

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.

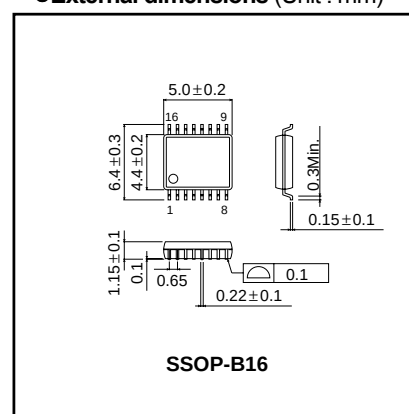
●Applications

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 *1	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.

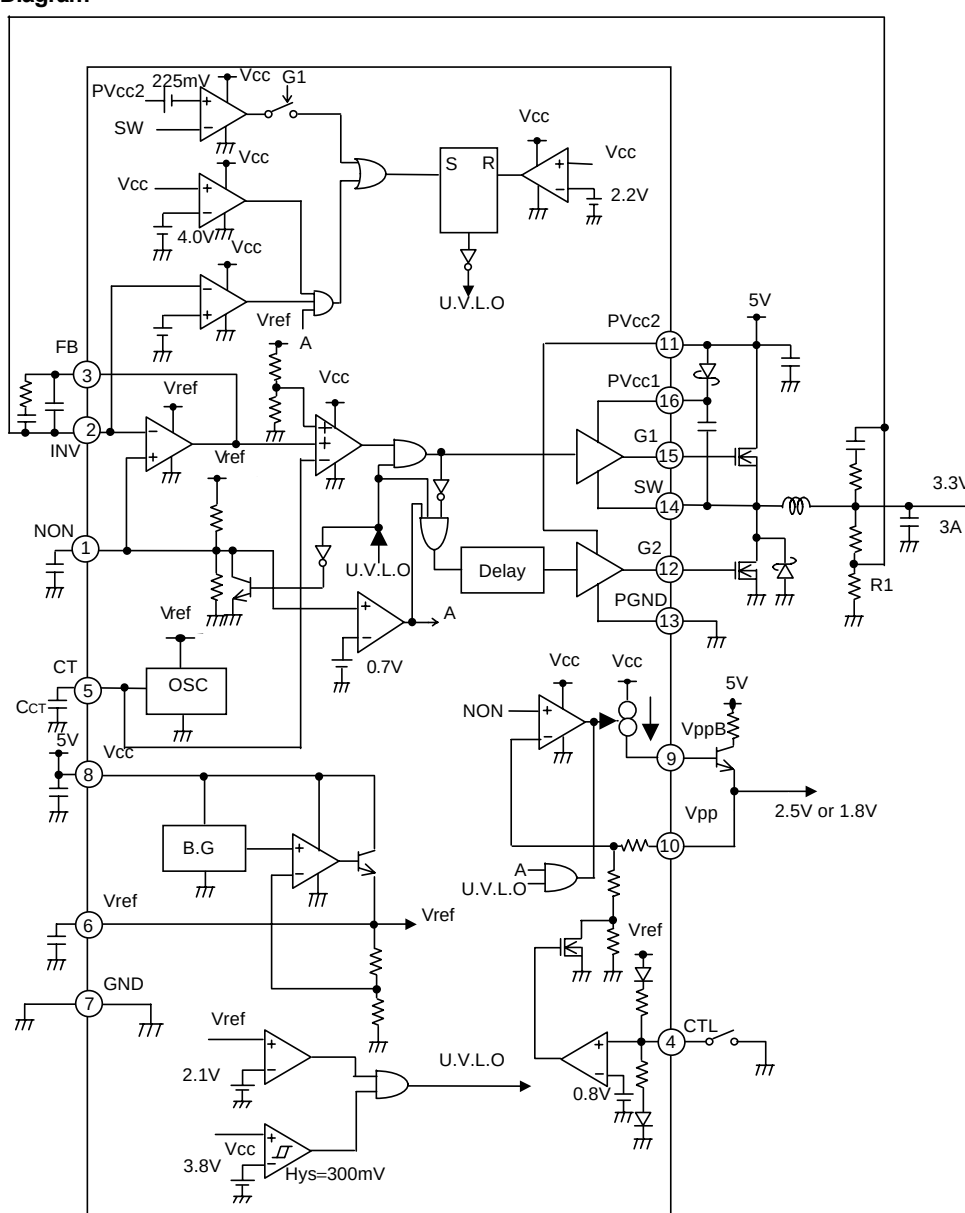
Regulators

●Electrical characteristics (Unless otherwise noted. Ta=25°C, V_{CC}=PV_{CC1}=PV_{CC2}=5V, CTL=GND)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Conditions
Output voltage	V _{REF}	2.4	2.5	2.6	V	I _{ref} =1mA
Oscillator frequency	F _{OSC}	240	300	360	kHz	C _{CT} =150pF
Maximum duty cycle	D _{MAX}	80	83	86	%	V _{INV} =0.9V, C _{CT} =150pF
Threshold voltage	V _{UT}	3.65	3.8	3.95	V	V _{CC} Voltage
Error amplifier reference voltage	NON	0.980	1.000	1.020	V	CTL=GND
Output rise/Fall time	T _r /T _f	—	80	—	ns	C _{gate} =2000pF, PV _{CC} ×0.1⇔PV _{CC} ×0.9
Output voltage1	V _{pp1}	2.4	2.5	2.6	V	2SC2411K, CTL Open/High
Output voltage2	V _{pp2}	1.7	1.8	1.9	V	2SC2411K, CTL Low
V _{ppB} pin maximum current	I _{vppB}	12	20	—	mA	V _{ppB} =3.2V

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

●Block Diagram



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