

HA11505

T-74-07-01

Video Amplifier

The HA11505 is a bipolar LSI for wide frequency band video amplifier with 250 mA output current. The HA11505 is designed for high definition display.

Application

- High definition display system

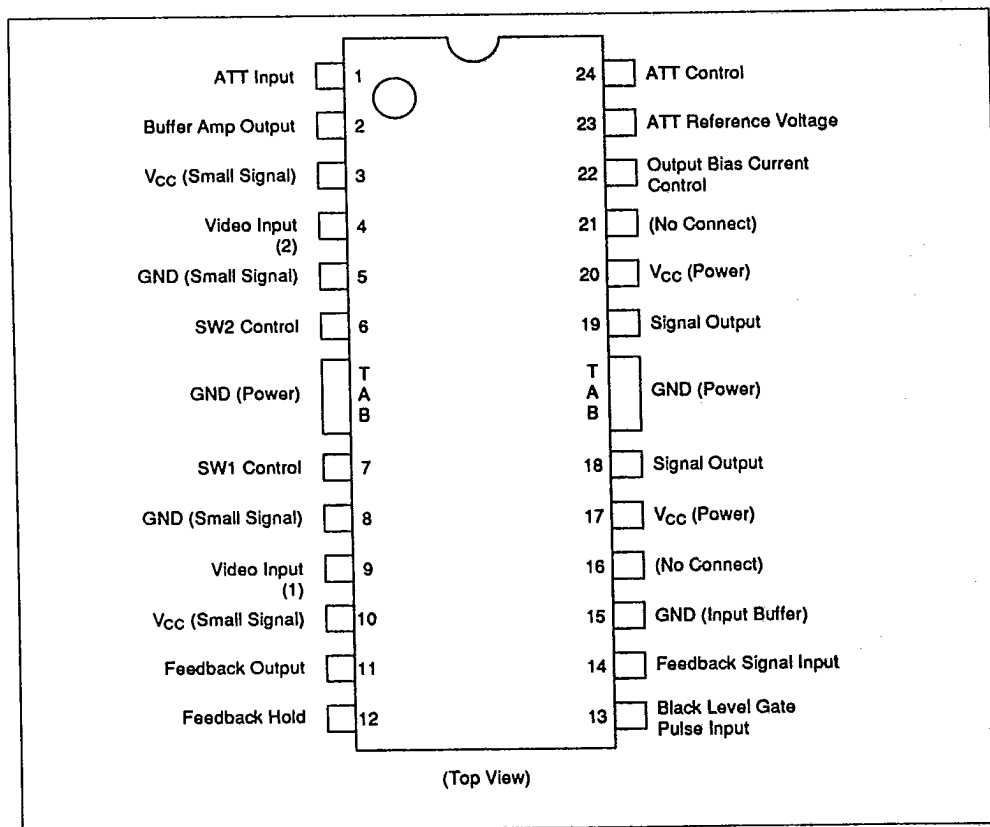
Features

- Wide frequency band: 100 MHz (at - 1dB)
- High output current: 250mA Max
- With Contrast circuit
- Dual signal inputs
- Low supply voltage: $5 \pm 0.25V$

Ordering Information

Type No.	Package
HA11505	DP-24TS

Pin Arrangement



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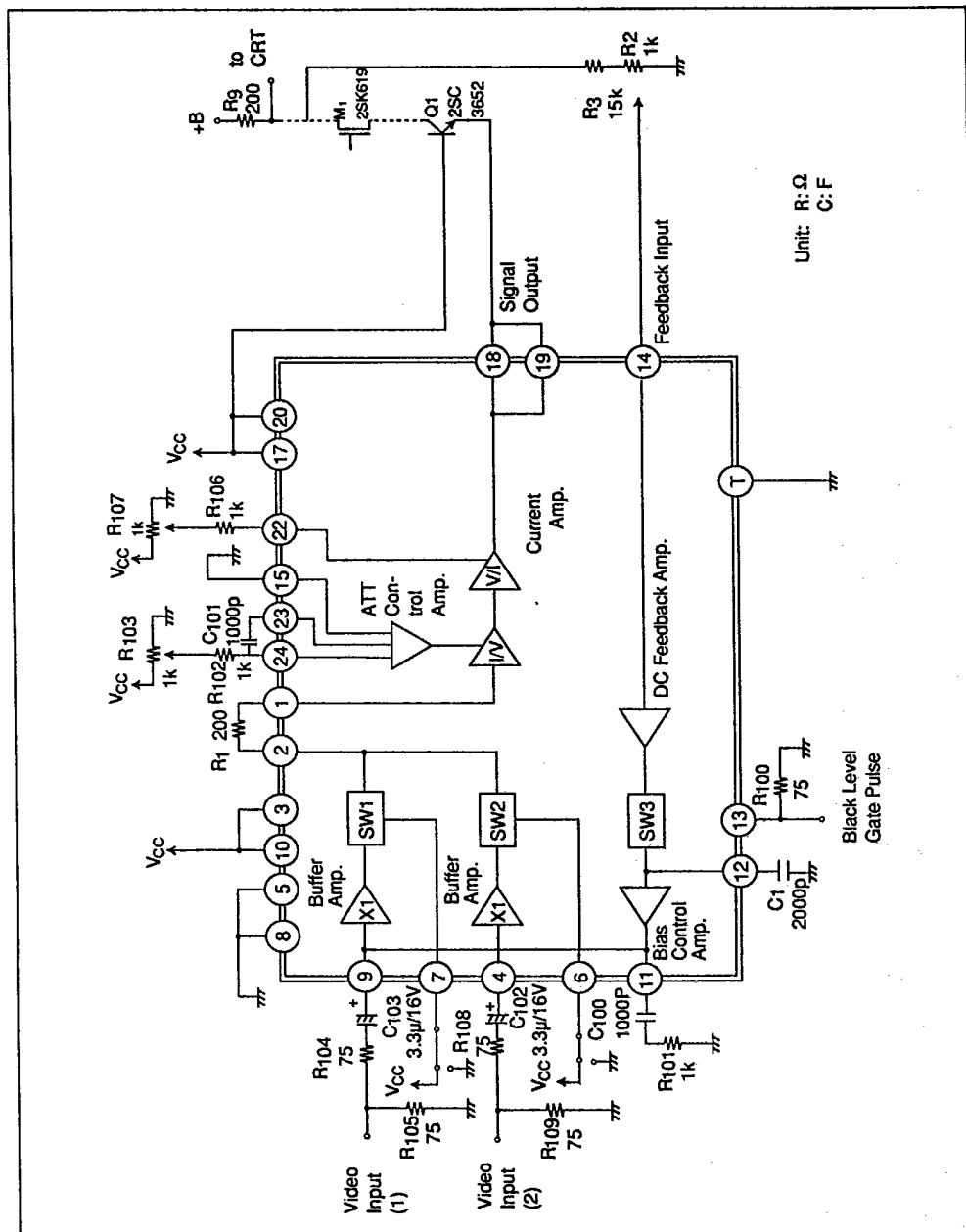
Pin Functions

Pin No.	Pin Name	Function
1	ATT Input	ATT input connected to pin 2 via R1
2	Buffer Amp Output	Buffer amp. output
3 10	V _{CC} (Small Signal)	V _{CC} for small signal portion
4	Video Input (2)	Video Input (2)
5 8	GND (Small Signal)	GND for small signal portion
6	SW2 Control	Low level selects the video input (2)
7	SW1 Control	Low level selects the video input (1)
9	Video Input	Video Input (1)
11	Feedback Output	Bias control amp. output
12	Feedback Hold	Sample and hold of feedback bias. Capacitor is connected
13	Black Level Gate Pulse Input	Negative sampling pulse applied
14	Feedback Signal Input	Feedback Signal Input
15	GND (Input Buffer)	GND for buffer amp.
16 21	NC	No connect
17 20	V _{CC} (Power)	V _{CC} for current amp.
22	Output Bias Current Control	Output bias control input to eliminate the output offset voltage between R, G, & B
23	ATT Reference Voltage	ATT reference voltage is 2.2V DC
24	ATT Control	Contrast control input
T	GND (Power)	GND for current amp.



Block Diagram

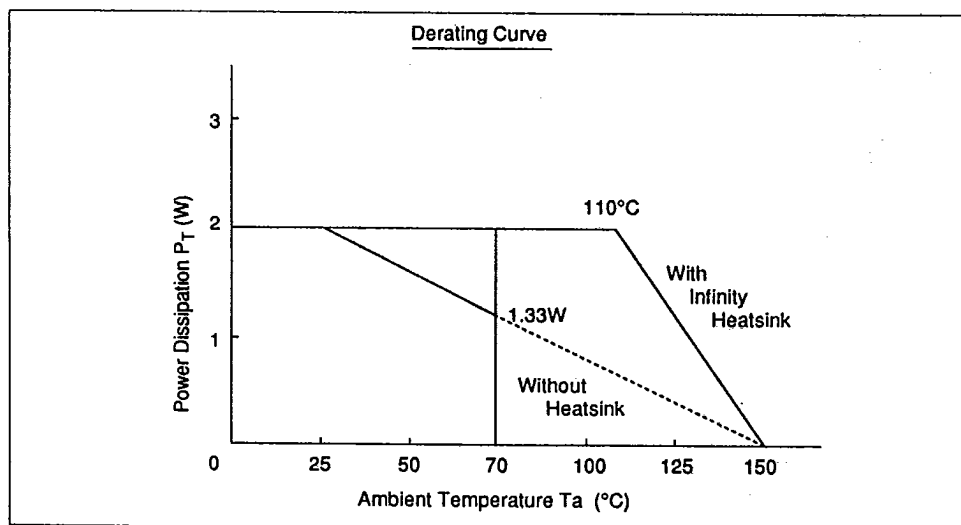
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HA11505*T-74-07-01*Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply Voltage	V_{CC}	6.0	V
Supply Current	I_{CC}	200	mA
Power Dissipation*1	P_T	2.0	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Operating Temperature	T_{opr}	0 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note: *1. Refer to derating curve



Pin Maximum Ratings

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Pin No.	Voltage (V)	Rating Current (mA)	Power (W)
(1)	V _{CC}	-10	-
(2)	4	-10	-
(4)	V _{CC}	-	-
(6)	5.5	-	-
(7)	5.5	-	-
(9)	V _{CC}	-	-
(11)	5	±1	-
(12)	V _{CC}	-1	-
(13)	5.5	-	-
(14)	V _{CC}	-	-
(18)	7	400	1.5
(19)			
(22)	V _{CC}	-	-
(23)	V _{CC}	-	-
(24)	V _{CC}	-	-

Note: (+) means current into pin.

(-) means current from pin.

Video Input Switch Condition

Switch Condition Selected Video Input		
Pin 6	Pin 7	
OFF	ON	(1)
ON	OFF	(2)



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Electrical Characteristics (Ta = 25°C, V_{CC} = 5V)

Block	Item	Application		Min	Typ	Max	Unit	Test Condition
		Terminal	Symbol					
Total	Supply Current	3 10 17 20	I _{CC}	—	70	—	mA	V _{CC} =5V
	Mutual Conductance (Video Input (1))	9	I _o /V _{in}	—	200	—	mS	V ₉ =0.2V _{pp}
	Mutual Conductance (Video Input (2))	4	I _o /V _{in}	—	300	—	mS	V ₄ =0.2V _{pp}
	Output Current	18 19	I _o	250	—	—	mA	V _{18 19} =3.0V
	Output Saturation Voltage	18 19	V _{os}	—	—	2.5	V	I _o =200mA.
	Frequency Band Width		f _{BW}	100	—	—	MHz	I _o =100mA, a=-1.0dB
	Output Voltage Rise Time		t _r	—	2.5	—	ns	R _L =10Ω
	Output Voltage Fall Time		t _f	—	2.5	—	ns	R _L =10Ω
	Overshoot		V _{SH}	—	5	—	%	R _L =10Ω
Buffer Amp	Video Input current (1)	9		—	5	—	μA	V ₉ =0 to V _{CC}
	Video Input Current (2)	4		—	5	—	μA	V ₄ =0 to V _{CC}
	SW1, SW2 ON Level	6 7		0	—	0.8	V	
	SW1, SW2 OFF Level	6 7		2.0	—	5.0	V	
ATT	Output Buffer Amp. Control Range (High Side)	24		—	6	—	dB	I ₁₈ =50mA, I ₂₂ =0
	Output Buffer Amp. Control Range (Low Side)	24		—	-20	—	dB	I ₁₈ =50mA, I ₂₂ =0
	ATT Reference Voltage	23		—	2.20	—	V	I ₂₃ =0
Output Bias Current Control	Max Output Bias Current	22		60	100	—	mA	I ₁ =0, V ₂₂ =5V
	Min Output Bias Current	22		—	0	5	mA	I ₁ =0 V ₂₂ =0V
DC	DC Bias Gain			80	300	700	—	From 14 to 11
Feed- back Amp	Pin 14 Input Threshold Voltage	14		1.96	2.00	2.04	V	For V ₁₁ =2.0V
	Pin 13 Gate Pulse High Level	13		2.0	—	5.0	V	
	Pin 13 Gate Pulse Low Level	13		0	—	0.8	V	

