

# 75Ω driver IC with 3 internal circuits

## BA7622F

The BA7622F is a 75Ω driver-IC developed for use in video equipment. It includes 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 ( $75\Omega \times 2$ ).

### ●Applications

Video cassette recorders, televisions and camcorders

### ●Features

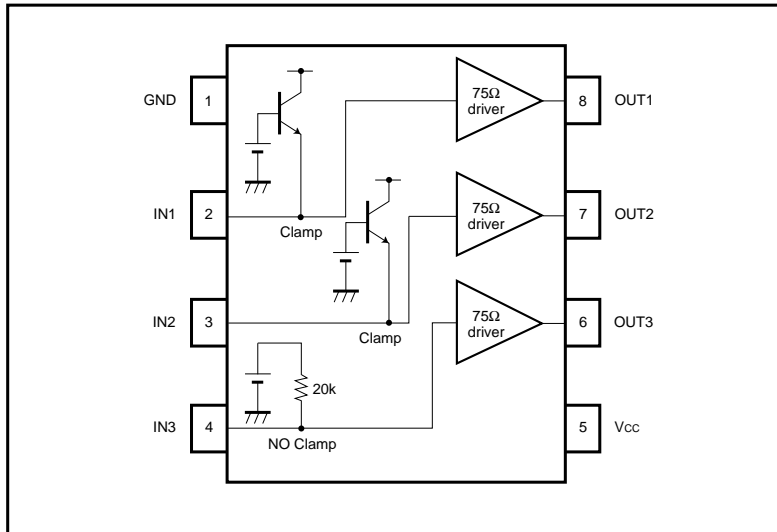
- 1) Two built-in clamp circuits.
- 2) Simultaneous drive of Y, C and composite video signals possible.
- 3) Each output can drive two loads.

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

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>CC</sub>	8.0	V
Power dissipation	P <sub>d</sub>	550*	mW
Operating temperature	T <sub>opr</sub>	- 25 ~ + 75	°C
Storage temperature	T <sub>stg</sub>	- 55 ~ + 125	°C

\* Reduced by 5.5mW for each increase in Ta of 1°C over 25°C.

## ●Block diagram



## ●Pin descriptions

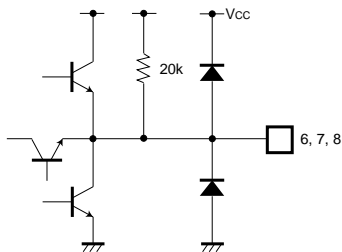
Pin No.	Pin name	Function
1	GND	Ground connection
2	IN1	Clamp input Input composite video or the Y signal separated from Y / C.
3	IN2	Clamp input Input composite video or the Y signal separated from Y / C.
4	IN3	Biased input Input the chroma signal. Terminated with a 20kΩ resistor.
5	Vcc	Power supply
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)

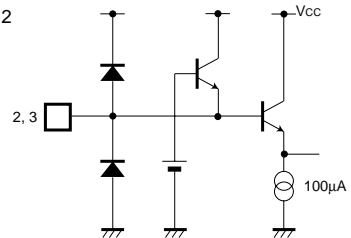
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating voltage	V <sub>CC</sub>	4.5	5.0	5.5	V	—
Circuit current	I <sub>CC</sub>	—	23.6	35.4	mA	No signal
Maximum output level	V <sub>om</sub>	2.8	3.3	—	V <sub>P-P</sub>	f = 1kHz, THD = 1.0%
Voltage gain	G <sub>v</sub>	-1.2	-0.6	0	dB	f = 1MHz, V <sub>IN</sub> = 2.0V <sub>P-P</sub>
Frequency characteristics	G <sub>f</sub>	-3	0	1.3	dB	10MHz / 1MHz, V <sub>IN</sub> = 1.0V <sub>P-P</sub>
Differential gain 75Ω drive 1	DG1	—	0.4	1.0	%	V <sub>IN</sub> = 2.0V <sub>P-P</sub> , standard staircase signal
Differential phase 75Ω drive 1	DP1	—	0.4	1.0	deg	V <sub>IN</sub> = 2.0V <sub>P-P</sub> , standard staircase signal
Differential gain 75Ω drive 2	DG2	—	0.7	2.0	%	V <sub>IN</sub> = 2.0V <sub>P-P</sub> , standard staircase signal
Differential phase 75Ω drive 2	DP2	—	0.7	2.0	deg	V <sub>IN</sub> = 2.0V <sub>P-P</sub> , standard staircase signal
Interchannel crosstalk	C <sub>T</sub>	—	-60	—	dB	f = 4.43MHz, V <sub>IN</sub> = 2.0V <sub>P-P</sub>
Input impedance (VIN3)	Z <sub>IN3</sub>	17	20	23	kΩ	—
Total-harmonic distortion (VIN3)	T <sub>HD32</sub>	—	0.1	0.5	%	f = 1kHz, V <sub>IN</sub> = 1.0V <sub>P-P</sub>

●Input / output circuits

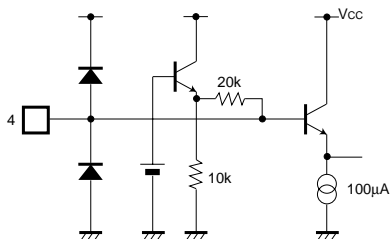
OUT1, 2, 3



IN1, 2



IN3



●Measurement circuit

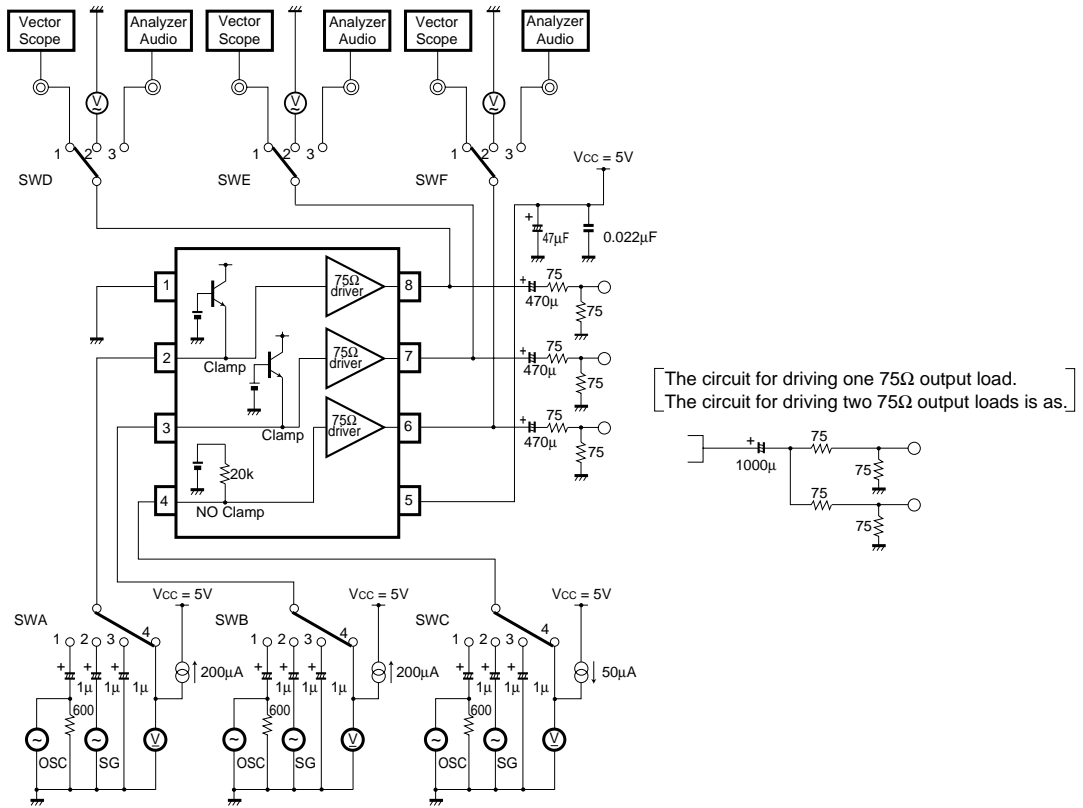


Fig.1

## ● Measurement conditions

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

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

\*1: Connect a distortion meter to the output, and input a  $f = 1\text{kHz}$  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<sub>P-P</sub>).

\*2: Input a 2.0V<sub>P-P</sub>, 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 DC50 $\mu\text{A}$  is flowing into the input pin. Measure the input pin open-circuit voltage  $V_{IN0}$ . The input impedance is given by  $Z = (V_{IN50} - V_{IN0}) / 50 \times 10^{-6} [\Omega]$ .

\*4: Input a 1.0V<sub>P-P</sub>, 1kHz sine wave. Connect a distortion meter to the output and measure the total-harmonic distortion.

●Application example

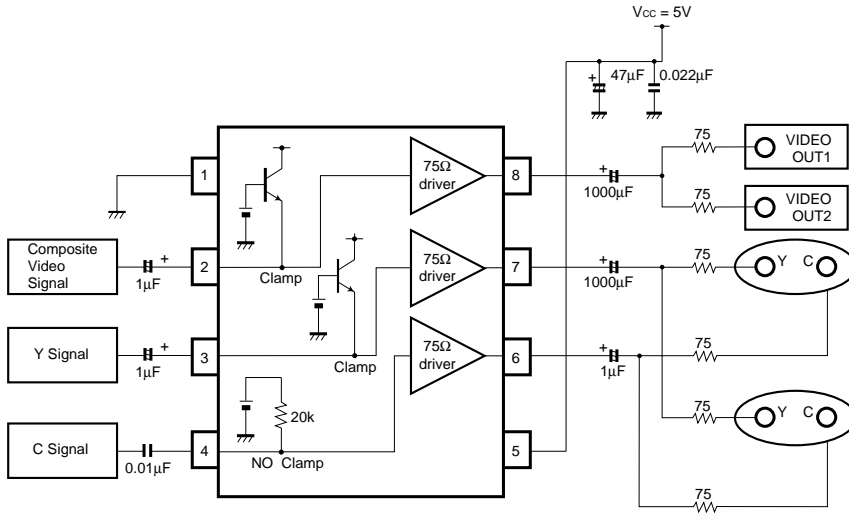


Fig.2

●Electrical characteristic curves

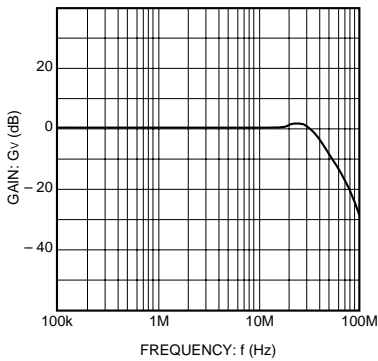


Fig. 3 Frequency characteristic

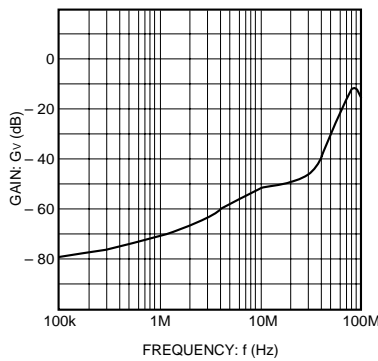


Fig. 4 Crosstalk

● External dimensions (Units: mm)

