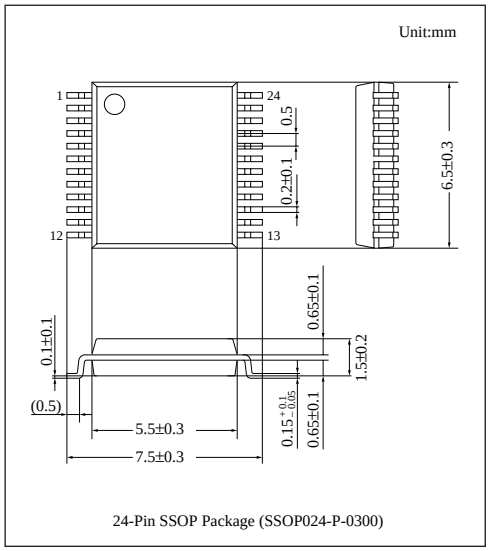
AN2458SH

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.

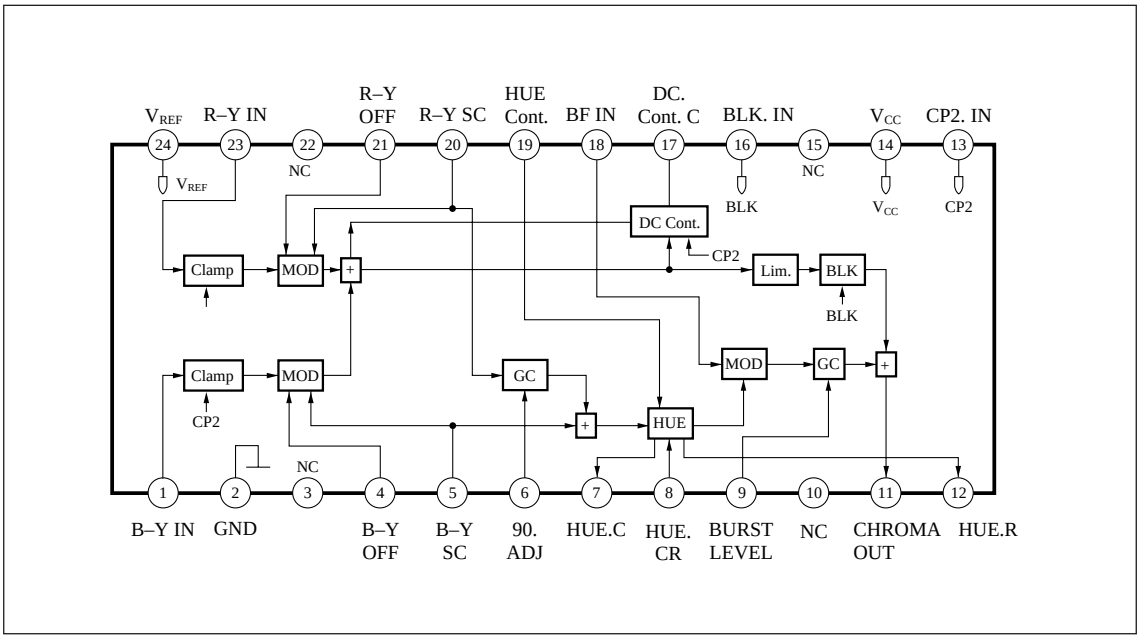


24-Pin SSOP Package (SSOP024-P-0300)

■ 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 ±5˚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_{stg}	–55 to +125	˚C

Note 1) Ta=25˚C except operating ambient temperature and storage temperature.

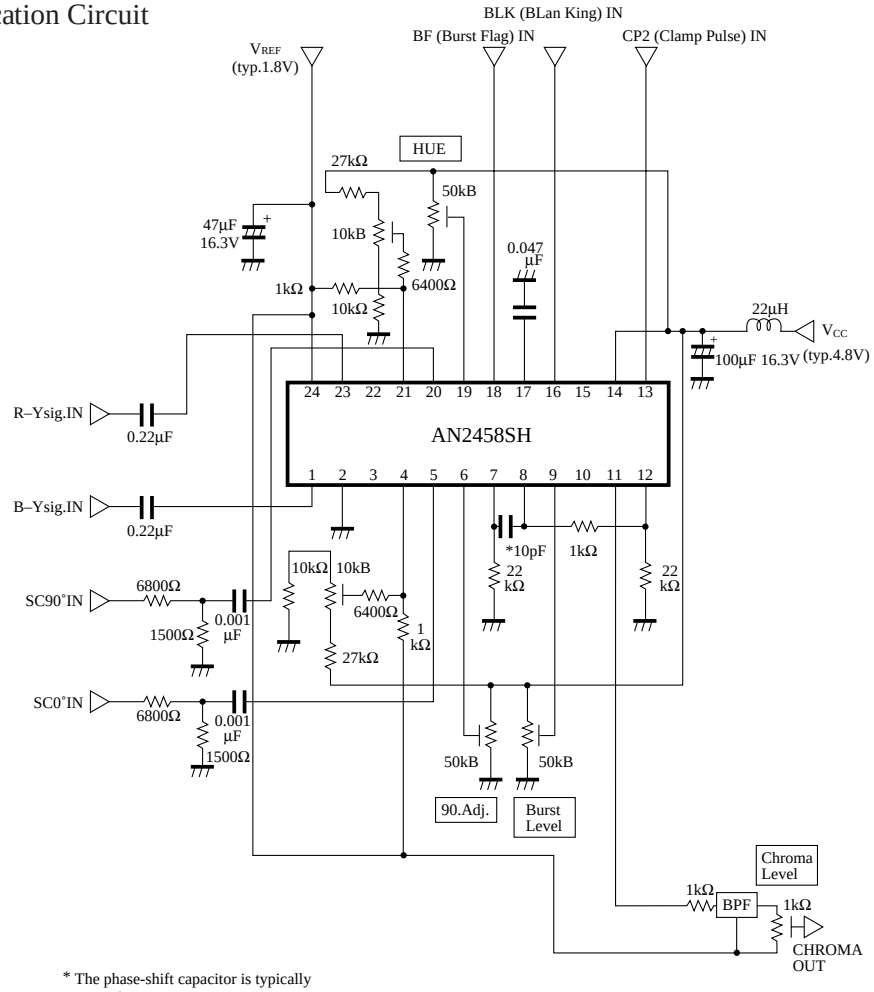
■ Recommended Operating Range (Ta=25˚C)

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

■ Electrical Characteristics (Ta=25±2˚C)

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