronous buck controller, the CORE VR, and a single phase buck controller, the GFX VR. The RT8859A adopts G-NAVP™ (Green Native AVP), which is Richtek's proprietary topology derived from finite DC gain compensator with current mode control, making it an easy setting PWM controller, meeting all Intel CPU requirements of AVP (Active Voltage Positioning). Based on the G-NAVP™ topology, the RT8859A also features a quick response mechanism for optimized AVP performance during load transient. The RT8859A supports mode transition function with various operating states. A serial VID (SVID) interface is built in the RT8859A to communicate with Intel VR12/IMVP7 compliant CPU. The RT8859A supports VID on-the-fly function with three different slew rates : Fast, Slow and Decay. By utilizing the G-NAVP™ topology, the operating frequency of the RT8859A varies with VID, load and input voltage to further enhance the efficiency even in CCM. The built-in high accuracy DAC converts the SVID code ranging from 0.25V to 1.52V with 5mV per step. The RT8859A integrates a high accuracy ADC for platform setting functions, such as no-load offset or over current level. The RT8859A provides VR ready output signals for both CORE VR and GFX VR. It also features complete fault protection functions including over voltage, under voltage, negative voltage, over current and under voltage lockout. The RT8859A is available in a WQFN-56L 7x7 small footprint package.

Applications

- VR12 / IMVP7 Intel CPU Core Supply
- AVP Step-down Converter
- Notebook/ Desktop Computer/ Servers Multi-Phase CPU Core Supply

[Key Spec. & Features](#)
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Features

	RT8859A
Status	NRND
Recommended Alternative 	
VID Table Support	VR12
Number of Phases	1;4
Vcc (typ) (V)	5
Vin (min) (V)	10.8
Vin (max) (V)	13.2
Accuracy (Vout>=1V) (+/- %)	0.5
Freq (typ) (kHz)	300
Built-in DAC Generator	Yes
Number of MOSFET Drivers	0
Features	Adjustable Frequency;DCR Current Sense;Droop Control;Enable Input;OCP;OVP;Power Good
Package Type	<u>WQFN7x7-56</u>

- 4/3/2/1 + 1 Phase PWM Controller
- Green-NAVP™ (Green Native Adaptive Voltage Positioning) Topology
- Serial VID Interface
- 0.5% DAC Accuracy
- Differential Remote Voltage Sensing
- Built-in ADC for Platform Programming
- Accurate Current Balance
- System Thermal Compensated AVP
- Diode Emulation Mode at Light Load Condition for Multiple and Single Phase
- Fast Transient Response
- VR12 / IMVP7 Compatible Power Management States
- VR Ready Indicator
- Thermal Throttling
- Current Monitor Output
- Switching Frequency up to 1MHz per Phase
- OVP, NVP, UVP, OCP, UVLO
- Small 56-Lead WQFN Package
- RoHS Compliant and Halogen Free

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