6-channel Combo driver IC
BD7907FS

●Description

BD7907FS is a 6-channel driver IC that integrates all drivers necessary for CD-ROM, and DVD-ROM systems into a single chip. The built-in 2-channel sled motor driver is used for the stepping motor. Low heat operation can be achieved by applying the PWM driving system for sled and spindle motor drivers.

●Features

1) Motor drivers for spindle, sled (2-channel) and loading, and actuator drivers for tracking are all integrated into a single chip.
2) ON/OFF for each driver, brake mode switching of spindle and stand-by mode switching can be controlled by 2-wire serial data.
3) Built-in triangular-wave generator
4) SSOP-A54 package
5) Built-in thermal shut-down circuit

<Spindle driver>

6) Highly efficient by applying the PWM drive and Low ON resistance POWER MOSFET
7) Built-in current limit, hall bias, short brake, FG 3-phase synthesis output, and reverse protection circuit

<Sled motor driver>

8) Highly efficient due to the PWM drive
9) Built-in 2-channel for the stepping motor

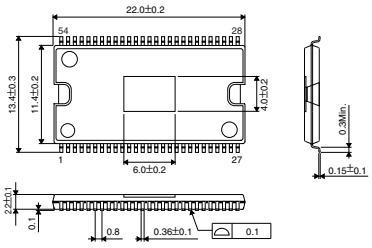
<Actuator, loading driver>

10) Low noise due to the linear BTL driver and smooth spin

●Applications

CD-ROM, DVD-ROM, and any other equipment driven by optical DISC

●Dimension (Units : mm)



SSOP-A54

● Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Power MOS supply voltage	SPVM1,2, SLRNF1,2	15	V
Pre/BTL power supply voltage	VCC, SLVDD, AVM	15	V
PWM control supply voltage	DVCC	7	V
Power dissipation	Pd	2.6 *1	W
Operating temperature range	Topr	–35 ~ +85	˚C
Storage temperature range	Tstg	–55 ~ +150	˚C

*Derating : 20.8mW/˚C for operation above Ta=25˚C PCB (70mm ¥ 70mm ¥ 1.6mm glass epoxy board)

● Recommended Operating Conditions (Ta=25˚C)

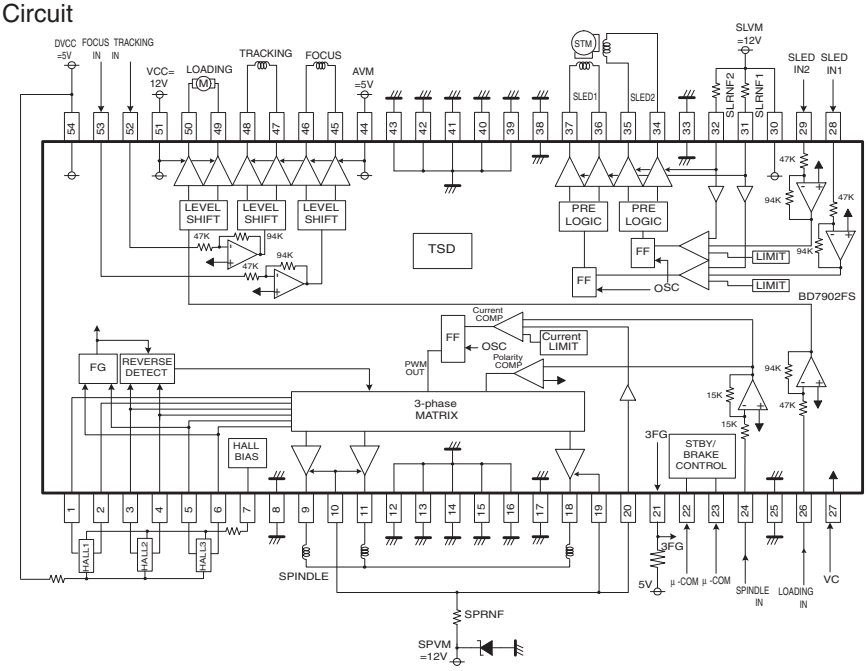
Parameter	Symbol	Min.	Typ.	Max.	Unit
Power MOS supply voltage1	SPVM1,2	—	VCC *2	—	V
Power MOS supply voltage2	SLRNF1,2	—	SLVDD *2	—	V
Pre-driver supply voltage	SLVDD,VCC	AVM	12	14	V
Power driver supply voltage	AVM	4.3	5.0	Vcc	V
PWM control supply voltage	DVCC	4.3	5.0	6.0	V

*2 SPVM1,2 must be established with the same voltage of Vcc and, SLRNF1,2 must be established with the same voltage of SLVDD.

● Electrical Characteristics (Unless otherwise noted; Ta=25˚C, SLVDD=VCC=12V, DVCC=AVM=5V, VC=1.65V, SPRNF=0.33Ω, SLRNF=0.5Ω)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Feed motor driver						
Input dead zone (One-side)	VDZSL	15	40	65	mV	
I/O gain	gmSL	0.8	1.0	1.2	A/V	SLRNF=0.5Ω
Output ON resistance	RONUSL	—	3.2	4.2	Ω	Io=500mA (Top+Bottom)
Output limit current	ILIMSL	0.8	0.94	1.08	A	SLRNF=0.5Ω
Spindle driver <Torque command I/O>						
Input dead zone (One-side)	VDZSP	20	50	90	mV	
I/O gain	gmSP	2.4	3.0	3.6	A/V	SPRNF=0.33Ω
Output ON resistance	RONUSP	—	0.95	1.7	Ω	Ip=500mA (Top+Bottom)
Output limit current	ILIMSL	1.2	1.42	1.64	A	SPRNF=0.33Ω
Actuator driver						
Output offset voltage	VOFFT	–50	0	50	mV	
Output saturation voltage	VOHFT	—	0.9	1.6	V	Io=500mA (Top+Bottom)
Voltage gain	GVFT	16.0	17.5	19.0	dB	
Loading driver						
Output offset voltage	VOFLD	–50	0	50	mV	
Output saturation voltage	VOHLD	—	1.55	2.2	V	Io=500mA (Top+Bottom)
Voltage gain	GVLD	16.0	17.5	19.0	dB	

● Application Circuit



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