

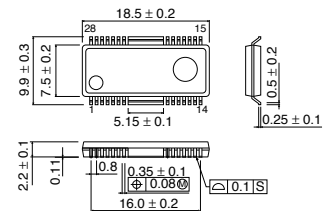
# Current feedback actuator driver

## 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.

### ● Dimension (Units : mm)



HSOP28 / HSOP-M28

### ● Features

- 1) Wide dynamic range  
 $V_{OM}4.0V(\text{typ.})$  at  $PreV_{CC}=12V, PV_{CC}=5V, R_L=8\Omega$
- 2) Level shift circuit built in.
- 3) Thermal-shut-down circuit built in.
- 4) Stand-by mode built in.

### ● Applications

CD/CD-ROM

### ● Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits		Unit
Supply voltage	$V_{CC}, PV_{CC1/2}$	18		V
Power dissipation	$P_d$	(BA5954FP) *1 1.7	(BA5954FM) *2 2.2	W
Operating temperature range	$T_{opr}$	-35 ~ +85		$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 ~ +150		$^\circ\text{C}$

\* PCB (70mmx70mm,  $t=1.6\text{mm}$ ) glass epoxy mounting.  
 \*1 Derating : 13.6mW/ $^\circ\text{C}$  for operation above  $T_a=25^\circ\text{C}$   
 \*2 Derating : 17.6mW/ $^\circ\text{C}$  for operation above  $T_a=25^\circ\text{C}$

### ● Recommended Operating Conditions ( $T_a=25^\circ\text{C}$ )

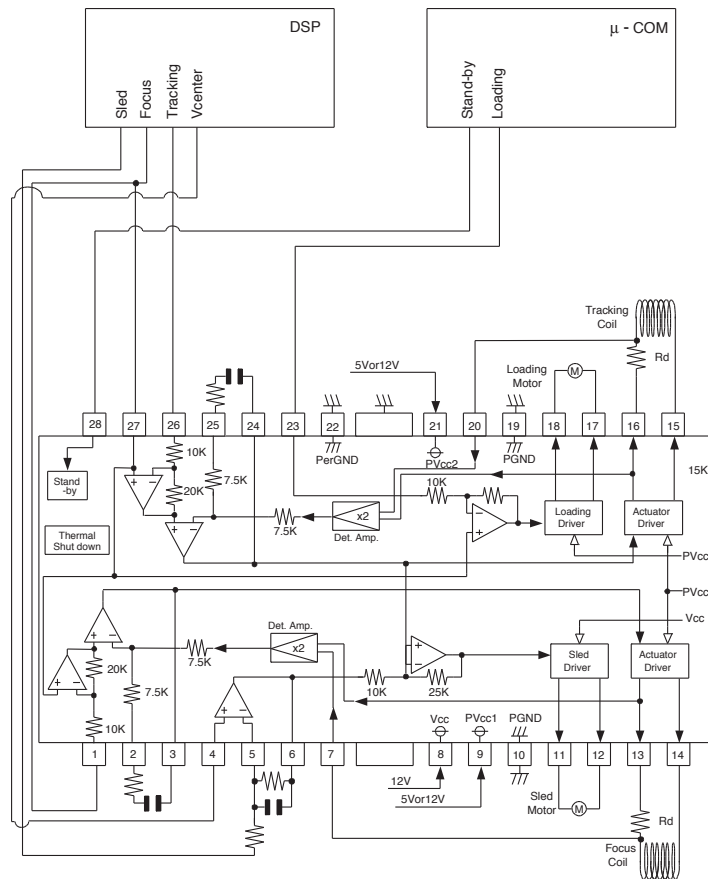
Parameter	Symbol	Limits		Unit
Power supply voltage	$V_{CC}$	4.3	~ 13.2	V
	$PV_{CC1}$	4.3	~ $V_{CC}$	V
	$PV_{CC2}$	4.3	~ $V_{CC}$	V

● 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 <sub>cc</sub>	—	18	27	mA	
Stand-by quiescent current	I <sub>st</sub>	—	—	0.5	mA	
Voltage for stand-by ON	V <sub>STON</sub>	—	—	0.5	V	
Voltage for stand-by OFF	V <sub>STOFF</sub>	2.0	—	—	V	
<Actuator driver>						
Output offset voltage	I <sub>oo</sub>	−6	—	6	mV	
Maximum output amplitude	V <sub>OM</sub>	3.6	4.0	—	V	
Trans conductance	g <sub>m</sub>	1.3	1.5	1.7	A/V	V <sub>IN</sub> =BIAS±0.2V
<Sled motor driver/Pre OP-amp>						
Common mode input range	V <sub>ICM</sub>	−0.3	—	11.0	V	
Input bias current	I <sub>BOP</sub>	—	30	300	nA	
Low level output voltage	V <sub>OLOP</sub>	—	0.1	0.3	V	
Output source current	I <sub>SO</sub>	0.3	0.5	—	mA	
Output sink current	I <sub>ST</sub>	1	—	—	mA	
<Sled motor driver>						
Output offset voltage	V <sub>OOFSL</sub>	−100	0	100	mV	
Maximum output voltage	V <sub>OMLD</sub>	7.5	9.0	—	V	
Closed loop voltage gain	G <sub>VSL</sub>	18.0	20.0	22.0	dB	V <sub>IN</sub> =±0.2V
<Loading motor driver>						
Output offset voltage	V <sub>OOFSLD</sub>	−50	0	50	mV	
Maximum output voltage	V <sub>OMLD</sub>	3.6	4.0	—	V	
Closed loop voltage gain	G <sub>VLD</sub>	13.5	15.5	17.5	dB	V <sub>IN</sub> =BIAS±0.2V
Gain error by polarity	ΔG <sub>VLD</sub>	0	1	2	dB	V <sub>IN</sub> =BIAS±0.2V

This product is not designed for protection against radioactive rays.

● Application Circuit



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