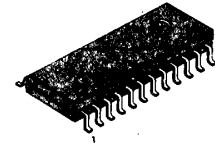


**RGB ENCODER**

The KA2197 is a monolithic integrated circuit designed for RGB encoder of video system. This device contains matrix of R-Y/B-Y, modulator, pulse generator, regulator and built in BPF of chroma and delay line of luminance and Y/C output using S-VHS system. The KA2197D is suitable for video equipment.

24-SOP



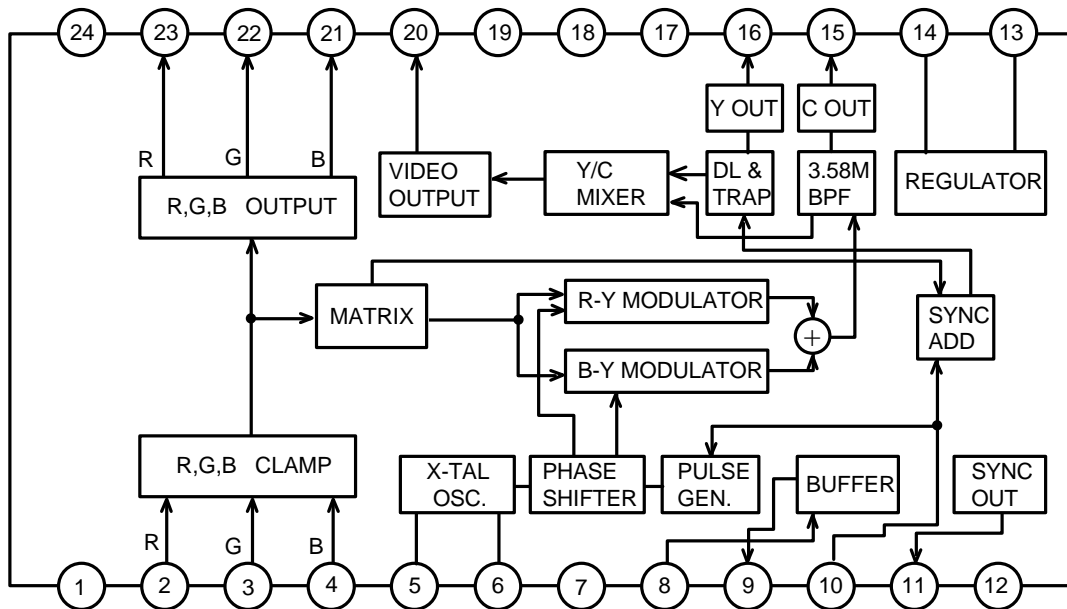
**FUNCTIONS**

- Regulator
- Mixer of R-Y, B-Y
- Modulator
- Pulse generator
- Audio buffer
- X-tal oscillator
- Clamp circuit
- BPF & D.L circuit
- Y/C output

**ORDERING INFORMATION**

Device	Package	Operating Temperature
KA2197D	24SOP	-20°C ~+70°C

**BLOCK DIAGRAM**



## PIN CONFIGURATION

Pin No.	DESCRIPTION	Pin NO	DESCRIPTION
1	GND 1	13	REGULATOR CURRENT SINK
2	RED INPUT	14	2V REGULATOR OUTPUT
3	GREEN INPUT	15	C OUT
4	BLUE INPUT	16	Y OUT
5	X-TAL OUT	17	N.C
6	X-TAL IN	18	N.C
7	N.C	19	VCC 2
8	AUDIO IN	20	COMPOSITE VIDEO OUTPUT
9	AUDIO OUT	21	BLUE OUTPUT
10	COMPOSITE SYNC INPUT	22	GREEN OUTPUT
11	COMPOSITE SYNC OUTPUT	23	RED OUTPUT
12	VCC 1	24	GND 2

\* VCC 1, GND 1 : EXCEPT OUTPUT STAGE

\* VCC 2, GND 2 : OUTPUT STAGE

## ABSOLUTE MAXIMUM RATINGS (TA=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	10	V
Power dissipation	$P_D$	1250	mW
Operating Temperature	$T_{OPR}$	-20~+70	°C
Storage Temperature	$T_{STG}$	-55~+150	°C

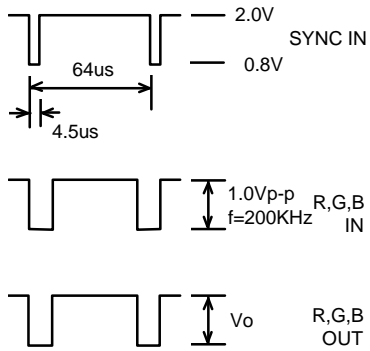
## ELECTRICAL CHARACTERISTICS (TA=25°C, VCC=5V)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Supply Current 1	$I_{CC1}$	No Signal input	29	39	49	mA
Supply Current 2	$I_{CC2}$	No Signal input	6.0	11	16	mA
R Output Voltage	$V_O$	$R_{IN}=1 V_{P-P}$	0.64	0.71	0.78	$V_{P-P}$
G Output Voltage	$V_O$	$G_{IN}=1 V_{P-P}$	0.64	0.71	0.78	$V_{P-P}$
B Output Voltage	$V_O$	$B_{IN}=1 V_{P-P}$	0.64	0.71	0.78	$V_{P-P}$
R Frequency Response	$f_c$	R, G, B f = 200 KHz -dB POINT	5	-	-	MHz
G Frequency Response	$f_c$		5	-	-	MHz
B Frequency Response	$f_c$		5	-	-	MHz
Sync. Level	$V_{OS}$	Condition: R, G, B and C Sync. input Measure Composite Video Output	0.26	0.29	0.33	V
R 100% Y Level	$V_O$		0.19	0.21	0.25	V
G 100% Y Level	$V_O$		0.38	0.42	0.48	V
B 100% Y Level	$V_O$		0.07	0.08	0.09	V

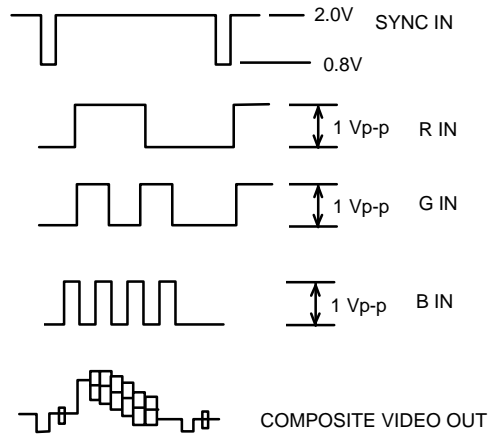
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
White 100% Y level	$V_O$	Composite Video Output	0.64	0.71	0.82	V
Differential Gain	DG		-	-	3.0	%
Differential Phase	DP		-	-	3.0	deg
Burst Level	$V_{OB}$		0.22	0.29	0.34	$V_{P-P}$
R Chroma Ratio	R/BN		2.8	3.15	3.5	times
G Chroma Ratio	G/BN		2.65	2.95	3.25	times
B Chroma Ratio	B/BN		2.01	2.24	2.57	times
R Phase	SR		94	104	114	deg
G Phase	SG		231	241	251	deg
B Phase	SB		337	347	357	deg
Burst Width	$T_{WB}$		2.5	2.75	3.6	us
Burst Position	$T_{DB}$		0.45	0.5	0.75	us
Carrier Leakage	VI		-	-	30	$mV_{P-P}$
C Sync. Output Level	$V_{OS}$		0.2	0.29	0.4	$V_{P-P}$
Audio Buffer Gain	$G_A$	$1V_{P-P}, f=1KHz$	-1.0	0	1.0	dB
Audio Freq. Response	$F_A$	-3dB	30	-	-	KHz
Audio Distortion	THD	$1V_{P-P}, f=1KHz$	-	-	1.0	%
Sync. Level	Y(CS)	Y OUTPUT	0.26	0.29	0.33	$V_{P-P}$
R 100% Y Level	Y(R)		0.19	0.21	0.25	V
G 100% Y Level	Y(G)		0.38	0.42	0.48	V
B 100% Y Level	Y(B)		0.07	0.08	0.09	V
White 100% Y Level	Y(W)		0.64	0.71	0.82	V
Burst Level	C(BN)	C OUTPUT	0.22	0.29	0.34	$V_{P-P}$
R Chroma ratio	C(R/BN)		2.80	3.15	3.50	time
G Chroma ratio	C(G/BN)		2.65	2.95	3.25	time
B Chroma ratio	C(B/BN)		2.01	2.24	2.47	time

TEST WAVEFORM

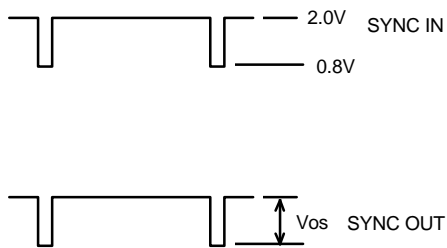
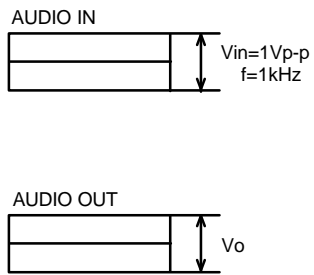
\*R,G,B OUT



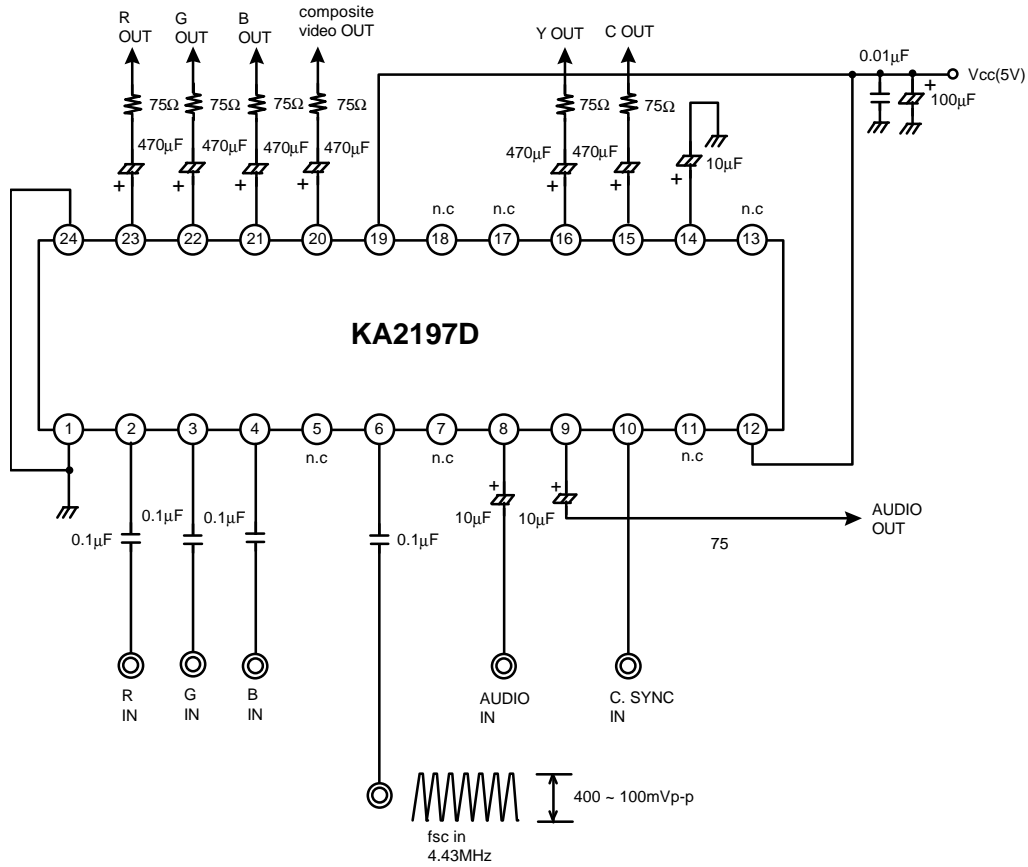
\* COMPOSITE VIDEO OUT



\*AUDIO OUT



APPLICATION CIRCUIT



\*\* only using external fsc input