Optical disc ICs

Power driver for CD player

BA5962FVM

BA5962FVM is 1ch BTL power driver IC for CD / DVD. MSOP8 package enables the smallest configuration.
This IC enables reduction of external parts, built-in level shift circuit.

● **Applications**
CD player

● **Features**
1) 1ch BTL driver for CD / DVD.
2) MSOP8 package enables the smallest configuration.
3) Built in level shift circuit.
4) Built in thermal-shut-down circuit.

● **Absolute maximum ratings** (Ta=25°C)

| Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	18	V
Power dissipation	Pd	0.55	W
Operating temperature	Topr	−35~+85	°C
Storage temperature	Tstg	−55~+150	°C

∗ PCB (70mm×70mm×1.6mm, glass epoxy) mounting.
Reduce power by 4.4mW for each degree above 25°C.

● **Recommended operating conditions** (Set the power supply voltage taking allowable dissipation into considering)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	3	5	10	V

ROHM

●Block diagram
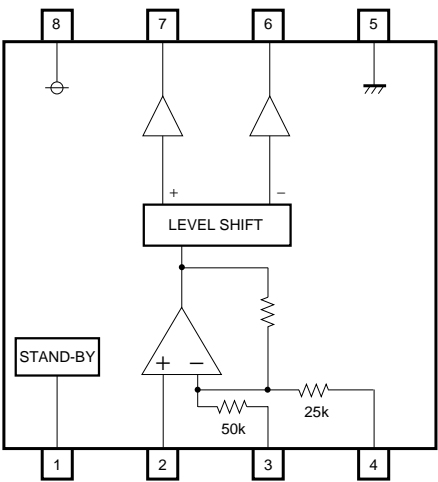
TSD : Thermal shut down

●Pin descriptions

Pin No.	Pin name	Functions	Pin No.	Pin name	Functions
1	STBY	Stand-by control input	5	GND	GND
2	BIAS	Bias input	6	OUT−	Driver negative output
3	IN 1	Driver input 1 (Low gain)	7	OUT+	Driver positive output
4	IN 2	Driver input 2 (High gain)	8	Vcc	Power supply input

●Input output circuits

| Driver output | BIAS input |
| Driver input | Stand-by control input |
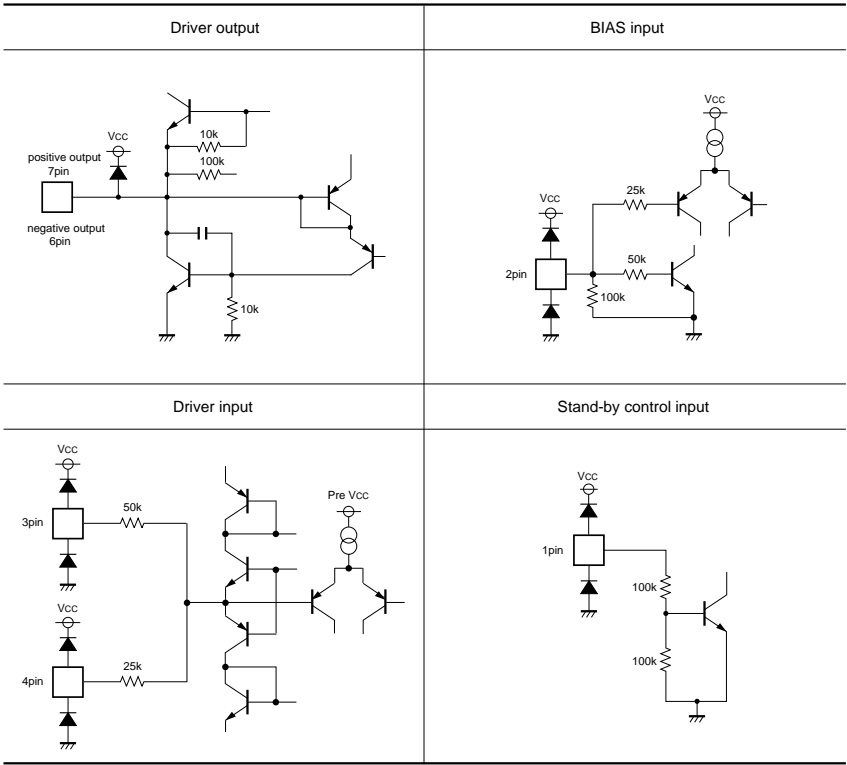
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●**Electrical characteristics** (unless otherwise noted, Ta=25°C, Vcc=5V, VBIAS=1.65V, RL=50Ω)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measuring circuit
Quiescent current without signal	IQ	–	3	6	mA		Fig.1
<Driver block>							
Input voltage range	VINR	0	~	Vcc	V		Fig.1
Output offset voltage	VOOF	–40	–	40	mV	VIN=BIAS=1.65V	Fig.1
Maximum output voltage amplitude	VOM	3.7	4.1	–	V		Fig.1
Closed circuit gain 1 (Input IN1)	GVC1	10	12	14	dB	VIN=1.35V, 1.95V	Fig.1
Closed circuit gain 2 (Input IN2)	GVC2	16	18	20	dB	VIN=1.35V, 1.95V	Fig.1
Srand-by ON voltage	VSTON	–	–	0.5	V		Fig.1
Srand-by OFF voltage	VSTOFF	2.0	–	–	V		Fig.1
Bias terminal voltage drop mute ON-level voltage	VBMON	–	–	0.4	V		Fig.1
Bias terminal voltage drop mute OFF-level voltage	VBMOFF	1.0	–	–	V		Fig.1

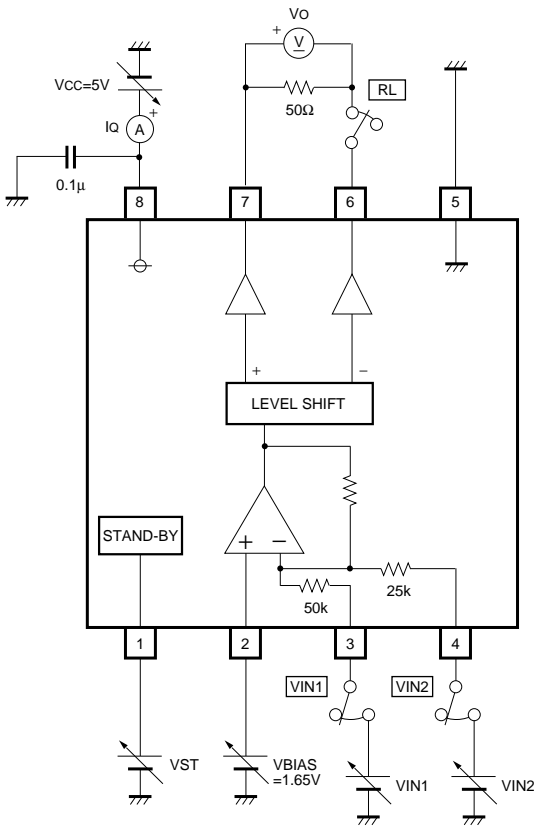◎ This product in not designed for protection against radioactive rays.

●**Measuring circuit**

Fig.1

1. Switch table

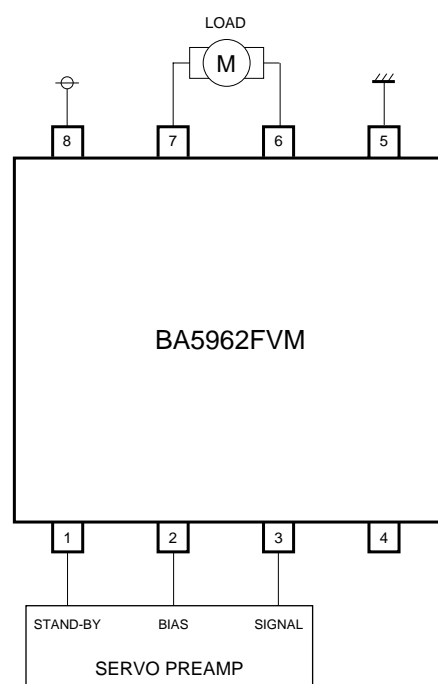| Symbol	Switch			Input			Measuring point
	VIN 1	VIN 2	RL	VIN	VST		
IQ	OFF	OFF	OFF	–	2.0V		IQ
Voof	ON	ON	ON	1.65V	2.0V		VO
VOM 1	ON	OFF	ON	*1	2.0V	*1 VIN=0V and 5V	VO
VOM 2	OFF	ON	ON	*1	2.0V	*1 VIN=0V and 5V	VO
GVC 1	ON	OFF	ON	±0.3V	2.0V	VIN=1.35V and 1.95V	VO
GVC 2	OFF	ON	ON	±0.3V	2.0V	VIN=1.35V and 1.95V	VO
VSTOFF	ON	OFF	ON	5V	0.5V		VO
VSTON	ON	OFF	ON	5V	2.0V		VO

●**Application example**

Fig.2

●**Operation notes**

1. A thermal-shutdown circuit (over-temperature protection circuit) is built in to prevent the IC from thermal breakdown. Use the IC under the thermal loss allowed to the package. In case the IC is left running over the allowable loss, the junction temperature rises, and the thermal-shutdown circuit works at the junction temperature of 160°C (typ.) (the outputs of the driver is turned off). When the junction temperature drops to 135°C (typ.), the IC start operating again.

2. When stand-by control terminal (Pin 1) drops below 0.5V, stand-by mode is established. Make sure that under normal operating conditions, this pin at 2.0V or above.

3. If Vcc (Pin 8) drops below 2.5V (typ.), the driver is turned off. When the voltage exceeds 2.7V (typ.) the driver returns to its previous state.

4. If the bias pin (Pin 2) drops below 0.7V, the output is muted. Make sure that under normal operating conditions, this pin is at 1.0V or above.

5. The output is muted in the event of a thermal shut down, mute-on, or a bias and Vcc voltage drop. Only the driver is muted. When muted, the internal bias voltage of the output pin becomes roughly (Vcc-Vf) / 2). (Vf=0.7V)

6. Please connect a bypass capacitor (0.1μF) across the supply voltage lines close to the IC pins.

7. When a capacitance load is connected to the OP amplifier output, the amplifier phase margin decreases, which causes the peak or oscillation. When connecting such load, insert a resistance in series between the output and the capacitance load and take a full consideration for frequency characteristics to prevent problem during practical use.

8. Do not short-circuit between any output pin and supply pin (supply fault) or ground (ground fault), or between any output pins (load short-circuit). When mounting the IC on the circuit board, be extremely cautions about the orientation of the IC. If the orientation is mistaken, the IC may break down, and produce smoke in some cases.
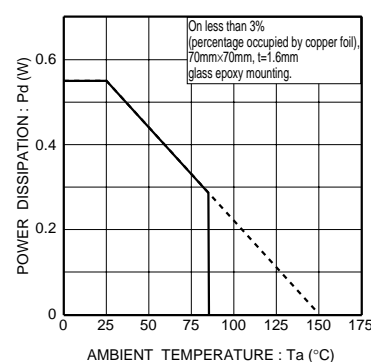
●**Electrical characteristics curve**

Fig.3 Power dissipation

●**External dimensions** (Units : mm)

MSOP8