

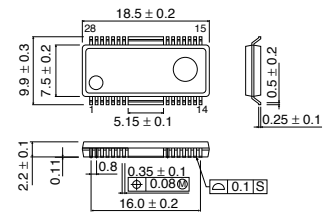
Current feedback actuator driver

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 ($T_a=25^\circ\text{C}$)

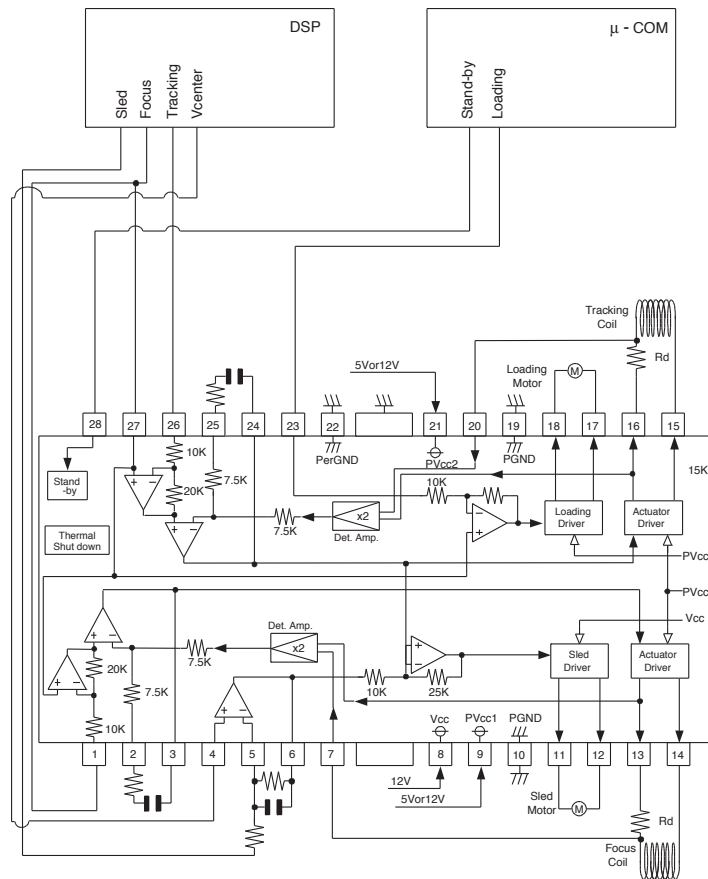
Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	4.3 ~ 13.2	V
	PV_{CC1}	4.3 ~ V_{CC}	V
	PV_{CC2}	4.3 ~ V_{CC}	V

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

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_{OOFLD}	—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	ΔG_{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



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