Single chip driver IC for slim CD-ROM, DVD-ROM

BH6544KV

●Description

The BH6544KV is a 4-channel PWM driver IC for CD-ROM, and DVD-ROM. Three-phase PWM driver for spindle driving and PWM driver for sled motor and actuator are integrated into a single chip. Consumption current at stand-by mode can be reduced to 0μA due to stand-by function.

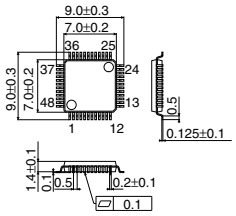
●Features

1) ON resistance of output power MOS is low.
   Spindle section: 0.5Ω(Typ.)
2) VQFP48C package enables a smaller set.
3) Built-in stand-by circuit
4) Current limit, hall bias, FG output and reverse protection function are integrated into a three-phase PWM driver.
5) Built-in a thermal shut down circuit
6) Built-in a charging-pump circuit

●Applications

Slim CD-ROM, Slim DVD-ROM

●Dimension (Units : mm)



VQFP48C

●Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	9	V
Power dissipation	Pd	1180 *1	mW
Operating temperature range	Topr	–30 ~ +85	˚C
Storage temperature range	Tstg	–55 ~ +150	˚C
Maximum output current	I_{OMAX}	3 *2	A

*1 Derating: 9.5mW/˚C for operation above Ta=25˚C.
*2 Intermittent current at maximum applied time of 5msec, 1/10 duty (Max.)

●Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	PRE/POW Vcc	4.3	5.0	5.5	V

●Electrical characteristics

(Unless otherwise noted; Ta=25˚C, Vcc=5V, Vref=1.65V, RL(3ch)=8Ω+47μH, RL(SP)=2Ω+47μH, RNF=0.33Ω)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current at stand-by mode	IST	—	0	0.1	mA	
Quiescent current	IQ	—	6	12	mA	
<PWM driver>						
Input dead zone (One-sided)(CH1,2)	VDZ1,2	0	7	15	mV	
Input dead zone (One-sided)(CH3)	VDZ3	0	20	50	mV	
Voltage gain (CH1)	GVC	15	17.5	20	dB	
Voltage gain (CH2,3)	GVC	15.5	17.5	19.5	dB	
Output ON resistance (CH1,2)	RON1,2	—	1.7	3.0	Ω	Io=500mA
Output ON resistance (CH3)	RON3	—	1.2	2.1	Ω	Io=500mA
<Three-phase motor driver>						
Input dead zone (0ne-sided)	VDZ2	5	50	100	mV	
Input/Output gain	gm2	0.75	1.00	1.25	A/V	RNF=0.33Ω
Output ON resistance	RONSP	—	0.5	1.0	Ω	Io=500mA
Output limit voltage	VLIM2	0.16	0.2	0.24	V	RNF=0.33Ω

●Application circuit