

Constant-On-Time Synchronous Buck Controller

Features

- Switching Frequency up to 1 MHz
- Proprietary S-Loop® Control Architecture
- All Output Ceramic Capacitor Solution
- Adaptive COT Architecture for Fast Load Transient Response
- Wide Input Voltage Range from 4.5 V to 16 V
- Wide Output Voltage Range from 0.6 V to 5.5 V
- Programmable Current Limit
- Internal LDO for MOSFET Driver Bias
- Output Tracking with External Reference Input
- UVLO/OCP/OVP/UVP/OTP Protections
- Pre-bias Startup with Programmable Soft Start Time
- Diode Emulation Mode for Light Load Efficiency Boost
- Ultra-compact 3 mm x 3 mm QFN package

Applications

- Enterprise Server Point of Load Converter
- Telecom and Networking DC/DC Converter
- Industrial DC/DC Converter

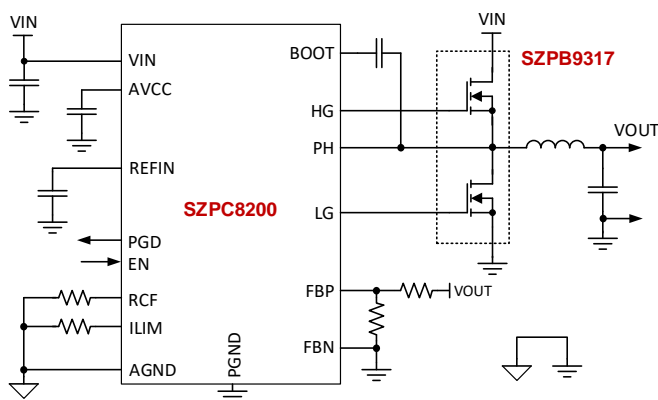


Figure 1: Simple Application Circuit for SZPC8200

Product Description

The SZPC820x is a high efficiency synchronous buck controller with integrated MOSFET driver. It incorporates Silanna's latest Constant-On-Time control architecture that provides ultra-fast load transient response and excellent load regulation. The device is designed to drive Silanna high-performance power blocks.

The SZPC820x employs Silanna's proprietary S-Loop™ control architecture that delivers fast transient performance without external compensation. The selectable switching frequency can operate as high as 1 MHz to minimize passive filter size.

The SZPC820x integrates protection features, including UVLO, OCP, OVP, UVP, and thermal shutdown.

The SZPC820x is available in the compact 3 mm x 3 mm QFN package and delivers high power density with a minimum number of external components.

There are two devices available in the family, the SZPC8200 and the SZPC8201, optimized to drive lower current and higher current power blocks from Silanna, the SZPB9317A and SZPB9314A, respectively.

Part Number	Description
SZPC8200A-CF33	Control for <= 8 A with SZPB9317A
SZPC8201A-CF33	Control for <= 25 A with SZPB9314A

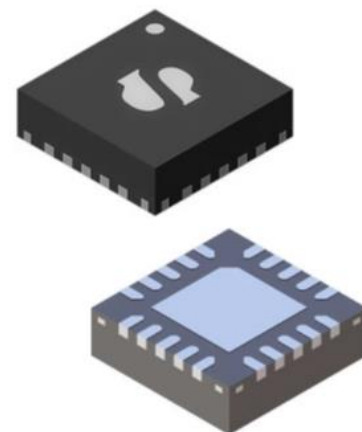


Figure 2: Device Package Image

Pin Out

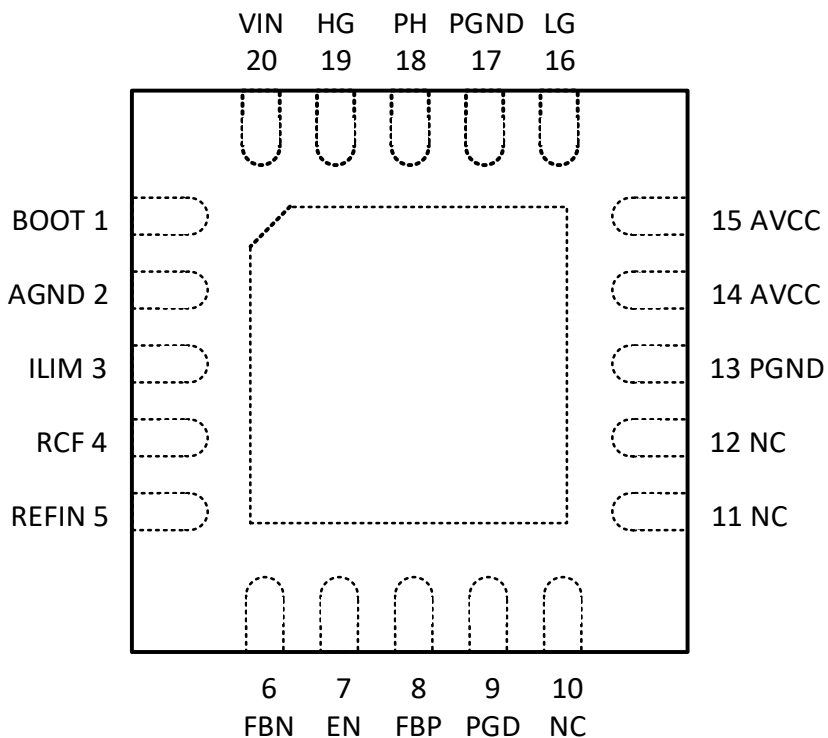


Figure 3: Device Top View

Pin Definitions

Pin #	Name	Description
1	BOOT	High-side driver supply
2	AGND	Return of internal analog circuitry
3	ILIM	Connect a resistor to AGND to set valley current limit
4	RCF	Connect a resistor to AGND to set switching frequency and DCM/CCM operation
5	REFIN	Connect to a capacitor to AGND, or to an external reference for output voltage tracking
6	FBN	Output remote sense return
7	EN	Enable input to initiate soft start
8	FBP	Output remote sense feedback
9	PGD	Power good output with open drain
10-12	NC	Make no connection
13	PGND	Power ground
14, 15	AVCC	Internal LDO output
16	LG	Low side gate output
17	PGND	Power ground
18	PH	Switch (phase) node of power stage
19	HG	High-side gate output
20	VIN	Power supply input to the internal LDO
-	Pad	Power pad. Connect to PGND plane or pour.

Functional Block Diagram

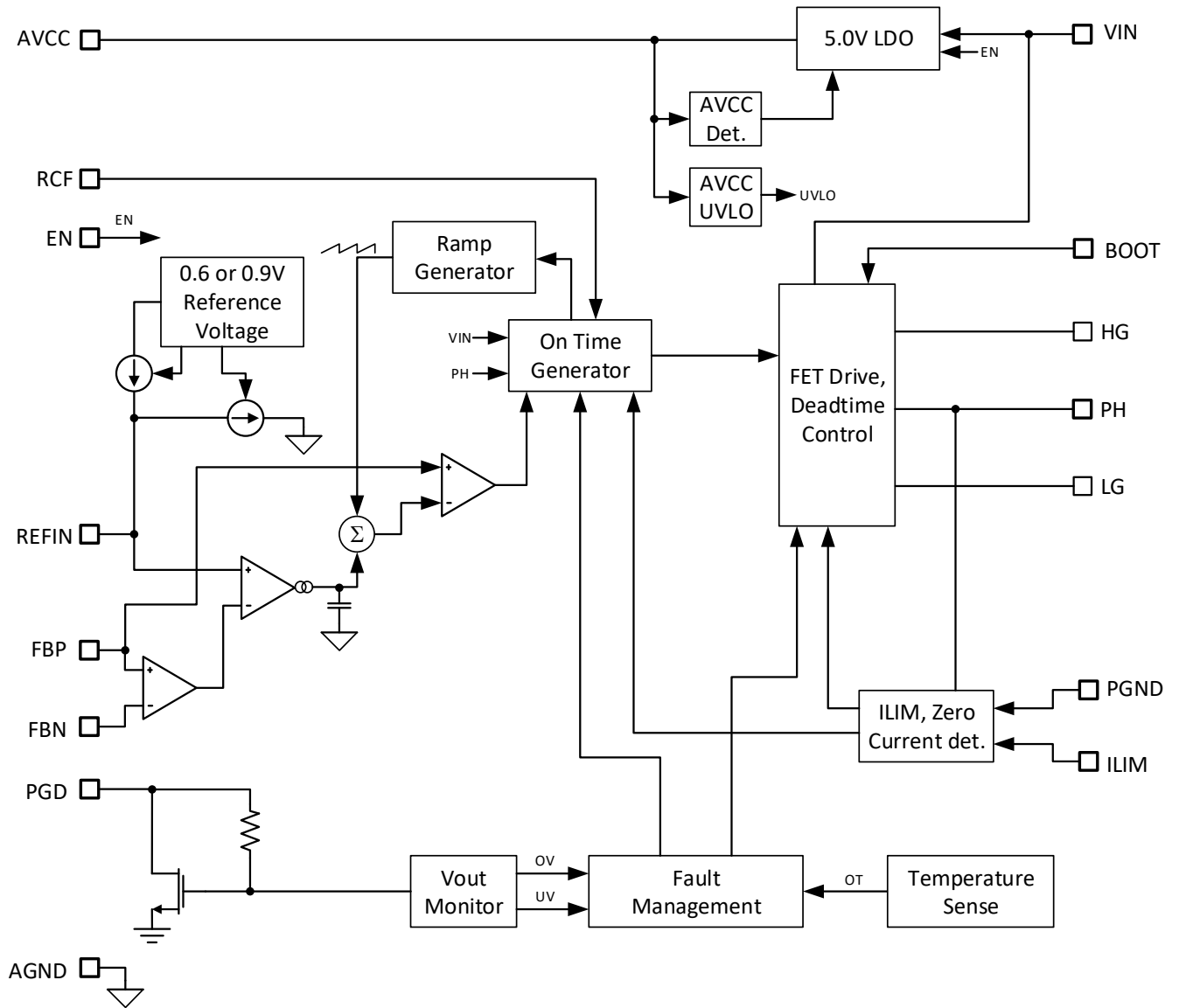


Figure 4: Functional Block Diagram

Product Ordering Information

Part Number	Description
SZPL8200A-CF33	Synchronous-buck COT controller in a 3 mm x 3 mm QFN; <= 8 A Load (with SZPB9317A power block)
SZPL8201A-CF33	Synchronous-buck COT controller in a 3 mm x 3 mm QFN; <= 25 A Load (with SZPB9314A power block)



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