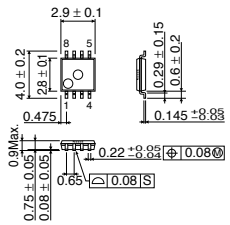
High-speed transient response 1-channel synchronous rectifier DC/DC converter controller IC

BD9102FVM

● Description

BD9102FVM is a DC/DC converter controller IC with built-in 1 channel synchronous rectifier. This IC adopts current mode control system to deliver higher speed transient response than conventional DC/DC converter IC. Synchronous rectifier and ON/OFF switch function is incorporated to reduce power consumption. Small MSOP8 package is adopted. This IC is perfect for HDD and small portable appliances such as PDAs.

● Dimension (Unit : mm)



MSOP8

● Features

1) High-speed transient response by current mode PWM control
2) Built-in synchronous rectifier (Nch/Pch FET)
3) High-efficient in all load area (Simple Light Load Mode)
4) Built-in soft start circuit
5) Built-in thermal shutdown circuit
6) Built-in UVLO protection function
7) Built-in timer latch short protection circuit
8) Out voltage accuracy +/-2%
9) Built-in shutdown function Icc=0uA(typ.)

● Applications

Power supply for HDD, Power supply for portable appliances such as PDAs, Power supply for LSI such as CPU and ASIC

● Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	–0.3 ~ +7	V
Power dissipation	Pd	587.4 *	mW
Operating temperature range	Topr	–25 ~ +85	˚C
Storage temperature range	Tstg	–55 ~ +150	˚C

*Derating : 4.7mW/˚C for operation above Ta=25˚C
*PCB (70mmx70mm, t=1.6mm) glass epoxy mounting.

●Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
VCC voltage	VCC	4.0	5.0	5.5	V

●Electrical Characteristics (Unless otherwise noted; Ta=25˚C, Vcc=5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current at standby mode	ISTB	–	0	10	μA	EN=GND
Circuit current at active mode	ICC	–	250	400	μA	EN=Vcc
Operating frequency	FOSC	0.8	1	1.2	MHz	
Pch FET ON resistance	RONP	–	0.35	0.6	Ω	PVcc=5V (Design guaranteed)
Nch FET ON resistance	RONN	–	0.25	0.5	Ω	PVcc=5V (Design guaranteed)
Output voltage	VOUT	1.215	1.240	1.265	V	
UVLO threshold voltage	VUVLOTh	2.6	2.7	2.8	V	Vcc=3V → 2.4V
Soft start time	TSS	0.5	1	2	ms	
Timer latch time	TLATCH	0.5	1	2	ms	

●Application Circuit