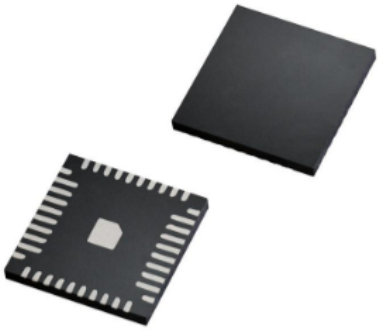
STPMIC06

Data brief

Power management IC - four buck regulators



Features

- Wide input voltage range from 4.5V to 15.6V
- 4 independent and fully programmable buck regulators
- Integrated NMOS supporting 3A maximum load
- Output voltage range from 0.5V to 3.3V (extended range from 3.0V to 5.4V with external resistor divider)
- PMBus® serial interface supports 1Mbit/s protocol (high-speed mode)
- Embedded NVM to store customized default parameters configuration such as
  - Output voltage, power up sequence, delay and startup slope
  - Enable and PGOOD configuration
  - Programmable current limit
  - Phase interleaving in steady state condition
  - Current limit
- Dynamic voltage scaling (DVS) support with programmable slope
- Automatic PFM / PWM modes for efficiency optimization
- Low quiescent current stand-by mode
- Auto discharge function on reset
- OTP, UVLO, OVP, UVP, OCP and short circuit protection

Application

- eSSD (solid state drives)
- Digital still camera, camcorder
- Embedded systems
- 12V Input system power management
- Server, cloud-computing, storage
- POL supply ffrom multiple li-ion battery cells

Product status link
STPMIC06

Product summary	
Order code	STPMIC06T
Ambient temperature range	-40 °C to +85 °C
Package	WFQFPN-40 5x5x0.6 mm
Packing	Tape and reel

Description

The STPMIC06 is a power management device with four high efficiency buck regulators.

Buck regulators can operate in parallel with a single output inductor to support up to 6A load or use external low side for higher load.

The regulators operate from 500 kHz up to 1.5 MHz switching frequency and enter automatically in PFM operation to maintain high efficiency over the entire load current range.

1 Pin description

Figure 1. **Pin configuration (bottom view)**

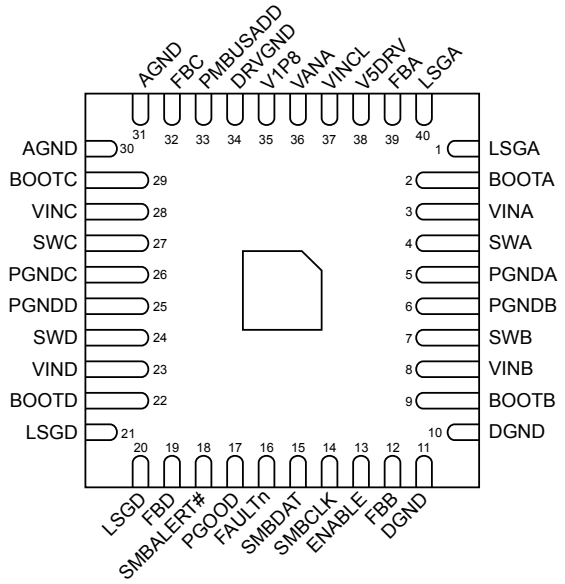


Table 1. **Pin description**

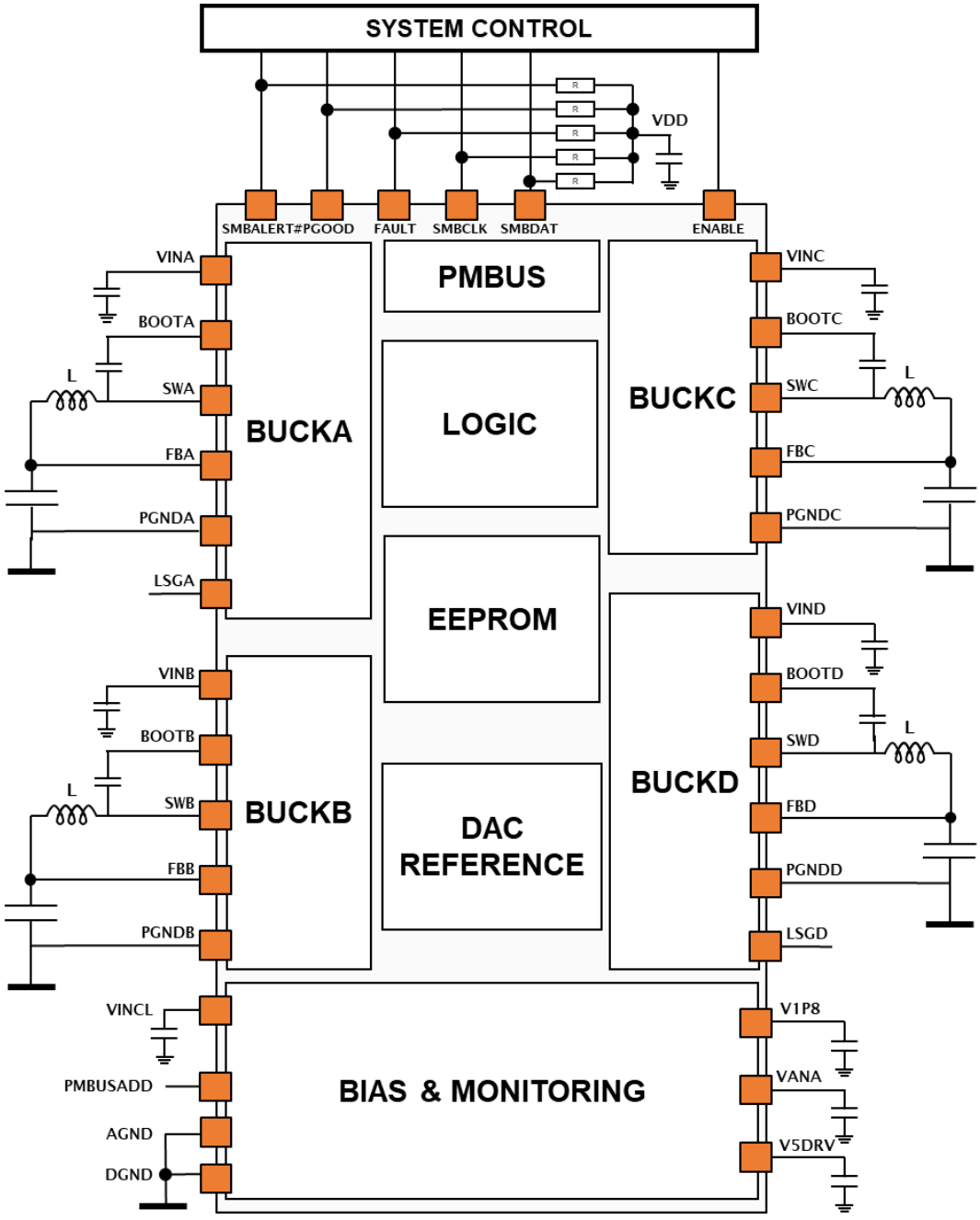
Pin #	Pin Name	Type	Description
1	LSGA	O	Low-side gate driver
2	BOOTA	P	Bootstrap capacitor
3	VINA	P	Power supply
4	SWA	O	Regulator switching node
5	PGNDA	G	Regulator ground
6	PGNDB	G	Regulator ground
7	SWB	O	Regulator switching node
8	VINB	P	Power supply
9	BOOTB	P	Bootstrap capacitor
10	DGND	G	Digital ground
11	DGND	G	Digital ground
12	FBB	I	Feedback
13	ENABLE	I	Digital enable
14	SMBCLK	I	PMBus® clock
15	SMBDAT	I/O	PMBus® data
16	FAULTn	O	Digital fault
17	PGOOD	O	Power good
18	SMBALERT#	O	Alert

Pin #	Pin Name	Type	Description
19	FBD	I	Feedback
20	LSGD	O	Low-side gate driver
21	LSGD	O	Low-side gate driver
22	BOOTD	P	Bootstrap capacitor
23	VIND	P	Power supply
24	SWD	O	Regulator switching node
25	PGNDD	G	Regulator ground
26	PGNDC	G	Regulator ground
27	SWC	O	Regulator switching node
28	VINC	P	Power supply
29	BOOTC	P	Bootstrap capacitor
30	AGND	G	Analog ground
31	AGND	G	Analog ground
32	FBC	I	Feedback
33	PMBUSADD	I	PMBus® address
34	DRVGND	G	Gate driver ground
35	V1P8	P	1.8V internal regulated voltage
36	VANA	P	4.2V internal regulated voltage
37	VINCL	P	Clean supply input
38	V5DRV	P	5V regulated voltage
39	FBA	I	Feedback
40	LSGA	O	Low-side gate driver

P	Power supply
G	Ground
O	Output
I/O	Input/output
I	Input

2 Typical application

Figure 2. **Typical application drawing**



Revision history

Table 2. **Document revision history**

Date	Version	Change
9-Mar-2021	1	Initial release
12-Dec-2022	2	Document originally confidential, now turned public. Updated order code and temperature range see at Product status link / summary.

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