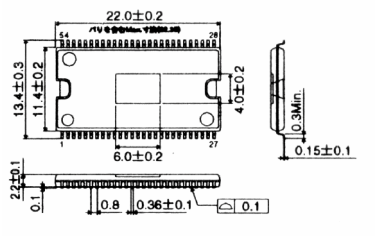
5 Channel Driver for with Regulator
BA5960FS

●Description

The BA5960FS is a 5-channel Driver (4-channel BTL and 1-channel Loading driver) for an actuator and motor. Since the operational amplifier and variable regulator are built-in, it can be compatible with various applications.

●Dimension (Units : mm)



SSOP-A54

●Features

1) 5-channel driver (4-channel BTL driver and 1-channel Loading driver)
2) Built-in thermal shut down circuit
3) The power supply is divided in 4 systems
4) Incorporates an operational amplifier.
5) Built-in stand-by function
6) Built-in variable regulator
7) Wide dynamic range
   (5.4V typical at PreVcc=8V, PowVcc=8V, RL=8)
8) Mute operated individually Channel-1&2, Channel-3, Channel-4
9) Input pins consist of (+) and (–), therefore various input types are available such as differential input.
10) Built-in brake function (Loading driver)
11) Output voltage can be set up by voltage establishment terminal.

●Applications

Car CD, MD

●Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Supply voltage	PreVcc, PowVcc	18	V
Powerd dissipation	Pd	1.92 [1]	W
Output current	IOMAX	1 [2]	A
Operating temperature range	Topr	–35 ~ +85	˚C
Storage temperature range	Tstg	–55 ~ +150	˚C

1 Derating : 15.36mW/˚C for operation above Ta=25˚C.
2 The output current must not exceed the maximum ASO

●Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	PreVcc	4.5	—	13.5	V
	PowVcc	4.5	—	PreVcc	V

● Electrical characteristics

(Unless otherwise noted, Ta=25˚C, PreVcc=PowVcc1=PowVcc2=PowVcc3=8V, BIAS=1.65V, R_L=8)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Standby current (VCC+PowVcc)		I_{QST}	—	—	1	mA	No load
Quiescent current		I_Q	—	22	30	mA	No load
<BTL driver>							
Close loop gain		G_{VC}	10	11.5	14	dB	V_{IN}=BIAS±0.5V
Maximum output voltage		V_{OM}	4.8	5.4	—	V	V_{IN}=BIAS±1.65V
Output offset voltage		V_{OO}	–50	0	50	mV	
<Pre-operational amplifier & Operational amplifier>							
Input bias current		I_B	—	—	0.3	μA	
Output offset voltage		V_{OP}	–6	0	6	mV	
High level output voltage HI		V_{OH}	7.5	—	—	V	BIAS=2.5V
Low level output voltage LO		V_{OL}	—	—	0.5	V	BIAS=2.5V
Output sink current		I_{SO}	1	—	—	mA	
Output source current		I_{SI}	0.5	0.8	—	mA	
<Loading driver>							
Close loop gain		LDG_{VC}	9	11	13	dB	LD_{CONT}=1V
Output voltage	FWD	V_{OL12F}	4.8	5.4	—	V	LD_{CONT}=4.5V
	REV	V_{OL2R}	—	–5.4	–4.8		
Load regulation	FWD	V_{LI2F}	—	0.45	0.9	V	LD_{CONT}=4.5V
	REV	V_{LI2R}	—	0.45	0.9		V_{IL}=100~500mA
Line regulation	FWD	V_{LVSF}	–0.5	—	0.5	V	Vcc=6~13V V_{IL}=500mA
	REV	V_{LVSR}	–0.5	—	0.5		LD_{CONT}=1V
Output offset voltage		LDV_{OO}	–50	0	50	mV	Brake mode
<Regulator>							
Output voltage		Vreg	—	3.32	—	V	I_L=50mA, Note) reference value
Load regulation		V_{RL}	–40	0	20	mV	I_L=0~200mA, 3.3V set up
Line regulation		V_{VCC}	–20	10	40	mV	Vcc=6~13V, 3.3V set up
REG.P pin voltage		V_{REGP}	1.14	1.2	1.26	V	

※ This product is not designed for protection against radioactive rays.

● Application circuit