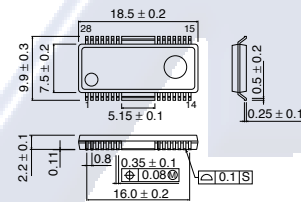


## Current feedback actuator driver BA5954FP/FM

### ● 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	W
Operating temperature range	$T_{opr}$	-35 ~ +85	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

\* PCB (70mmx70mm, t=1.6mm) 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 ( $T_a=25^\circ\text{C}$ )

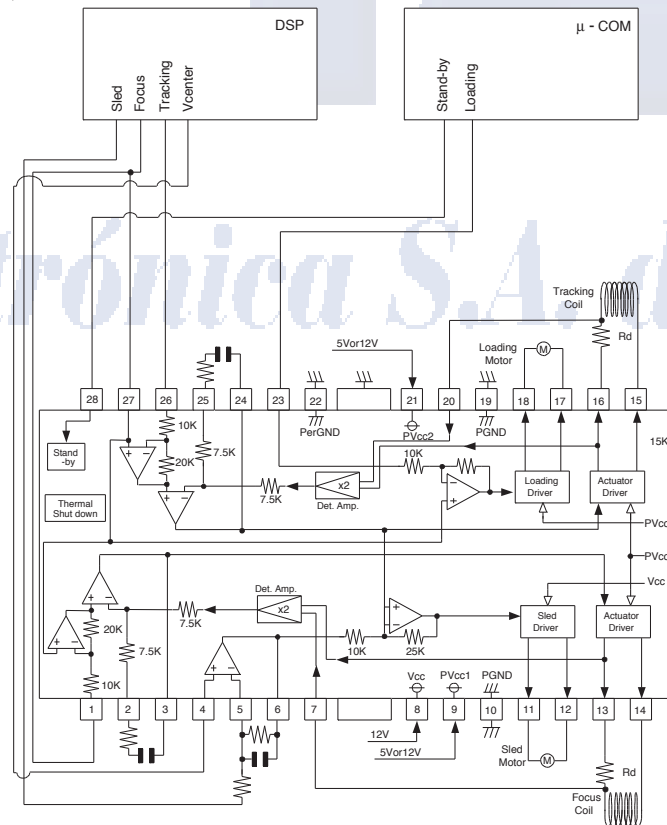
Parameter	Symbol	Limits	Unit
Power supply voltage	$V_{cc}$	4.3 ~ 13.2	V
	$PV_{cc1}$	4.3 ~ $V_{cc}$	V
	$PV_{cc2}$	4.3 ~ $V_{cc}$	V

● Electrical characteristics (Unless otherwise noted;  $T_a=25^\circ\text{C}$ ,  $V_{cc}=12\text{V}$ ,  $PV_{cc1}=PV_{cc2}=5\text{V}$ ,  $\text{BIAS}=2.5\text{V}$ ,  $R_L=8\Omega$ ,  $R_d=0.5\Omega$ ,  $C=100\text{pF}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	$I_{cc}$	—	18	27	mA	
Stand-by quiescent current	$I_{st}$	—	—	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	$g_m$	1.3	1.5	1.7	A/V	$V_{IN}=\text{BIAS}\pm 0.2\text{V}$
<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	$V_{IN}=\pm 0.2\text{V}$
<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	$V_{IN}=\text{BIAS}\pm 0.2\text{V}$
Gain error by polarity	$\Delta G_{VLD}$	0	1	2	dB	$V_{IN}=\text{BIAS}\pm 0.2\text{V}$

This product is not designed for protection against radioactive rays.

● Application Circuit



## Appendix

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