

75Ω driver IC with 3 internal circuits

BA7622 / BA7622F

The BA7622 and BA7622F are 75Ω driver-ICs developed for use in video equipment. The ICs include three 75Ω driver circuits, two of which have sync-tip clamp inputs. The other driver has a biased input terminated with a 20kΩ resistor. Each output can drive two loads (75Ω×2).

●Applications

Video cassette recorders, televisions and camcorders

●Features

- 1) Two built-in clamp circuits.
- 2) Simultaneous drive of Y, C and composite video signals possible.
- 3) Each output can drive two loads.

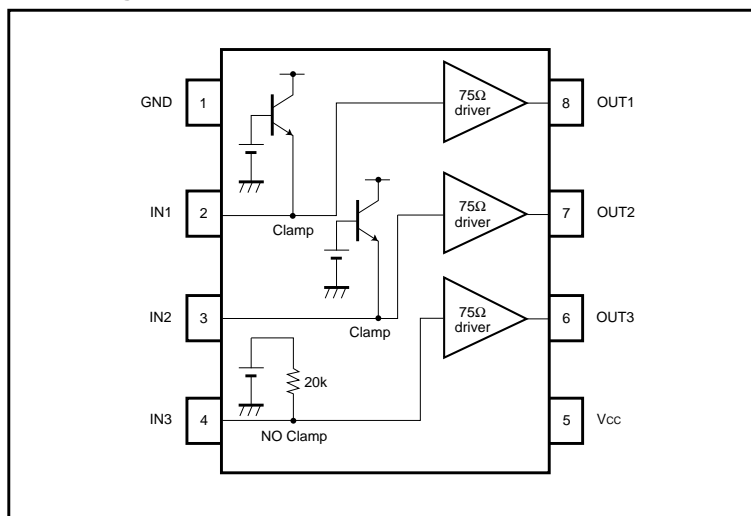
●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{cc}	8.0	V
Power dissipation	BA7622	800 *1	mW
	BA7622F	550 *2	
Operating temperature	T _{opr}	-25 ~ +75	°C
Storage temperature	T _{stg}	-55 ~ +125	°C

*1 Reduced by 8.0mW for each increase in Ta of 1°C over 25°C. (BA7622)

*2 Reduced by 5.5mW for each increase in Ta of 1°C over 25°C. (BA7622F)

●Block diagram



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●Pin descriptions

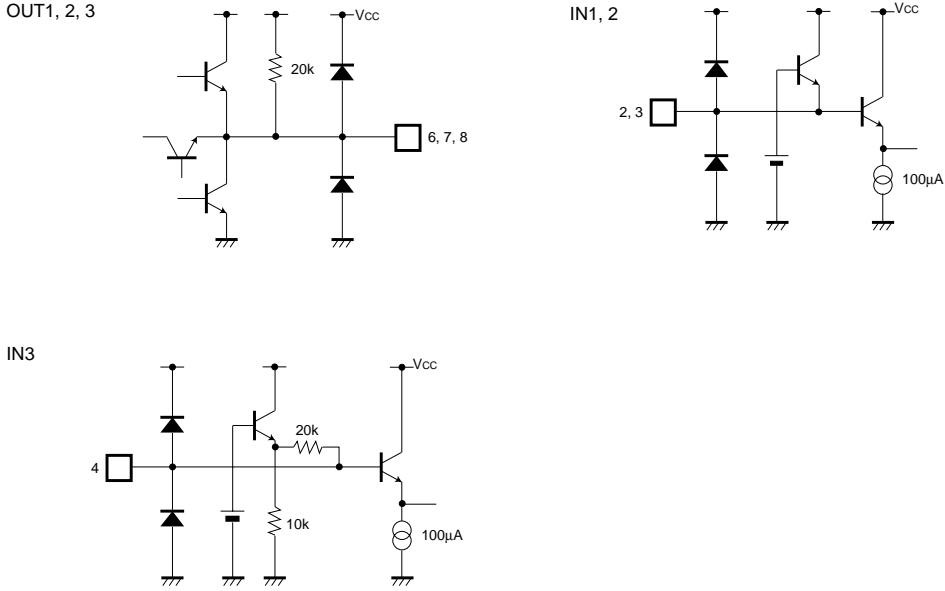
Pin No.	Pin name	Function
1	GND	Ground connection
2	IN1	Clamp input Input composite video or the Y signal separated from Y / C.
3	IN2	Clamp input Input composite video or the Y signal separated from Y / C.
4	IN3	Biased input Input the chroma signal. Terminated with a 20kΩ resistor.
5	Vcc	Power supply
6	OUT3	Biased output Output for the signal input to IN3. When connected to earth a protection circuit operates, and the IC enters power-save mode.
7	OUT2	Clamped output Output for the signal input to IN2. When connected to earth a protection circuit operates, and the IC enters power-save mode.
8	OUT1	Clamped output Output for the signal input to IN1. When connected to earth a protection circuit operates, and the IC enters power-save mode.

●Electrical characteristics (unless otherwise noted, Ta = 25°C and Vcc = 5V, and load is two system drive)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating voltage	Vcc	4.5	5.0	5.5	V	–
Circuit current	Icc	–	23.6	35.4	mA	No signal
Maximum output level	Vom	2.8	3.3	–	V _{P-P}	f=1kHz, THD=1.0%
Voltage gain	Gv	–1.2	–0.6	0	dB	f=1MHz, V _{IN} =2.0V _{P-P}
Frequency characteristics	Gf	–3	0	1.3	dB	10MHz / 1MHz, V _{IN} =1.0V _{P-P}
Differential gain 75Ω drive 1	DG1	–	0.4	1.0	%	V _{IN} =2.0V _{P-P} , standard staircase signal
Differential phase 75Ω drive 1	DP1	–	0.4	1.0	deg	V _{IN} =2.0V _{P-P} , standard staircase signal
Differential gain 75Ω drive 2	DG2	–	0.7	2.0	%	V _{IN} =2.0V _{P-P} , standard staircase signal
Differential phase 75Ω drive 2	DP2	–	0.7	2.0	deg	V _{IN} =2.0V _{P-P} , standard staircase signal
Interchannel crosstalk	C _T	–	–60	–	dB	f=4.43MHz, V _{IN} =2.0V _{P-P}
Input impedance (V _{IN3})	Z _{IN3}	17	20	23	kΩ	–
Total-harmonic distortion (V _{IN3})	T _{HD32}	–	0.1	0.5	%	f=1kHz, V _{IN} =1.0V _{P-P}

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●Input / output circuits



●Measurement circuit

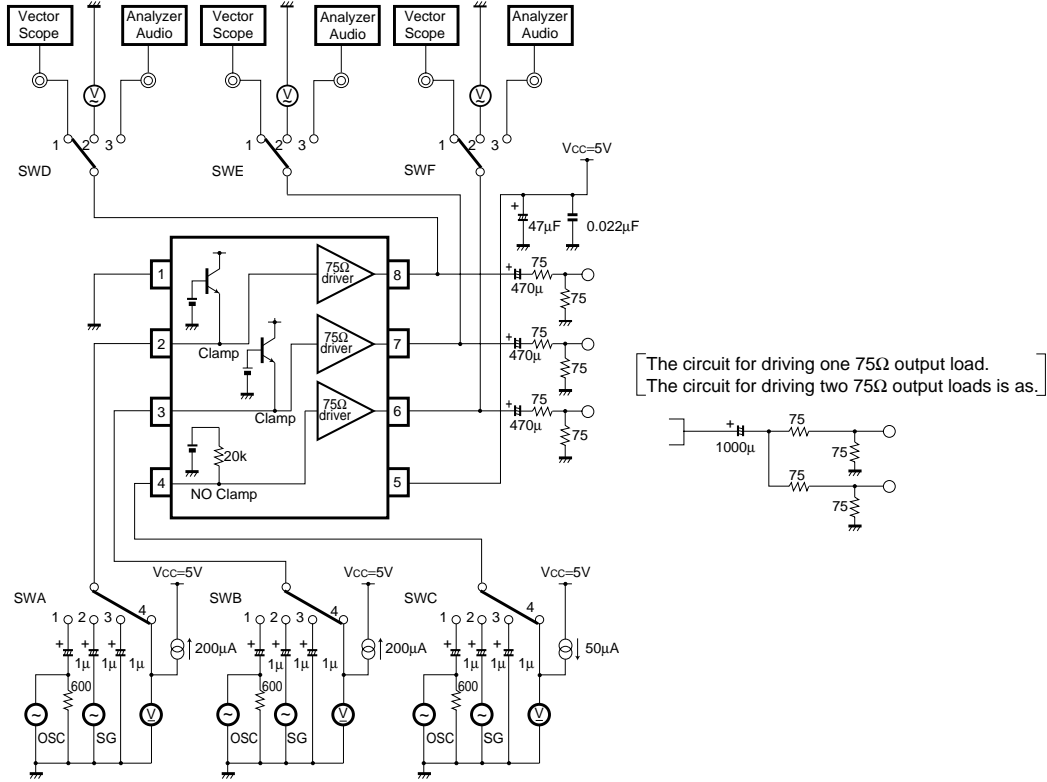


Fig.1

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● Measurement conditions

Parameter	Symbol	IN1	IN2	IN3	OUT1	OUT2	OUT3	Conditions
		SWA	SWB	SWC	SWD	SWE	SWF	
Current dissipation	I _{cc}	3	3	3	×	×	×	–
Maximum output level	V _{om12}	1	3	3	3	×	×	*1
	V _{om22}	3	1	3	×	3	×	
	V _{om32}	3	3	1	×	×	3	
Voltage gain	G _{v12}	1	3	3	3	×	×	*2
	G _{v22}	3	1	3	×	3	×	
	G _{v32}	3	3	1	×	×	3	
Frequency characteristic	f ₁₂	1	3	3	3	×	×	–
	f ₂₂	3	1	3	×	3	×	
	f ₃₂	3	3	1	×	×	3	
Interchannel crosstalk	C _{T112}	1	3	3	×	3	×	–
	C _{T113}	1	3	3	×	×	3	
	C _{T211}	3	1	3	3	×	×	
	C _{T213}	3	1	3	×	×	3	
	C _{T311}	3	3	1	3	×	×	
	C _{T312}	3	3	1	×	3	×	
Input resistance	Z _{IN3}	3	3	4	×	×	×	*3
Total-harmonic distortion	T _{HD12}	1	3	3	3	×	×	*4
	T _{HD22}	3	1	3	×	3	×	
	T _{HD32}	3	3	1	×	×	3	

× : Any of switches 1, 2, or 3 possible.

*1: Connect a distortion meter to the output, and input a f=1kHz sine wave. Adjust the input level until the output distortion is 0.5%.

This output voltage at this time is the maximum output level V_{om} (V_{P-P}).*2: Input a 2.0V_{P-P}, 1MHz sine wave. The voltage gain is given by G_v=20 log (V_{OUT} / V_{IN}).*3: Measure the input pin voltage V_{IN50} when a current of DC50μA is flowing into the input pin. Measure the input pin open-circuit voltage V_{IN0}.The input impedance is given by Z=(V_{IN50} – V_{IN0}) / 50×10⁻⁶[Ω].*4: Input a 1.0V_{P-P}, 1kHz sine wave. Connect a distortion meter to the output and measure the total-harmonic distortion.

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●Application example

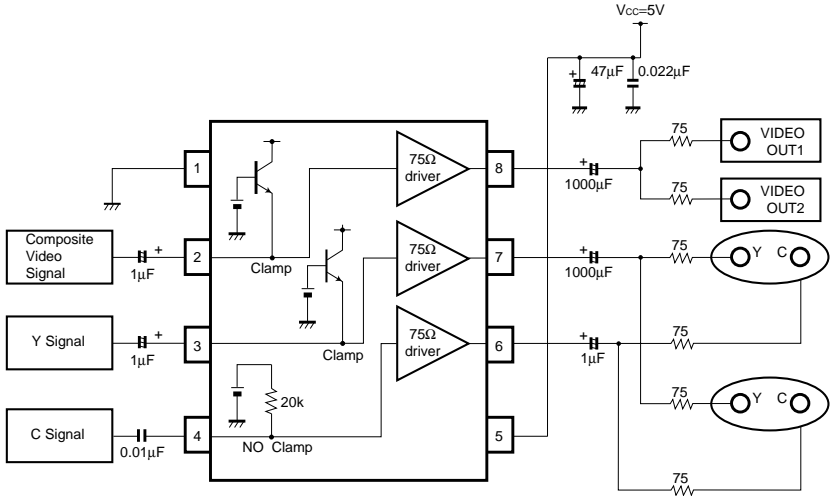


Fig.2

●Electrical characteristic curves

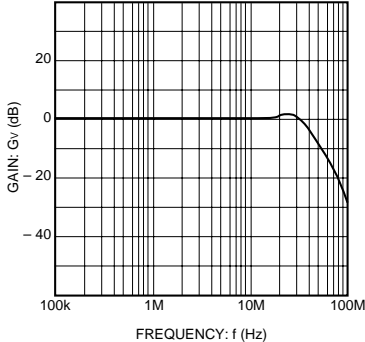


Fig. 3 Frequency characteristic

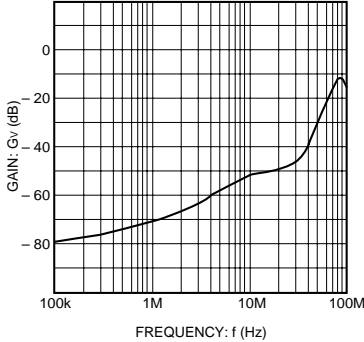


Fig. 4 Crosstalk

●External dimensions (Units : mm)

