

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

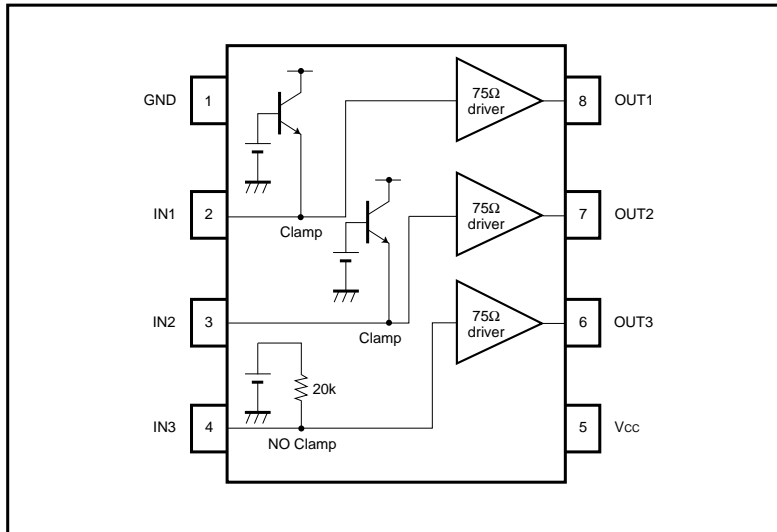
- 1) Two built-in clamp circuits.
- 2) Simultaneous drive of Y, C and composite video signals possible.
- 3) Each output can drive two loads.

●Absolute maximum ratings (Ta = 25°C)

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

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

●Block diagram



●Pin descriptions

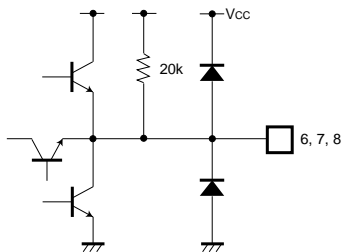
Pin No.	Pin name	Function
1	GND	Ground connection
2	IN1	Clamp input Input composite video or the Y signal separated from Y / C.
3	IN2	Clamp input Input composite video or the Y signal separated from Y / C.
4	IN3	Biased input Input the chroma signal. Terminated with a 20kΩ resistor.
5	Vcc	Power supply
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, $T_a = 25^\circ\text{C}$ and $V_{CC} = 5\text{V}$, and load is two system drive)

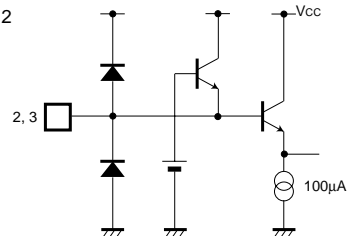
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating voltage	V_{CC}	4.5	5.0	5.5	V	—
Circuit current	I_{CC}	—	23.6	35.4	mA	No signal
Maximum output level	V_{om}	2.8	3.3	—	V_{P-P}	$f = 1\text{kHz}$, THD = 1.0%
Voltage gain	G_v	-1.2	-0.6	0	dB	$f = 1\text{MHz}$, $V_{IN} = 2.0V_{P-P}$
Frequency characteristics	G_f	-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	$f = 4.43\text{MHz}$, $V_{IN} = 2.0V_{P-P}$
Input impedance (V_{IN3})	Z_{IN3}	17	20	23	$k\Omega$	—
Total-harmonic distortion (V_{IN3})	T_{HD32}	—	0.1	0.5	%	$f = 1\text{kHz}$, $V_{IN} = 1.0V_{P-P}$

●Input / output circuits

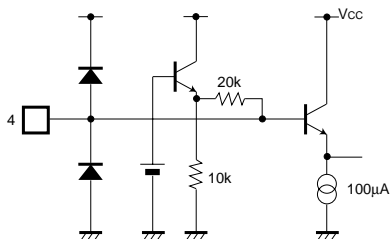
OUT1, 2, 3



IN1, 2



IN3



●Measurement circuit

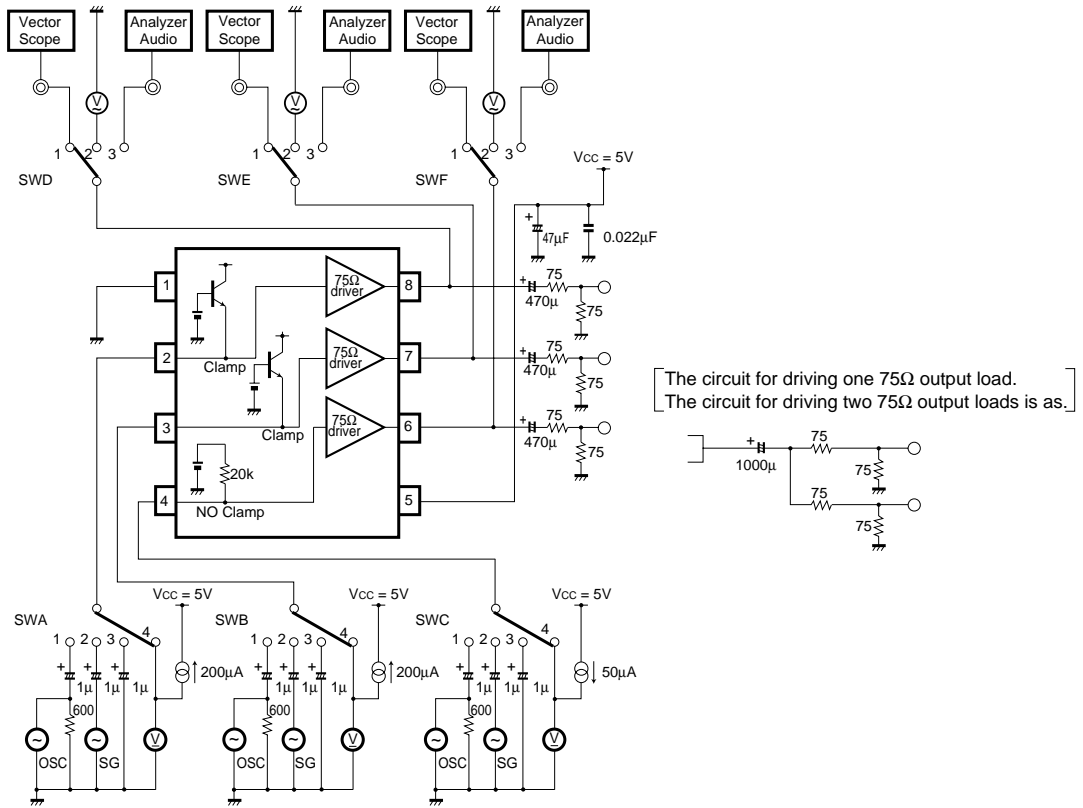


Fig.1

● Measurement conditions

Parameter	Symbol	IN1	IN2	IN3	OUT1	OUT2	OUT3	Conditions
		SWA	SWB	SWC	SWD	SWE	SWF	
Current dissipation	I _{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 $f = 1\text{kHz}$ 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_{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 DC50 μA 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_{P-P}, 1kHz sine wave. Connect a distortion meter to the output and measure the total-harmonic distortion.

●Application example

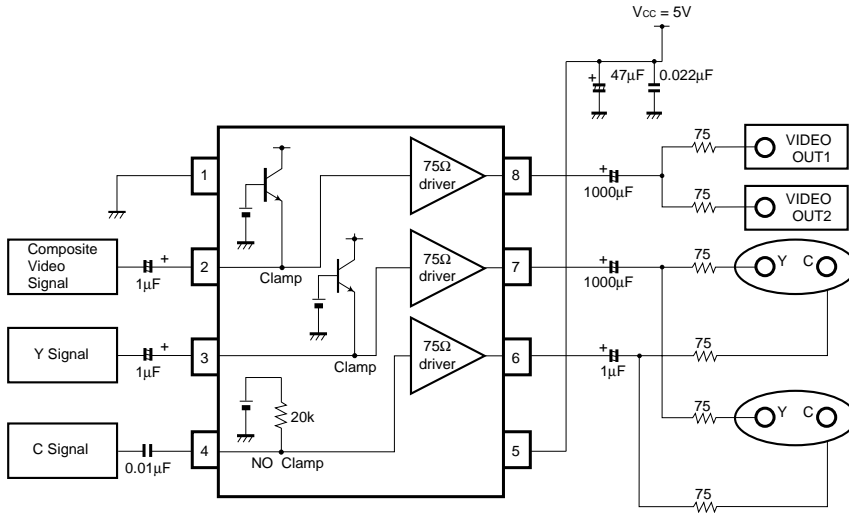


Fig.2

●Electrical characteristic curves

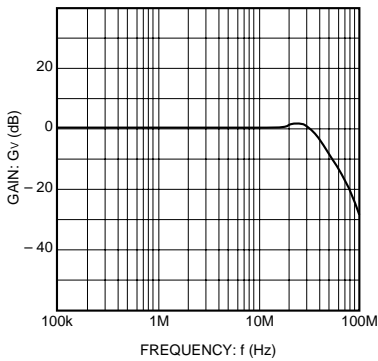


Fig. 3 Frequency characteristic

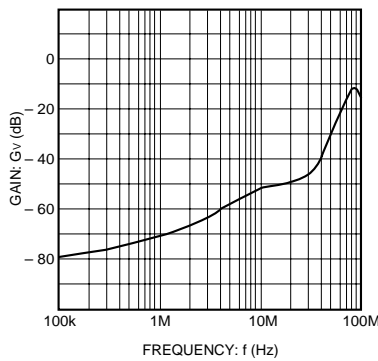


Fig. 4 Crosstalk

● External dimensions (Units: mm)

