1-channel Step-down PWM switching regulator controller with synchronous rectification

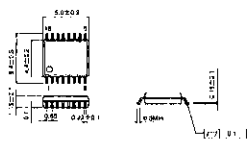
BD9721FV

●Description

The BD9721FV is a 1-chip synchronous rectification step down PWM switching regulator controller IC for a DC/DC converter. The synchronous rectification system achieves higher efficiency. It incorporates a timer latch short protection circuit and a stand-by switch, while supporting low consumption current during OFF output.

●Dimension (Units : mm)

•SSOP-B16



SSOP-B16

●Features

1) High efficiency: more than 95%, Io=1A
2) External output voltage control: High precisely feedback voltage : 2%
3) 3A class NchFET direct drive
4) Built-in timer latch protection circuit
   External capacitor needed
5) Stand-by switch
   Stand-by current: less than 5 μ A

●Applications

HDD, PC,
Applications required 1.5~3.3V output from 5V power supply

●Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Supply voltage1 (Vcc−GND)	V_{CC}	15	V
Supply voltage2 (PVcc1−SW)	PVcc1	7.5	V
Supply voltage3 (PVcc2−PGND)	PVcc2	7.5	V
Power dissipation	Pd	450 ✱1	mW
Operating temperature range	Topr	0 ~ 70	℃
Storage temperature range	Tstg	−55 ~ +125	℃
Output current	Io	300 ✱2	mA

✱1 Derating: 4.5mW/℃ for operation above Ta=25℃.
✱2 Do not exceed PD and ASO.

●Recommended Operating Conditions (Ta=25℃)

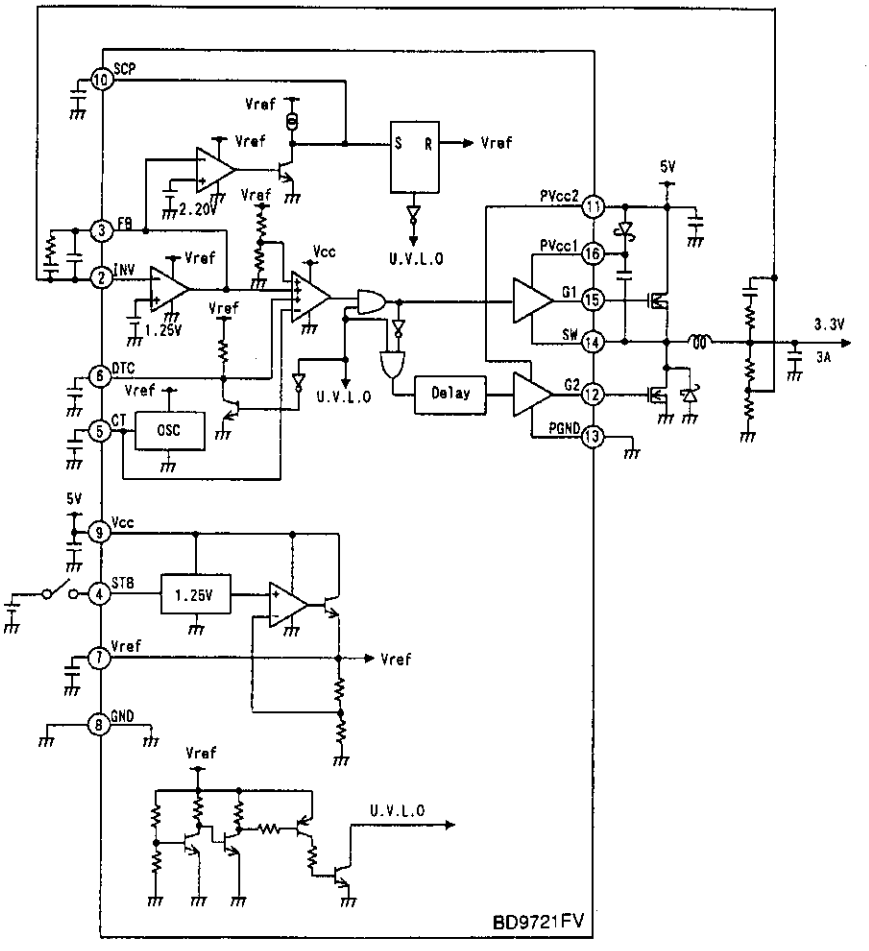
Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage1 (Vcc−GND)	Vcc	3.8	−	13.0	V
Supply voltage2 (PVcc1−SW)	PVcc1	3.8	−	6.5	V
Supply voltage3 (PVcc2−PGND)	PVcc2	3.8	−	6.5	V
Output current	Io	−	−	200	mA
Timing capacitance	CCT	75	−	470	pF
Oscillator frequency	Fosc	100	−	500	kHz
Stand-by voltage	Vstb	GND	−	Vcc	V
Error amplifier input voltage	VINV	GND	−	1.6	V

Note: In case of boostup of PVcc1, the voltage is approximately twice as mach as PVcc2.

●Electrical Characteristics (Unless otherwise noted, Ta=25℃, Vcc= 5V, PVcc=5V, f=300kHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Reference voltage	VREF	2.4	2.5	2.6	V	IREF=1mA
Oscillator frequency	Fosc	240	300	360	kHz	CCT=150pF
Maximum duty	DMAX	80	83	86	%	
Feedback voltage	VF	1.225	1.25	1.275	V	INV=FB
Output rise/fall time	Tr/Tf	−	80	−	nS	Cgate=2000pF, PVcc×0.1⇔PVcc×0.9
Synchronous output non-over lap time	Tmo	50	150	−	nS	Cgate=2000pF, G1&G2≦0.5V
Active voltage	VTHA	2.4	−	−	V	
Stand-by voltage	VTHS	−	−	0.8	V	
Stand-by current	Iccs	−	−	5	μA	

●Block Diagram



littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.