

AN2458SH

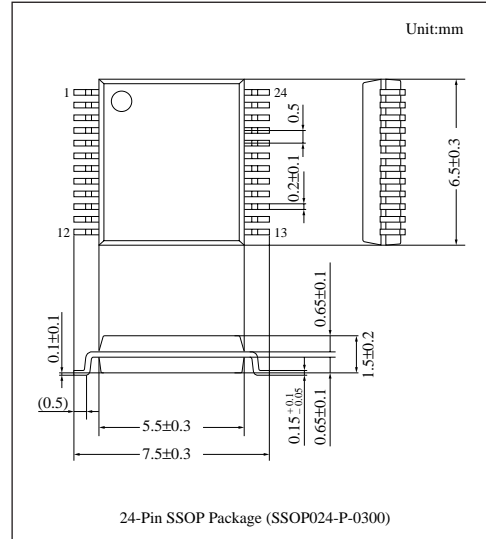
Color Encoder IC (NTSC/PAL) for CCD Video Camera

Overview

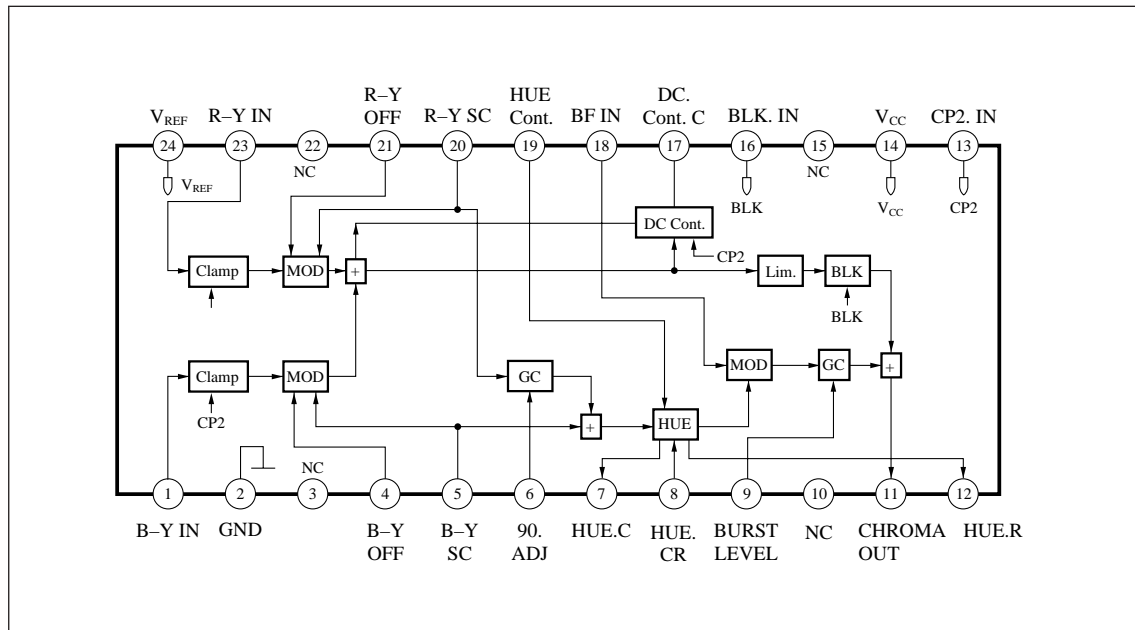
The AN2458SH is a color encoder IC for NTSC/PAL-compatible CCD video camera. It outputs chroma signal after modulation of inputted R-Y and B-Y color difference signals with subcarrier signals.

Features

- Compatible with NTSC and PAL
- Carrier leak adjustment available
- Built-in blanking circuit
- Color phase adjustment available
- Improved temperature characteristics of color phase shift (within $\pm 5^{\circ}\text{C}$)



Block Diagrams



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5.5	V
Supply current	I_{CC}	25	mA
Power dissipation	P_D	120	mW
Operating ambient temperature ^{Note 1)}	T_{opr}	-20 to +75	°C
Storage temperature ^{Note 1)}	T_{sig}	-55 to +125	°C

Note 1) $T_a=25^{\circ}\text{C}$ except operating ambient temperature and storage temperature.

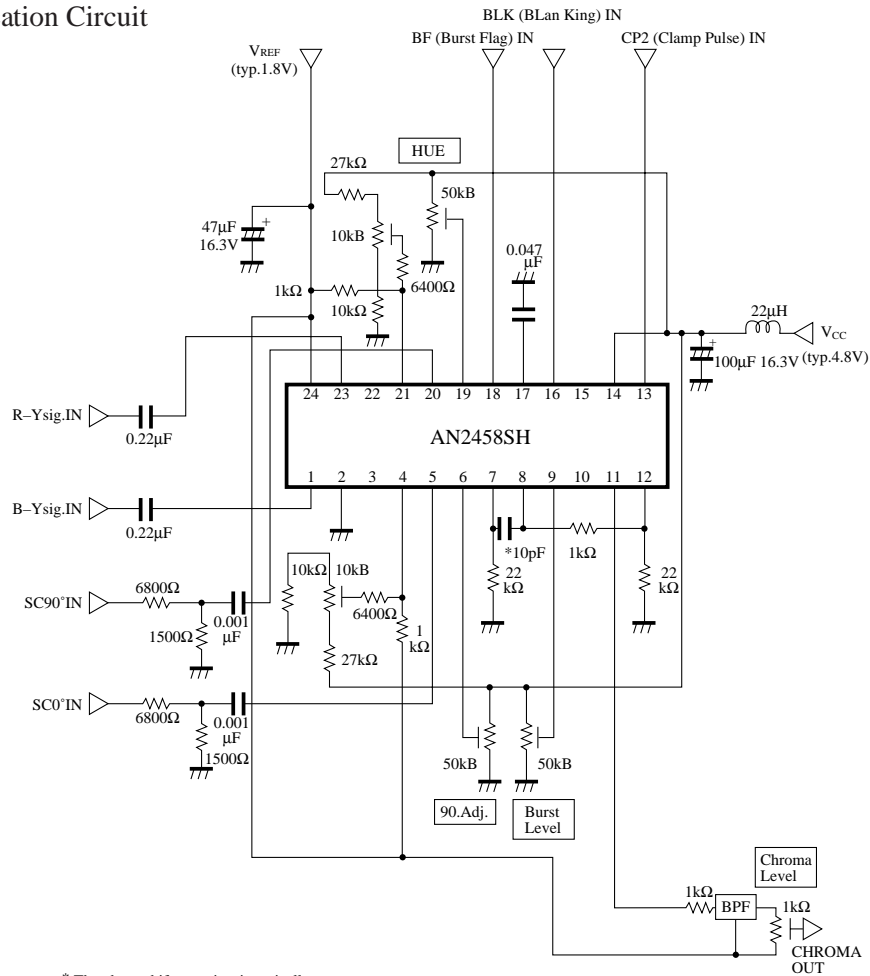
■ Recommended Operating Range ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	4.6V to 5.0V

■ Electrical Characteristics ($T_a=25\pm 2^{\circ}\text{C}$)

Parameter	Symbol	Condition	min	typ	max	Unit
Supply current	I_{CC}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$	12.0	16.0	20.0	mA
CP2 threshold 1	$V_{TH (CP2-1)}$	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$	1.5	1.8	2.1	V
CP2 threshold 2	$V_{TH (CP2-2)}$	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$	2.0	2.4	2.8	V
BLK threshold	$V_{TH (BLK)}$	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$	1.9	2.2	2.5	V
Terminal voltage Pin5	V_5	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ difference from V_{REF}	-100	0	100	mV
Terminal voltage Pin11	V_{11}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$	1.8	2.3	2.8	V
Terminal voltage Pin20	V_{20}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ difference from V_{REF}	-100	0	100	mV
R-Y GAIN	G_{V1}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ 250mV _{P-P} input	480	600	720	mV _{P-P}
B-Y GAIN	G_{V2}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ 250mV _{P-P} input	-7.0	-5.5	-3.5	dB
CHROMA CLIP	G_{V3}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ 600mV _{P-P} input	0.5	3.0	4.5	dB
BLK CONTROL	G_{V4}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ 250mV _{P-P} input $BLK=3V_{OP}$	300	600	900	mV _{P-P}
BURST GC (1)	G_{V5}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ $V_9=V_{REF}$	290	350	430	mV _{P-P}
BURST GC (2)	G_{V6}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ $V_9=V_{REF}\pm 0.5\text{V}$	1.5	3.0	4.5	dB
BURST GC (3)	G_{V7}	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ $V_9=V_{REF}-0.5\text{V}$	-6.0	-4.5	-2.5	dB
BURST PHASE (1)	θ_1	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ $V_{19}=V_{REF}+0.5\text{V}$	-45	-30	-15	deg
BURST PHASE (2)	θ_2	$V_{CC}=4.8\text{V}$, $V_{REF}=1.8\text{V}$ $V_{19}=V_{REF}-0.5\text{V}$	0	15	30	deg

Application Circuit



* The phase-shift capacitor is typically 10 pF for both NTSC and PAL.

Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Color difference (B-Y) input	13	Clamp pulse input
2	GND	14	V _{CC} (4.8V typ.)
3	N. C.	15	N. C.
4	Subcarrier (0°) OFF	16	Blanking pulse input
5	Subcarrier(0°) input	17	DC playback capacitor
6	90° adjustment	18	Burst flag input
7	Phase-shift capacitor	19	Phase adjustment
8	Phase-shift capacitor	20	Subcarrier (90°/270°) input
9	Burst amplitude adjustment	21	Subcarrier (90°/270°) OFF
10	N. C.	22	N. C.
11	Chroma plus burst output	23	Color difference (R-Y) input
12	Phase-shift resistors	24	V _{REF} (1.8V typ.)

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