AN93B06SCR

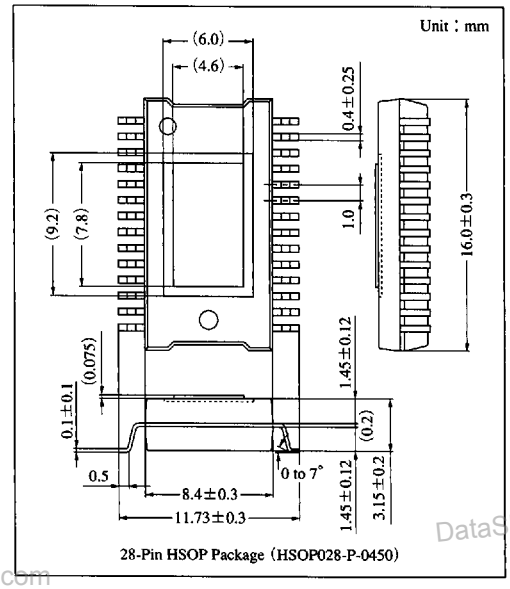
Broad-Band Video-Amplifier IC for CRT Monitor

■ Overview

The AN93B06SCR is a broad-band video amplifier IC for CRT monitor. It supports RGB signals. It incorporates contrast and brightness control functions.

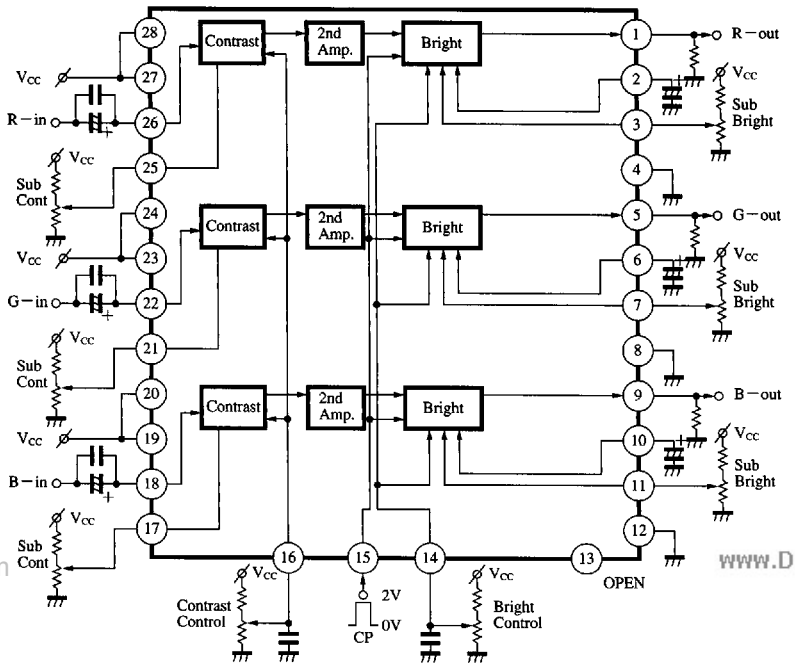
■ Features

- Wide bandwidth characteristics of 90MHz : −3dB (at $4V_{P-P}$ output)
- Contrast and brightness control
- RGB sub-contrast control
- RGB sub-brightness control
- DC control (0 to 5V)



28-Pin HSOP Package (HSOP028-P-0450)

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC(V17-2)}$	12.6	V
Supply current	$I_{CC(I5)}$	110	mA
Power dissipation Note 2)	P_D	900	mW
Operating ambient temperature Note 1)	T_{opr}	−20 to +70	℃
Storage temperature Note 1)	T_{stg}	−55 to +150	℃

Note 1) Ta=25℃ except operating ambient temperature and storage temperature.
Note 2) Allowable power dissipation of the package at Ta=70℃.

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	11.0V to 12.5V

■ Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I_{CC}	V_{CC}=12V	60	72	90	mA
Circuit voltage	$V_{18-4,8,12}$	V_{CC}=12V	2.3	3.0	3.7	V
Circuit voltage	$V_{22-4,8,12}$	V_{CC}=12V	2.3	3.0	3.7	V
Circuit voltage	$V_{26-4,8,12}$	V_{CC}=12V	2.3	3.0	3.7	V
RGB maximum output amplitude	e_1	Input 0.7V_{P-P} (1MHz) Contrast min./max.	3.4	4.0	4.6	V_{P-P}
Relative gain ratio between RGB	Δe_1	Input 0.7V_{P-P} (1MHz) Relative ratio between R, G, B	−1.0	0	+1.0	dB
Contrast ratio $\left(\frac{min.}{max.}\right)$	e_7	Input 0.7V_{P-P} (1MHz) Contrast min./max. ratio	—	—	−20	dB
Sub contrast ratio $\left(\frac{min.}{max.}\right)$	e_3	Input 0.7V_{P-P} (1MHz) Sub contrast min./max. ratio	—	—	−20	dB
Brightness control characteristics (L)	e_5	Output pedestal level when Bright 1V	0.65	0.9	1.05	V
Brightness control characteristics (H)	e_6	Output pedestal level when Bright 4V	3.3	3.6	3.9	V
Output DC level difference	Δe_6	Output pedestal level when Bright 4V	−0.2	0	+0.2	V
Frequency characteristics (R)	$e_{2(R)}$	fin=0.7V_{P-P} in 100MHz (ratio with fin=in 1MHz)	−7.0	−5.0	+1.0	dB
Frequency characteristics (G)	$e_{2(G)}$	fin=0.7V_{P-P} in 100MHz (ratio with fin=in 1MHz)	−5.0	−3.0	+1.0	dB
Frequency characteristics (B)	$e_{2(B)}$	fin=0.7V_{P-P} in 100MHz (ratio with fin=in 1MHz)	−5.0	−3.0	+1.0	dB
Pulse reponse (rise)	t_r	Contrast typ. Bright 2V, when RGB output 3V_{P-P}	—	(5)	—	ns
Pulse reponse (fall)	t_f	Contrast typ. Bright 2V, when RGB output 3V_{P-P}	—	(5)	—	ns
Sub brightness control characteristics	ΔE	Difference of output DC voltage, when sub-bright changed (1V→6V)	—	(1.5)	—	V
Maximum tolerance input	ein (max.)	V_{CC}=12V	—	(1.2)	—	V_{P-P}
Output dynamic range	E_{out}	V_{CC}=12V	—	(6)	—	V
Clamp pulse (CP) input threshold level	V_{CP}	Voltage at which clamp circuit operates	—	(0.8)	—	V
RGB between outputs crosstalk amount	e_C	At fin=100MHz	—	(−10)	—	dB

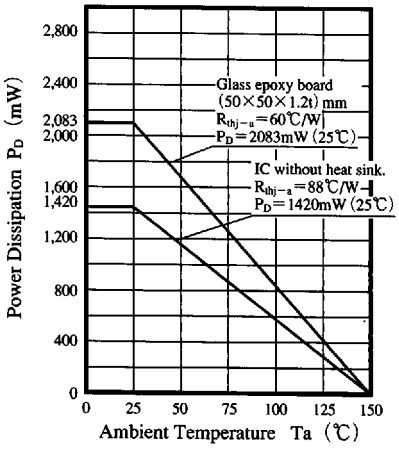
Note) The characteristics value in parentheses is not a guaranteed value, but reference one on design.

Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Output (R)	15	Clamp pulse input
2	Clamp capacitor Pin (R)	16	Contrast control
3	Sub-brightness control (R)	17	Sub-contrast control (B)
4	GND (R)	18	Input (B)
5	Output (G)	19	V_{CC} (B)
6	Clamp capacitor Pin (G)	20	V_{CC} (B)
7	Sub-brightness control (G)	21	Sub-contrast control (G)
8	GND (G)	22	Input (G)
9	Output (B)	23	V_{CC} (G)
10	Clamp capacitor Pin (B)	24	V_{CC} (G)
11	Sub-brightness control (B)	25	Sub-contrast control (R)
12	GND (B)	26	Input (R)
13	TEST	27	V_{CC} (R)
14	Brightness control	28	V_{CC} (R)

Reference

Power Dissipation of package
$P_D - Ta$



Application Circuit