Current feedback actuator driver

BA5954FP/FM

●Description

BA5954FP/FM is an actuator driver IC for CD-ROM and DVD players. This actuator driver adopts current feedback system. This IC incorporates 2 channel actuator drivers and 2 channel motor drivers. Current phase lag influenced load inductance is little, because this type is current feedback.

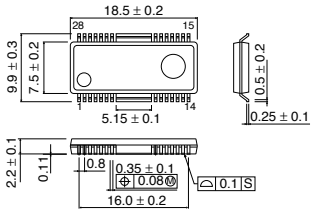
●Features

1) Wide dynamic range
   V_{OM}4.0V(typ.) at PreVcc=12V,PVcc=5V,RL=8Ω
2) Level shift circuit built in.
3) Thermal-shut-down circuit built in.
4) Stand-by mode built in.

●Applications

CD/CD-ROM

●Dimension (Units : mm)



HSOP28 / HSOP-M28

●Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits		Unit
Supply voltage	Vcc, PVcc1/2	18		V
Power dissipation	Pd	(BA5954FP) *1 1.7	(BA5954FM) *2 2.2	W
Operating temperature range	Topr	−35 ~ +85		˚C
Storage temperature range	Tstg	−55 ~ +150		˚C

* PCB (70mmx70mm, t=1.6mm) glass epoxy mounting.
*1 Derating : 13.6mW/˚C for operation above Ta=25˚C
*2 Derating : 17.6mW/˚C for operation above Ta=25˚C

●Recommended Operating Conditions (Ta=25˚C)

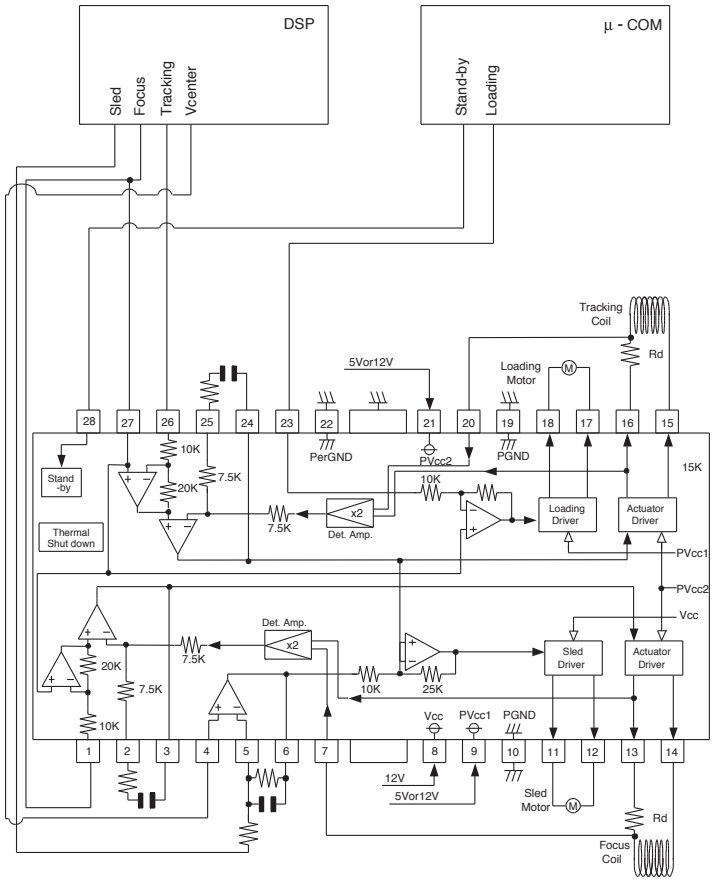
Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	4.3 ~ 13.2	V
	$PV_{CC}1$	4.3 ~ Vcc	V
	$PV_{CC}2$	4.3 ~ Vcc	V

● Electrical characteristics (Unless otherwise noted; Ta=25˚C, Vcc=12V, PVcc1=PVcc2=5V, BIAS=2.5V, RL=8Ω, Rd=0.5Ω, C=100pF)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I_{CC}	—	18	27	mA	
Stand-by quiescent current	Ist	—	—	0.5	mA	
Voltage for stand-by ON	V_{STON}	—	—	0.5	V	
Voltage for stand-by OFF	V_{STOFF}	2.0	—	—	V	
<Actuator driver>						
Output offset voltage	I_{OO}	−6	—	6	mV	
Maximum output amplitude	V_{OM}	3.6	4.0	—	V	
Trans conductance	gm	1.3	1.5	1.7	A/V	V_{IN}=BIAS±0.2V
<Sled motor driver/Pre OP-amp>						
Common mode input range	V_{ICM}	−0.3	—	11.0	V	
Input bias current	I_{BOP}	—	30	300	nA	
Low level output voltage	V_{OLOP}	—	0.1	0.3	V	
Output source current	I_{SO}	0.3	0.5	—	mA	
Output sink current	I_{ST}	1	—	—	mA	
<Sled motor driver>						
Output offset voltage	V_{OOFSL}	−100	0	100	mV	
Maximum output voltage	V_{OMLD}	7.5	9.0	—	V	
Closed loop voltage gain	G_{VSL}	18.0	20.0	22.0	dB	V_{IN}=±0.2V
<Loading motor driver>						
Output offset voltage	V_{OOFLD}	−50	0	50	mV	
Maximum output voltage	V_{OMLD}	3.6	4.0	—	V	
Closed loop voltage gain	G_{VLD}	13.5	15.5	17.5	dB	V_{IN}=BIAS±0.2V
Gain error by polarity	ΔG_{VLD}	0	1	2	dB	V_{IN}=BIAS±0.2V

This product is not designed for protection against radioactive rays.

● Application Circuit



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