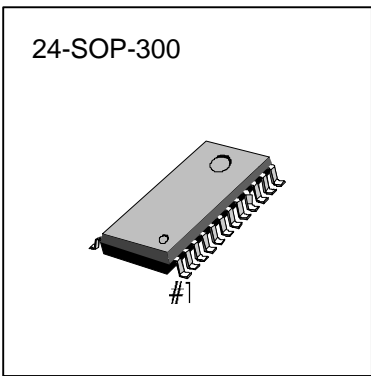


RGB ENCODER FOR PAL/NTSC

The KA2198BD is a monolithic circuit designed for RGB encoder of video system. This device provides encoding system of PAL and NTSC video signal. The KA2198BD contains matrix of R-Y/B-Y, modulator, pulse generator, regulator, built in BPF of chroma and delay line of luminance, Y/C output using S-VHS system. It is suitable for video equipment.



FUNCTIONS

- Regulator
- Mixer of R-Y, B-Y
- Modulator
- Pulse generator (ECL circuit)
- Audio buffer
- Clamp circuit
- Y-TRAP filter
- BPF & D.L circuit
- Y/C output driver

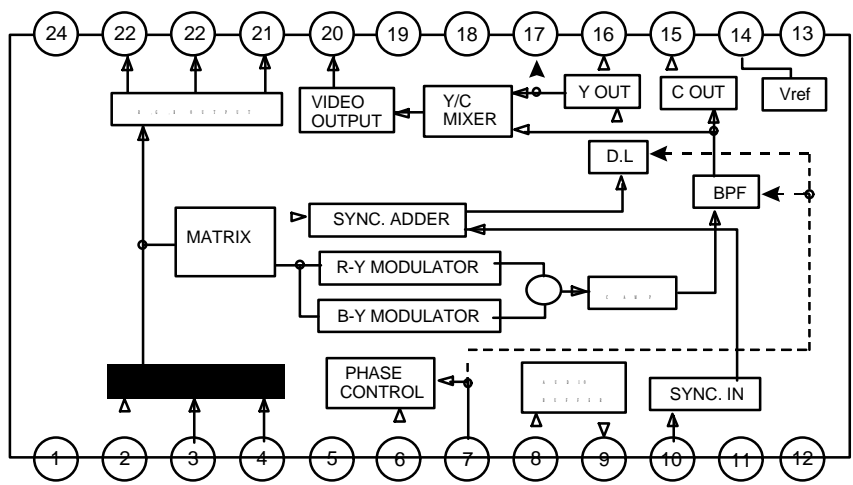
ORDERING INFORMATION

Device	Package	Operating Temperature
KA2198BD	24-SOP-300	-20°C~+65°C

FEATURES

- Lower operating voltage : $V_{CC} = 5V$
- Stabilized bias condition in regulator
- Available PAL/NTSC system
- Included 75 ohm driver (RGB output, composite video output, Y/C output)
- External fsc (color sub-carrier)
- Include BPF & delay line
- Audio buffer circuit
- R-Y, B-Y modulator
- Available S-VHS
- High frequency response of luminance

BLOCK DIAGRAM



PIN CONFIGURATION

Pin No.	DESCRIPTION	Pin No.	DESCRIPTION
1	GND1	13	N.C
2	R INPUT	14	2V REGULATOR
3	G INPUT	15	C.OUT
4	B INPUT	16	Y OUT
5	N.C	17	Y-TRAP FILTER
6	fsc INPUT	18	N.C
7	NTSC/PAL SW	19	VCC2
8	AUDIO IN	20	COMPOSITE VIDEO OUTPUT
9	AUDIO OUT	21	B OUTPUT
10	COMPOSITE SYNC. IN	22	G OUTPUT
11	N.C	23	R OUTPUT
12	VCC1	24	GND2

(note) V_{CC1} , GND1 : except output stage
 V_{CC2} , GND2 : output stage supply voltage

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

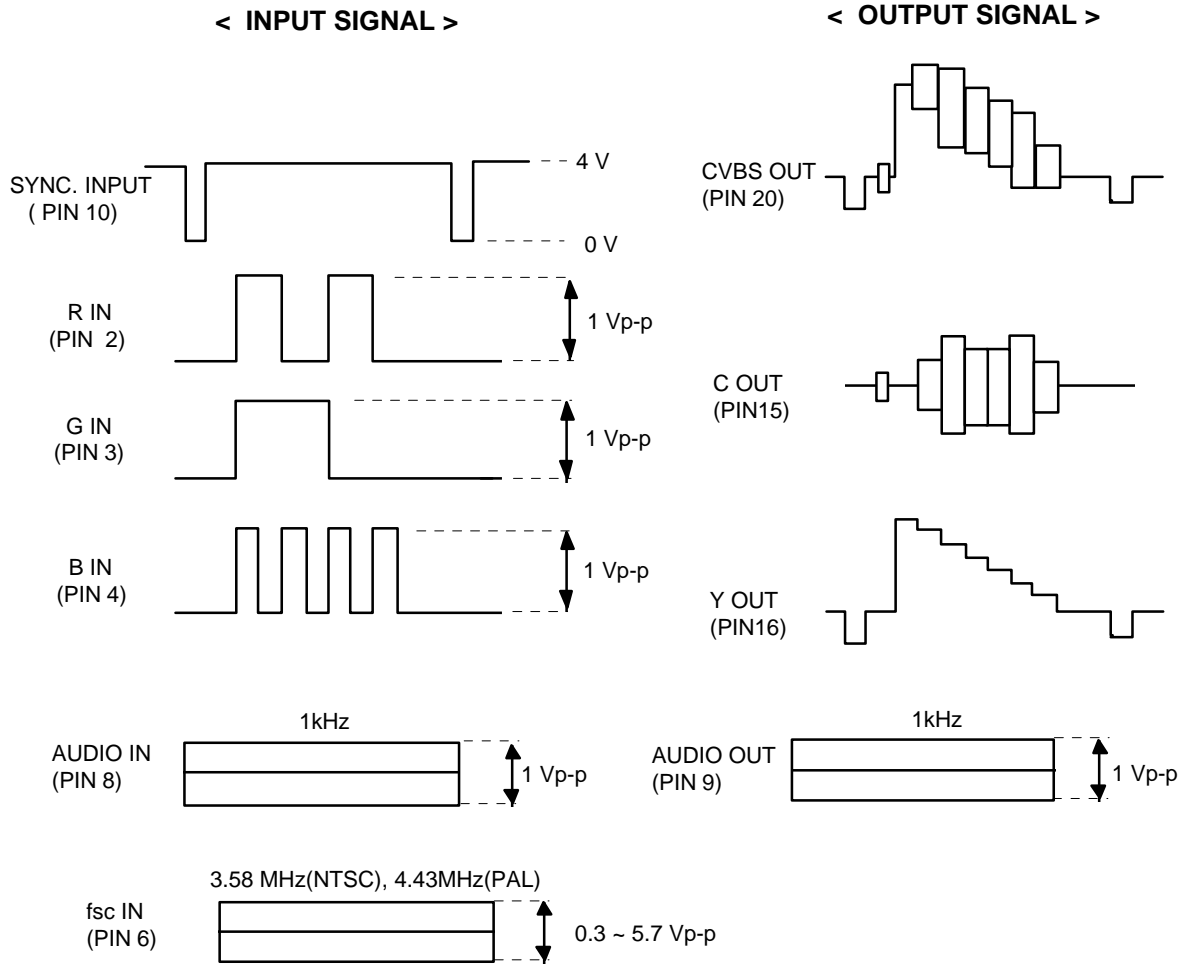
Characteristics	Symbol	Value	Unit
MAX Supply Voltage	V_{CCMAX}	10	V
Power Dissipation	P_D	1250	mW
Operating Temperature	T_{OPR}	-20~+70	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, $V_{CC}=5\text{V}$)

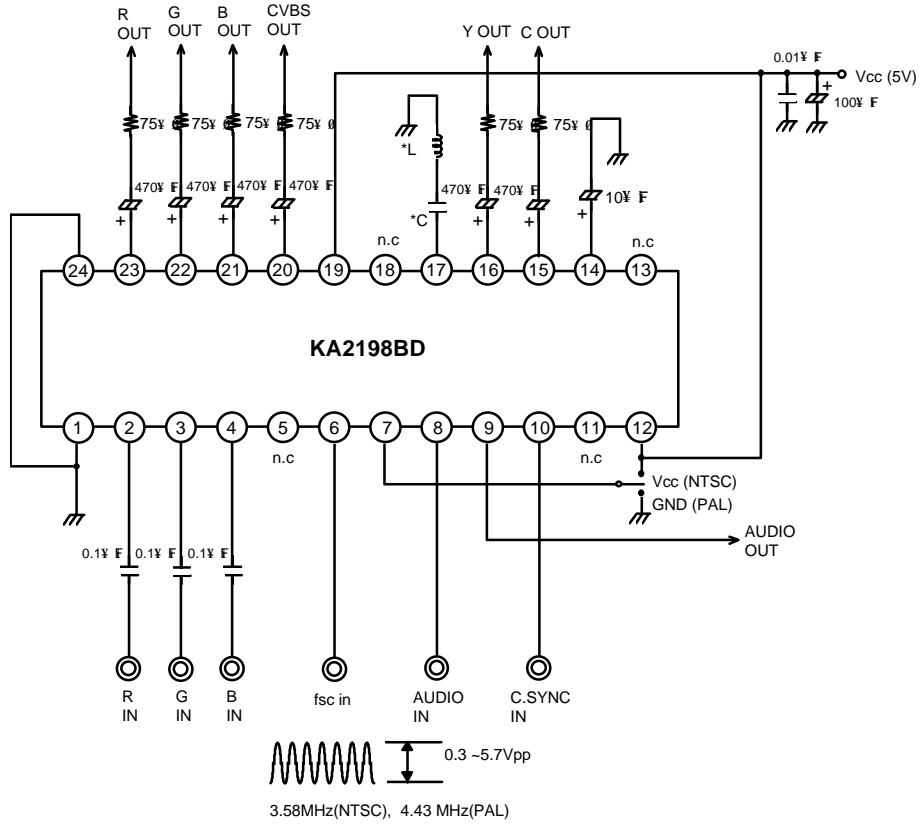
Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current 1	I_{CC1}	No signal input	25	39	49	mA
Supply Current 2	I_{CC2}		5.0	11	16	mA
R Output Voltage	V_{OR}	R,G,B input signals $V_{in}=1.0 V_{P-P}$, $f=200\text{KHz}$	0.64	0.71	0.78	V_{P-P}
G Output Voltage	V_{OG}		0.64	0.71	0.78	V_{P-P}
B Output Voltage	V_{OB}		0.64	0.71	0.78	V_{P-P}
R Frequency Response	R_{FC}	R,G,B input signals $V_{in}=1.0 V_{P-P}$, $f=200\text{KHz}$ (-3dB point)	5.0	-	-	MHz
G Frequency Response	G_{FC}		5.0	-	-	MHz
B Frequency Response	B_{FC}		5.0	-	-	MHz
Y Frequency Response	Y_{FCN}	Y OUT (-3dB point)	6.0	-	-	MHz
R 100% Y Level Ratio(CVBS)	V_{YR1}	R,G,B input signals $V_{in}=1.0 V_{P-P}$ (100% R,G,B / 100% Y)	0.19	0.21	0.25	-
G 100% Y Level Ratio(CVBS)	V_{YG1}		0.38	0.42	0.48	-
B 100% Y Level Ratio(CVBS)	V_{YB1}		0.07	0.08	0.09	-

Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
100% Y Level (CVBS)	V _{YW1}		0.64	0.71	0.82	V _{P-P}
Sync. Level 1 (CVBS)	V _{SNC1}		0.26	0.29	0.33	V _{P-P}
R 100% Y Level Ratio (Y OUT)	V _{YR2}	R,G,B input signal V _{in} =1.0V _{P-P} (100% R,G,B / 100% Y)	0.19	0.21	0.25	-
G 100% Y Level Ratio (Y OUT)	V _{YG2}		0.38	0.42	0.48	-
B 100% Y Level Ratio (Y OUT)	V _{YB2}		0.07	0.08	0.09	-
100% Y Level (Y OUT)	V _{YW2}		0.64	0.71	0.82	V _{P-P}
Sync. Level 1 (Y OUT)	V _{SNC2}		0.26	0.29	0.33	V _{P-P}
Audio Buffer Gain	G _a	Audio Input 100KHz, 1V _{P-P}	-1.0	1.0	1.1	dB
Audio Frequency Response	F _a		30	-	-	KHz
Audio Distortion	THD		-	-	1.0	%
NTSC mode						
R Chroma Ratio 1 (CVBS)	R/B1	fsc input 3.58MHz, 400mV _{P-P} (check CVBS out)	2.70	3.15	3.50	-
G Chroma Ratio 1 (CVBS)	G/B1		2.55	2.95	3.25	-
B Chroma Ratio 1 (CVBS)	B/B1		1.90	2.24	2.47	-
Burst level 1 (CVBS)	Vob1		0.20	0.29	0.34	V _{P-P}
R Chroma Ratio 2 (C OUT)	R/B2	fsc input 3.58MHz, 400mV _{P-P} (check C out)	2.70	3.15	3.50	-
G Chroma Ratio 2 (C OUT)	G/B2		2.55	2.95	3.25	-
B Chroma Ratio 2 (C OUT)	B/B2		1.90	2.24	2.47	-
Burst level 2 (C OUT)	Vob2		0.20	0.29	0.34	V _{P-P}
R Phase (CVBS)	SR _N	fsc input 3.58MHz, 400mV _{P-P} (check CVBS out)	94	104	114	deg
G Phase (CVBS)	SG _N		231	241	251	deg
B Phase (CVBS)	SB _N		337	347	357	deg
Burst Width	T _{WN}		2.5	2.75	3.6	usec
Burst Position	T _{PN}		0.45	0.5	0.75	usec
Carrier Leakage	CL	CVBS out, Y out	-	-	0.03	V _{P-P}
PAL mode						
R Chroma Ratio 3 (CVBS)	R/B3	fsc input 3.58MHz, 400mV _{P-P} (check CVBS out)	2.70	3.15	3.50	-
G Chroma Ratio 3 (CVBS)	G/B3		2.55	2.95	3.25	-
B Chroma Ratio 3 (CVBS)	B/B3		1.90	2.24	2.47	-
Burst level 3 (CVBS)	Vob3		0.20	0.29	0.34	V _{P-P}
R Chroma Ratio 4 (C OUT)	R/B4	fsc input 3.58MHz, 400mV _{P-P} (check C out)	2.80	3.15	3.50	-
G Chroma Ratio 4 (C OUT)	G/B4		2.65	2.95	3.25	-
B Chroma Ratio 4 (C OUT)	B/B4		2.01	2.24	2.47	-
Burst level 4 (CVBS)	Vob4		0.20	0.29	0.34	V _{P-P}
R Phase (CVBS)	SR _P	fsc input 3.58MHz, 400mV _{P-P} (check CVBS out)	94	104	114	deg
G Phase (CVBS)	SG _P		231	241	251	deg
B Phase (CVBS)	SB _P		337	347	357	deg
Burst Width	T _{WP}		2.0	2.25	2.5	usec
Burst Position	T _{PP}		0.35	0.45	0.55	usec
PAL Burst Phase 1	P1	CVBS out, Y out	125	135	145	deg
PAL Burst Phase 2	P2		215	225	235	deg
Y Frequency Response	Y _{FCP}	Y output (-3dB point)	6.0	-	-	MHz

TEST WAVEFORM



APPLICATION CIRCUIT



SYSTEM	Fo(MHz)	★L(uH)	★C(pF)
NTST	3.57	100	20
PAL	4.43	82	15

KA2198BD

RGB ENCODER FOR PAL/NTSC

