

# System regulator for hard disk drive systems

## BD9722FV

BD9722FV is a system regulator to convert into two systems of power supply from 5V. One is a synchronous rectification DC/DC controller. It enables to determine 1.0~3.3V output with external resistor and to provide power supply to a high current system. Another is a series power supply of an external NPN Tr drive type. It can be set up either 1.8V or 2.5V in a CTL terminal.

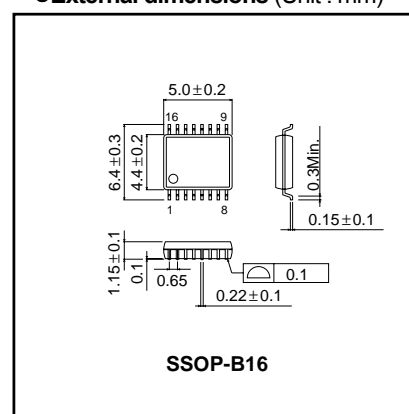
### ●Applications

HDD, PC

### ●Features

- 1) High accurate Feed Back voltage ( $\pm 2\%$ ).
- 2) Synchronous rectification.
- 3) Gate drives for external Nch MOSFET's.
- 4) Short circuit protector with latch.
- 5) Under voltage lockout.
- 6) Soft start circuit.
- 7) Drives external NPN transistor for Vpp.
- 8) Variable switch of Vpp voltage (1.8V or 2.5V).

### ●External dimensions (Unit : mm)



### ●Absolute maximum rating (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage1(Vcc-GND)	Vcc	-0.3 to +15	V
Supply voltage2(PVcc1-SW)	PVcc1-1	-0.3 to +7.5	V
Supply voltage3(PVcc2-PGND)	PVcc2	-0.3 to +7.5	V
Supply voltage4(PVcc1-GND)	PVcc1-2	-0.3 to +15	V
Power dissipation	Pd	450 <sup>*1</sup>	mW
Operating temperature range	Topr	0 to +70	°C
Storage temperature range	Tstg	-55 to +125	°C

\*1:Reduced by 4.5 mW for each increase in Ta of 1°C over 25°C  
(when mounted on a board 50.0mm×50.0mm×1.6mm)

### ●Recommended operating conditions (Ta=25°C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply voltage1(Vcc-GND)	Vcc	4.2	-	13.0	V
Supply voltage2(PVcc1-SW)	PVcc1-1	4.2	-	6.5	V
Supply voltage3(PVcc2-PGND)	PVcc2	4.2	-	6.5	V
Supply voltage4(PVcc1-GND)	PVcc1-2	4.2	-	13.0	V
Output pin current	Io	-	-	200	mA

\*In the case of boost-up of PVcc1, the voltage is approximately twice as much as PVcc2.

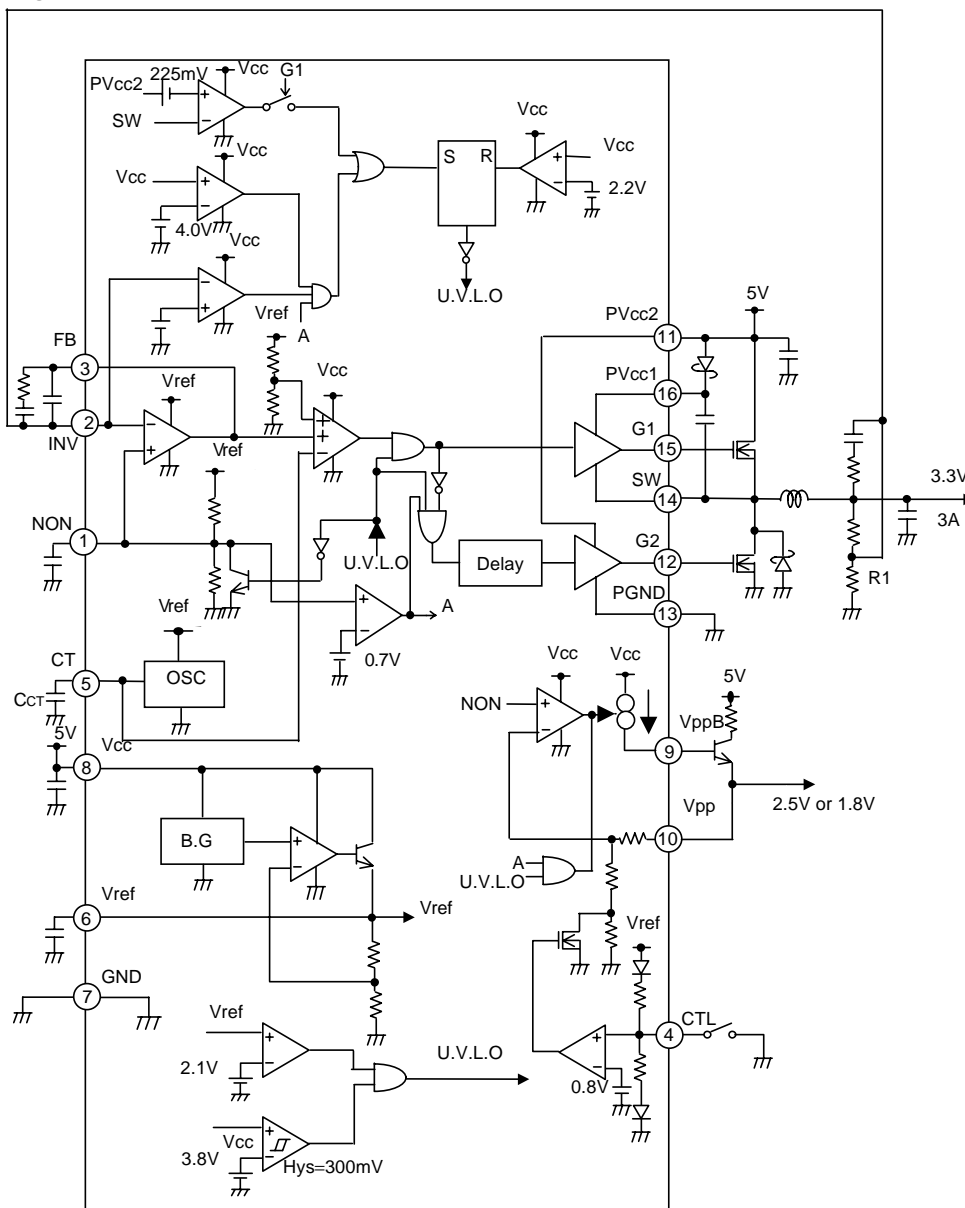
Regulators

●Electrical characteristics (Unless otherwise noted. Ta=25°C, Vcc=PVcc1=PVcc2=5V, CTL=GND)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Conditions
Output voltage	VREF	2.4	2.5	2.6	V	Iref=1mA
Oscillator frequency	FOSC	240	300	360	kHz	CCT=150pF
Maximum duty cycle	DMAX	80	83	86	%	VINV=0.9V, CCT=150pF
Threshold voltage	VUT	3.65	3.8	3.95	V	Vcc Voltage
Error amplifier reference voltage	NON	0.980	1.000	1.020	V	CTL=GND
Output rise/Fall time	Tr/Tf	-	80	-	ns	Cgate=2000pF, PVcc×0.1 ⇔ PVcc×0.9
Output voltage1	Vpp1	2.4	2.5	2.6	V	2SC2411K, CTL Open/High
Output voltage2	Vpp2	1.7	1.8	1.9	V	2SC2411K, CTL Low
VppB pin maximum current	IvppB	12	20	-	mA	VppB=3.2V

\*Designed Guarantee (Outgoing inspection is not done on all products.)

●Block Diagram



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