ISL95855

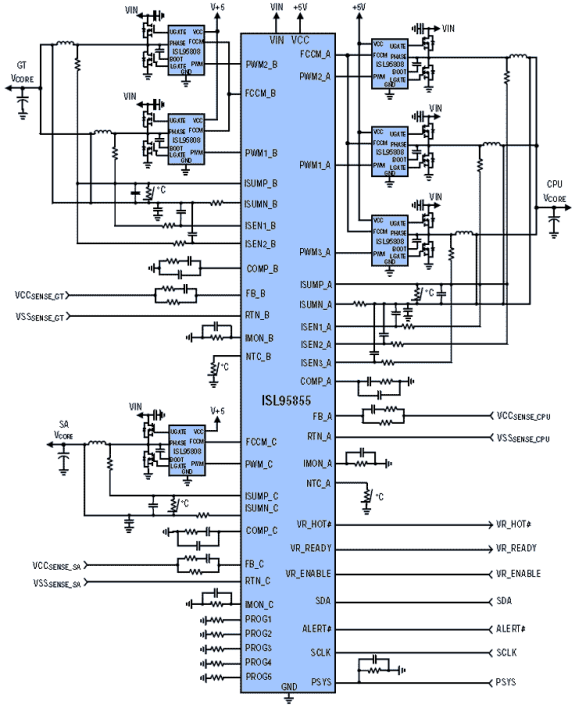
3+2+1 Voltage Regulator for IMVP8™ CPUs

Overview
Parametrics Documents Packaging & Environmental Resources Ordering

Key Features

- Support Intel serial data bus interface
- System input power monitor (PSYS) supported
- Three output controller
  - VR A configurable for 3-, 2-, 1-phase VR design
  - VR B configurable for 2-, 1-phase VR design
  - VR C supports 1-phase VR design
- 0.5% system accuracy over temperature
- Low supply current in PS4 state
- Supports multiple current sensing methods
  - Lossless inductor DCR current sensing
  - Precision resistor current sensing
- Differential remote voltage sensing
- Programmable SVID address
- Programmable VBOOT voltage at start-up
- Resistor programmable address selection, IMAX, slew rate, switching frequency and droop
- Adaptive body diode conduction time reduction

TYPICAL DIAGRAM



Description

Compliant with IMVP8™, the ISL95855 provides a complete power solution for Intel microprocessors supporting core, graphics and system agent rails. The controller provides control and protection for three Voltage Regulator (VR) outputs. The VR A output can be configured for 3-, 2- or 1-phase operation. VR B is configurable for 2- or 1-phase operation and

VR C supports 1-phase operation. The address options programmable for these three outputs allow for maximum flexibility in support of the IMVP8™ CPU. All three VRs share a common serial control bus to communicate with the CPU and achieve lower cost and smaller board area compared with a two-chip approach.

Based on Intersil's Robust Ripple Regulator (R3™) technology, the R3™ modulator has many advantages compared to traditional modulators. These include faster transient settling time, variable switching frequency in response to load transients and improved light-load efficiency due to diode emulation mode with load-dependent low switching frequency.

The ISL95855 has several other key features. The controller provides PWM outputs, which support Intel DrMOS power stages (or similar) and discrete power stages using the Intersil ISL95808 high voltage synchronous rectified buck MOSFET driver. The controller complies with IMVP8™ PS4 power requirements and supports power stages and drivers which are compatible. The ISL95855 supports the system input power monitor (PSYS) option. The controller supports either DCR current sensing with a single NTC thermistor for DCR temperature compensation, or more precision through resistor current sensing if desired. All three outputs feature remote voltage sense, programmable I_{MAX}, adjustable switching frequency, OC protection and a single VR_READY power-good indicator.

Applications

- IMVP8 compliant notebooks, desktops, ultrabooks and tablets

Parameters	ISL95855		Alternatives		
			ISL6261	ISL6266A	ISL9500
Max # of Outputs	3			1	1
Max # of Phases	3+2+1			2	2
V_{IN} (min) (V)	4.5		4.75	4.75	4.75
V_{IN} (max) (V)	25		24	24	5.25
V_{OUT} (min) (V)	0		0.3	0.3	0.7
V_{OUT} (max) (V)	1.52		1.5	1.5	1.708
I_{OUT} (max) (A)	120 | 85 | 27		50	100	60
V_{BIAS} (V)	4.75 to 5.25			4.75 to 5.25	4.75 to 5.25
VID	Yes		Yes	Yes	Yes
Applications	IMVP8		IMVP-6	IMVP-6+	
Qualification Level	Standard		Standard	Standard	Standard
Droop	Yes			Yes	Yes
Integrated MOSFET Driver(s)	No			No	Yes

Application Notes

Title	Type	Updated	Size	Other Languages
AN1681: Grounding Techniques Grounding Techniques	PDF	19 Jul 2018	509 KB	
AN1684: Nonideality of Ground Nonideality of Ground	PDF	19 Jul 2018	398 KB	

Datasheets

Title	Type	Updated	Size	Other Languages
ISL95855 Data Short 3+2+1 Voltage Regulator for IMVP8 CPUs	PDF	18 Jul 2018	193 KB	

Tech Briefs

Title	Type	Updated	Size	Other Languages
TB503 Skylake S-Line Applications: Setting VSA to SVID Skylake S-Line Applications: Setting VSA to SVID	PDF	15 Mar 2018	172 KB	

White Papers

Title	Type	Updated	Size	Other Languages
Five Easy Steps to Create a Multi-Load Power Solution	PDF	30 Jan 2017	502 KB	

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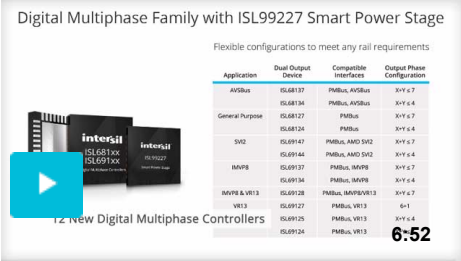
Devices

Part Number	Package Type	Weight(g)	Pins	MSL Rating	Peak Temp (°C)	RoHS Status
ISL95855IRTZ	 48 Ld TQFN	0.092	48	3	260	Details
ISL95855IRTZ-T	 48 Ld TQFN T+R	0.092	48	3	260	Details
ISL95855HRTZ	 48 Ld TQFN	0.092	48	3	260	Details
ISL95855HRTZ-T	 48 Ld TQFN T+R	0.092	48	3	260	Details

Resources

Related Videos

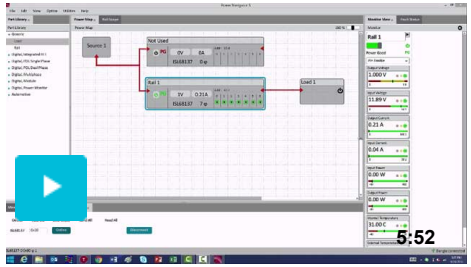


Digital Multiphase Power for 10A to 450A Applications

Introducing 12 new digital multiphase controllers and a companion smart power stage.

Digital Multiphase Family: Using PowerNavigator Software

This video is an overview of ISL68137 evaluation board, AVSBus and PowerNavigator v5.3.45.



Digital Multiphase Controllers with PowerNavigator: Overview

Introducing PowerNavigator v5.3.45 and its integration of the latest family of digital power multiphase controllers.

Digital Multiphase Controllers with PowerNavigator: Control Loop

Learn about full digital control loop and how easy it is to tune using PowerNavigator GUI software.

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