

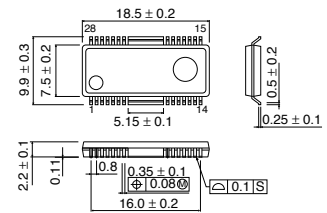
Current feedback actuator driver

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

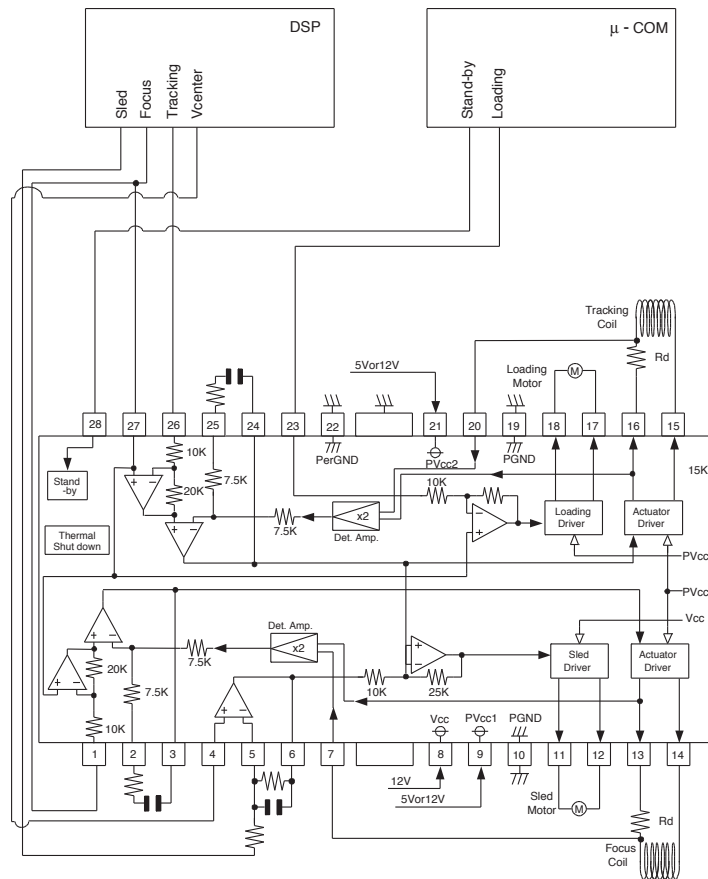
| Parameter | Symbol | Limits | | Unit |
|----------------------|------------|--------|------------|------|
| Power supply voltage | V_{CC} | 4.3 | ~ 13.2 | V |
| | PV_{CC1} | 4.3 | ~ V_{CC} | V |
| | PV_{CC2} | 4.3 | ~ V_{CC} | V |

● 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 _{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} =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 _{OOFSLD} | −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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