TPS546C23
Quick Reference Guide

For more information:
www.ti.com/product/TPS546C23

The TPS546C23 is a PMBus 1.3 Compliant, non-isolated DC-DC converter with integrated FETs, capable of high-frequency operation and 35-A current output from a 5 mm × 7 mm package. The PMBus interface offers converter configuration and monitoring of key parameters, including output voltage, current and internal die temperature. This quick reference guide provides key information that is helpful during the design, development and support processes. More information is available at: **www.ti.com/pmbus**

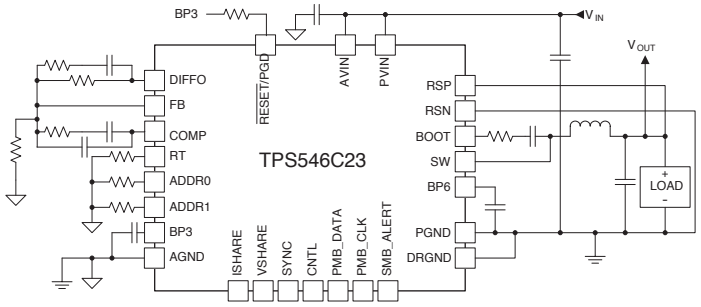

Figure 1: Simplified Application Diagram

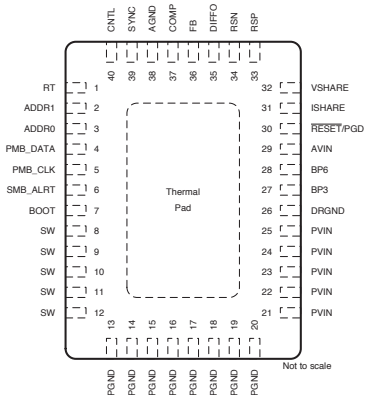

Figure 2. Pin Configuration

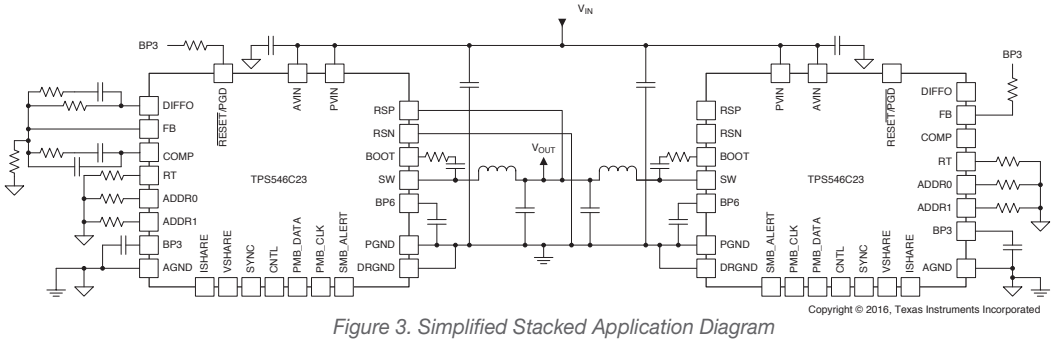

Figure 3. Simplified Stacked Application Diagram

DIGIT	RESISTOR VALUE (kΩ)
0	7.15
1	14
2	22.6
3	34.8
4	51.1
5	78.7
6	121
7	187

Table 1. Required Address Resistors

$$R_{RT} = \frac{2.01 \times 10^{10}}{f_{SW}}$$

Equation 1. Timing Resistor Value (Ω)

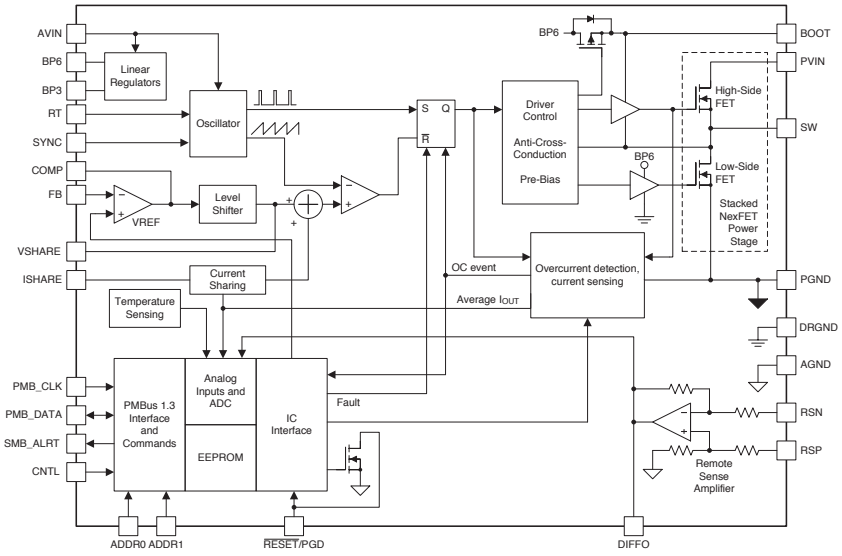

Figure 4. Functional Block Diagram

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PMBus Command List		Teal= read/write								Red = Read only								Shade = NVM Backup			
HEX	COMMAND NAME	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	Default	LSB Unit	Min	Max
1	OPERATION	-	-	-	-	-	-	-	-	ON	OFF	MARGIN				X	X	00h	-	-	-
2	ON_OFF_CONFIG	-	-	-	-	-	-	-	-	X	X	X	pu	cmd	cpr	pol	cpa	16h	-	-	-
3	CLEAR_FAULTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	WRITE_PROTECT	-	-	-	-	-	-	-	-	bit7	bit6	bit5	X	X	X	X	X	00h	-	-	-
11	STORE_DEFAULT_ALL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	RESTORE_DEFAULT_ALL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	STORE_USER_ALL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	RESTORE_USER_ALL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	CAPABILITY	-	-	-	-	-	-	-	-	PEC	SPD		ALRT	Reserved				B0h	-	-	-
1B	SMBALERT_MASK	Prevents warnings/fault from asserting SMBALERT' signal - Review PMBus 1.3 specification for more details.																-	-	-	-
20	VOUT_MODE	-	-	-	-	-	-	-	-	Mode		Exponent						17h	-	-	-
21	VOUT_COMMAND	Mantissa								Mantissa								0133h	1.95mV	0.35	5.5
24	VOUT_MAX	Mantissa								Mantissa								*	1.95mV	1.65	6
27	VOUT_TRANSITION_RATE	Exponent					Mantissa			Mantissa								D03Ch	-	0.067	1.5
29	VOUT_SCALE_LOOP	Exponent					Mantissa								Mantissa			F004h	-	0.25	1
2B	VOUT_MIN	Mantissa								Mantissa								*	1.95mV	0.35	6
35	VIN_ON	Exponent					Mantissa							Mantissa				F012h	0.25 V	4.25	7.75
36	VIN_OFF	Exponent					Mantissa							Mantissa				F010h	0.25 V	4	7.5
39	IOUT_CAL_OFFSET	Exponent					Man.	Mantissa				Mantissa						E000h	62.5 mA	-4	3.93
41	VOUT_OV_FAULT_RESPONSE	-	-	-	-	-	-	-	-	RSP	0	RS	RS		TD			BFh	-	-	-
45	VOUT_UV_FAULT_RESPONSE	-	-	-	-	-	-	-	-	RSP	0	RS	RS		TD			BFh	-	-	-
46	IOUT_OC_FAULT_LIMIT	Exponent					Mantissa			Mantissa						Mantissa		F854h	0.5A	5	52
47	IOUT_OC_FAULT_RESPONSE	-	-	-	-	-	-	-	-	RSP	RSP	RS	RS		TD			FFh	-	-	-
4A	IOUT_OC_WARN_LIMIT	Exponent					Mantissa			Mantissa								F84Ah	0.5A	4	50
4F	OT_FAULT_LIMIT	Exponent					Mantissa			Mantissa								0091h	1°C	120	165
50	OT_FAULT_RESPONSE	-	-	-	-	-	-	-	-	RSP	0	RS	RS		TD			3Fh	-	-	-
51	OT_WARN_LIMIT	Exponent					Mantissa			Mantissa								0078h	1°C	100	140
60	TON_DELAY	Exponent					Mantissa			Mantissa								0000h	1 ms	0	100
61	TON_RISE	Exponent					Mantissa			Mantissa								0003h	1 ms	1	100
62	TON_MAX_FAULT_LIMIT	Exponent					Mantissa			Mantissa								0000h	-	No limit	100
63	TON_MAX_FAULT_RESPONSE	-	-	-	-	-	-	-	-	RSP	0	RS	RS		TD			BFh	-	-	-
64	TOFF_DELAY	Exponent					Mantissa			Mantissa								0000h	1ms	0	52
65	TOFF_FALL	Exponent					Mantissa			Mantissa								0000h	1ms	1	52
78	STATUS_BYTE	-	-	-	-	-	-	-	-	X	OFF	OVF	OCF	X	OTFW	CML	oth	**	-	-	-
79	STATUS_WORD	VFW	OCFW	INPUT	MFR	PGOOD_Z	X	X	X	X	OFF	OVF	OCF	X	OTFW	CML	oth	**	-	-	-
7A	STATUS_VOUT	-	-	-	-	-	-	-	-	OVF	OVW	UVW	UVF	MAXMINW	TONMAXF	X	X	**	-	-	-
7B	STATUS_IOUT	-	-	-	-	-	-	-	-	OCF	X	OCW	X	X	X	X	X	**	-	-	-
7C	STATUS_INPUT	-	-	-	-	-	-	-	-	X	X	X	X	LOW_Vin	X	X	X	**	-	-	-
7D	STATUS_TEMPERATURE	-	-	-	-	-	-	-	-	OTF	OTW	X	X	X	X	X	X	**	-	-	-
7E	STATUS_CML	-	-	-	-	-	-	-	-	ivc	ivd	pec	mem	X	X	oth	X	**	-	-	-
80	STATUS_MFR_SPECIFIC	-	-	-	-	-	-	-	-	otf_bg	illzero	illmany1s	iv_ppv1	iv_ppv0	0	is_Slave	sync_fit	**	-	-	-
8B	READ_VOUT	Mantissa																0000h	1.95mV	0.35	5.5
8C	READ_IOUT	Exponent					Mantissa											E000h	62.5 mA	0	40
8D	READ_TEMPERATURE_1	Exponent					Mantissa											0000h	-	0	150
98	PMBUS_REVISION	-	-	-	-	-	-	-	-	0	0	1	1	0	0	1	1	33h	-	-	-
AD	IC_DEVICE_ID	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1	1	4623h	-	-	-
AE	IC_DEVICE_REV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0001h	-	-	-

** = Varies based on value of VOUT_SCALE_LOOP. ** = Status registers reflect the device's current status. Note: Consult datasheet for details on manufacturer-specific commands.*

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