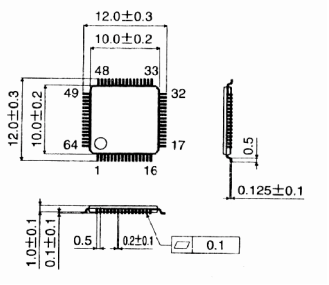
System Motor Driver IC for PB/REC portable MD
BD6603KVT

●Description

The BD6603KVT is developed for motor drivers used in portable MD players. This IC includes : a 3-phase full-wave sensorless operating system, a 4-channel H-bridge driver for focus, a sled, tracking for the spindle motor and Head step-up, and a 2-channel half-bridge driver for VM PWM voltage control. VG step-up is accomplished through a charge-pump circuit.

●Dimension (Units : mm)



TQFP64V

●Features

1) Single chip and thin packaging allow for a smaller set design
2) Low power consumption due to low ON resistance power MOS output
3) Low voltage operating (2.3V min.)

●Applications

REC portable MD player, Data MD

●Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Control circuit supply voltage	V_{CC}	7	V
Supply voltage (Driver)	VM	7	V
Supply voltage (Pre-driver)	VG	15	V
Output current	Iomax	500 [1]	mA
Power dissipation	Pd	1250 [2]	mW
Operating temperature range	Topr	–25 ~ +75	˚C
Storage temperature range	Tstg	–55 ~ +150	˚C

1 Derating : 10mW/˚C for operation above Ta=25˚C.
2 70mm 70mm 1.6mm glass epoxy board.
Do not, however exceed Pd, ASO

●Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	2.3	3.0	6.5	V
	V_M	—	—	6.5	V
	V_G	V_M+3	9	14	V
Pulse input frequency	fin	—	—	200	KHz

●Electrical characteristics (Unless otherwise noted, Ta=25˚C, Vcc=3V, VM=2.5V, fin=176KHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	Icc	—	5.6	8.0	mA	(All blocks) operating
	IST	—	16	50	μA	(All blocks) stand-by
Output ON resistance	RON	—	0.8	1.2		ON resistance (upper+Lower) VG=10V
<Step-up circuit>						
Output voltage	VG1	7.5	8.9	10.0	V	Each input L
	VG2	6.0	7.3	9.5	V	(All blocks) operating
<Spindle (3-phase full-wave sensorless driver)>						
Position detection comparator offset	VCO	–10	—	+10	mV	
Detection comparator input range	VCD	0	—	Vcc–1.0	V	
Brake comparator input current	IBR	—	—	2.0	μA	BRK=VCC
Brake comparator input offset	VBO	–15	—	+15	mV	
Brake comparator input range	VBD	0	—	Vcc–1.5	V	
FG output L voltage	VOLF	—	0.2	0.3	V	Io=500μA
<Sled, focus/tracking, head step-up, PWM power supply (H bridge, half bridge driver)>						
Logic H level input voltage	VINH	Vcc–0.4	—	—	V	
Logic L level input voltge	VINL	—	—	0.4	V	
Logic H level input current	IINH1	—	—	1	μA	VIN=3V
	IINH2	—	350	600	μA	VIN=3V EXTCLK pin
Logic L level input current	IINL	–1	—	—	μA	VIN=0V
Output propagation delay time	TRISE	—	0.2	1	μsec	
	TFALL	—	0.1	0.7	μsec	

※This product is not designed for protection against radioactive rays.

●Application circuit