# IDT P9122: Two Channel Synchronous Step-Down Switcher with Integrated FET Integrated Device Technology

**MEMORY AND LOGIC** 

INTERFACE AND CONNECTIVITY

• Input voltage range: 2.7 V to 5.5 V

- 2 step-down converters with integrated FETs
  - Buck 1: 2 A

**FEATURES** 

- Buck 2: 3 A
- Switching frequency 2 MHz
- · Buck 2 with optional 'analog switch mode'
- Low quiescent current: 25 μA (No load, PFM mode)
- Device sleep mode with less than 1µA lq
- Factory programmable output voltage: 0.8 3.4 V
- Automatic PFM/PWM or forced PWM mode
- Power Good and/or Power On Reset output
- Optional programmable sequence mode
- QFN 24-lead 4 x 4 mm x 0.8 mm
- Optional reference voltage output (VREF)
- No external filter/compensation
- · Benchmarking efficiency

## BENEFITS

- Configurable PMIC solution
- · Minmal external component count
- Optional in-circuit programming

#### **TARGET APPLICATIONS**

- · Point-of-load regulation in a variety of low power applications:
  - Solid State Disk Drive (SSD) Power Management
- Low power USB powered applications
- Set Top Box / TV power supply

For More Information

Visit www.idt.com/go/pmic

- Portable gaming

#### $V_{IN}$ FB1 FB1 PV<sub>IN</sub>1 PV<sub>IN</sub>1 LX1 LX1 PV<sub>IN</sub>2 PV<sub>IN</sub>2 PGND PGND1 **VINSEL** V<sub>REF (optional)</sub> V<sub>REF (optional)</sub> VGND $V_{gnd}$ **V**INSEL DEVSLPIN DEVSLPIN GP13 GP13 FB2 FB2 GPI014 **GPI014** LX2 V<sub>OUT</sub>2 LX2 V<sub>OUT</sub>2 **GPI015 GPI015** GP016 GP016 **GPI017** PGND2 **GPI017** PGND2 V<sub>IN</sub>SEL (pin 4) in Buck Configuration for V<sub>OUT</sub>2 V<sub>IN</sub>SEL (pin 4) in Switch Configuration for V<sub>OUT</sub>2

**POWER MANAGEMENT** 

The IDT P9122 supports several modes to control the two buck regulators and to generate status information like PG (power good) or POR (power on reset).

The IDT P9122 is a fully integrated power management IC designed to provide two programmable, high efficiency voltage regulator outputs with ultra-low quiescent currents during sleep mode or no-load conditions. To support low power operation, the IDT P9122 supports both sleep and standby modes.

The device can operate the second regulator in either buck or pass through switch configuration to support 5 V or 3.3 V supplied systems with a single solution.

Flexible production programming options allow for selectable direct buck enable inputs or programmable sequencing with power good and power on reset generation as well as programmable output voltages without the need for external adjustment components.

The P9122 is available in a 4 mm x 4 mm, 24-lead, QFN package and is guaranteed to operate over the industrial ambient temperature range of -40°C to +85°C.



### Graphical User Interface

Manual Pro C	-										
	0 Z	0.00	TH	. OUT-L	GP1014	O Z-Hgh	-	OUTL			
DEVSURIN	οz	0.05	TH.	B OUT-L	681015	O ZHIgh		€ OUT4		IDT	
CP13	e z	0.05	14	O OUT&	GPO16						
Dentos Selec	tion:	1019-1	9120	-	GFI017	O ZHIgh	8	⊛ OUT4	Integ	ated Device Technolo	
OTP Carliga	ation -										
Device Set	•							Balk 1-G	infiguration		
Device MODE		1	03: Individual Enable .					Buck1 Output Voltage		70071 = 1.80007, (8a10, dec))	
VREF Output Deable			0: VHEF = 0.5 x V0071(FRL)					Buck1 Fa	ced PWH	d: Bake PMM & PMM	
PORB Selection			000: P01 & P02 & P03 ·					Buck1 Str	Surdy Sector 0: Back1 OF during STANDES		
DEVSLP Mode Support 0: DETELEDE agenaned on power up .							Bush 2 - Configuration				
GPID Selve							Buk20a	tput Voltage	V0072 = 1.20007, (Bal0, decl)		
GEO Internet Delivery			d: Disable (inA publ-down to Viel *				- 141	Buck2Fa	Ded PWH	0: Auto PMbi a PRM	
OPD14 Herei Difun			fr friendle					Buik2 St	dty Selection a: Buak2 OR dusting STARDET +		
GPID14 Datest Select			0: Puth-mall sylmat .				-	Built 3 Continuation			
	GPI0141/0 Voteor		· VIIITA (PRA)				tput Voltage	90075 = 3.80007, (Ball, decl)	,		
	GPI015 Istenal Pulse			Disable				Buik37a	Ced PWH	0: Auto 2901 + 2255	
GPID15 Duput Select		44		Push-pall output				Bak3 2a	ndly Selection	4: Bucks Of during STARDET	,
GFID151/O Voltage		e i	0: VOITS (FB0)					Sequence			
GPO15 Internal Pull-up		44	81	Disable .			PawerOn	Seavence	011: Barkl -> Barkl -> Barkl	,	
GPD16 Output Select		ing i	1:	: Push-pall sytpat .				Prese On	Online 1	02: 0.1 mm	
2003 Oct 194			1. INVER- 1999				_				

Various device features can be configured during production using one time programmable fuse memory (OTP). During evaluation, the options can be evaluated using the compatible IDT P9120 Evaluation Kit (IDTP9120-EVAL) and USB-Bridge (USB-BRIDGEV2-EVAL).

DISCLAIMER Integrated Device Technology, Inc. (IDT) and its subsidiaries reserve the right to modify the products and/or specifications described herein at any time and at IDT's sole discretion. All i Notify the products and/or spectrations constructions and the operating parameters of the described products are de tation or warranty of any kind, whether express or implied, including his document is presented only as a guide and does not convey any an IDT product can be reasonably expected to significantly affect th to the state of th determined in the independent state and are not guaranteed to perfor fing, but not limited to, the suitability of IDT's products for any partic my license under intellectual property rights of IDT or any third partie the health or safety of users. Anyone using an IDT product in such a

Integrated Device Technology, IDT and the IDT logo are registered trademarks of IDT. Other trade © Copyright 2014. All rights reserved. rks used herein, including protec PB IDTP9122 0814

**INTEGRATED DEVICE TECHNOLOGY**