

AN5344FBP

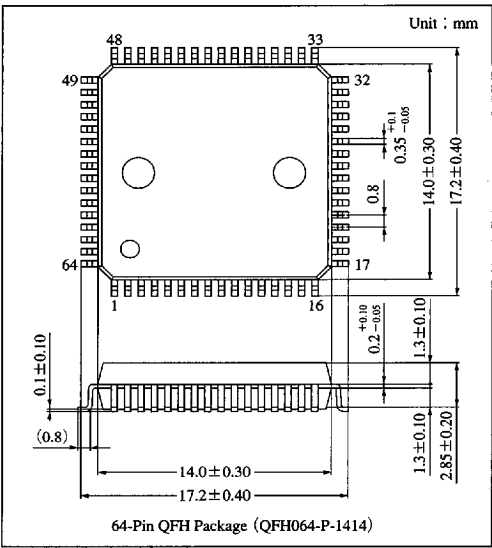
Color-Signal Correcting IC

Overview

The AN5344FBP is a chroma signal processor IC incorporated various video-quality improving techniques.

Features

- Flesh-tone correction : Automatic tint adjustment with respect to standard flesh tone
- CNR : Reduces color smear noise which occurs often in VCR and Laser Disk.
- CRI : Enhanced color details
- Flesh-tone brightness enhancement : Generating a brighter flesh tone
- Color limiter : Prevents red and blue saturation.



Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	10.5	V
Supply current	I_{CC}	66.5	mA
Power dissipation ^{Note 2)}	P_D	1417	mW
Operating ambient temperature ^{Note 1)}	T_{opr}	-20 to +70	°C
Storage temperature ^{Note 1)}	T_{stg}	-55 to +150	°C

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

Note 2) Allowable power dissipation of the package at $T_a = 70^\circ\text{C}$ and mounted on the printboard.

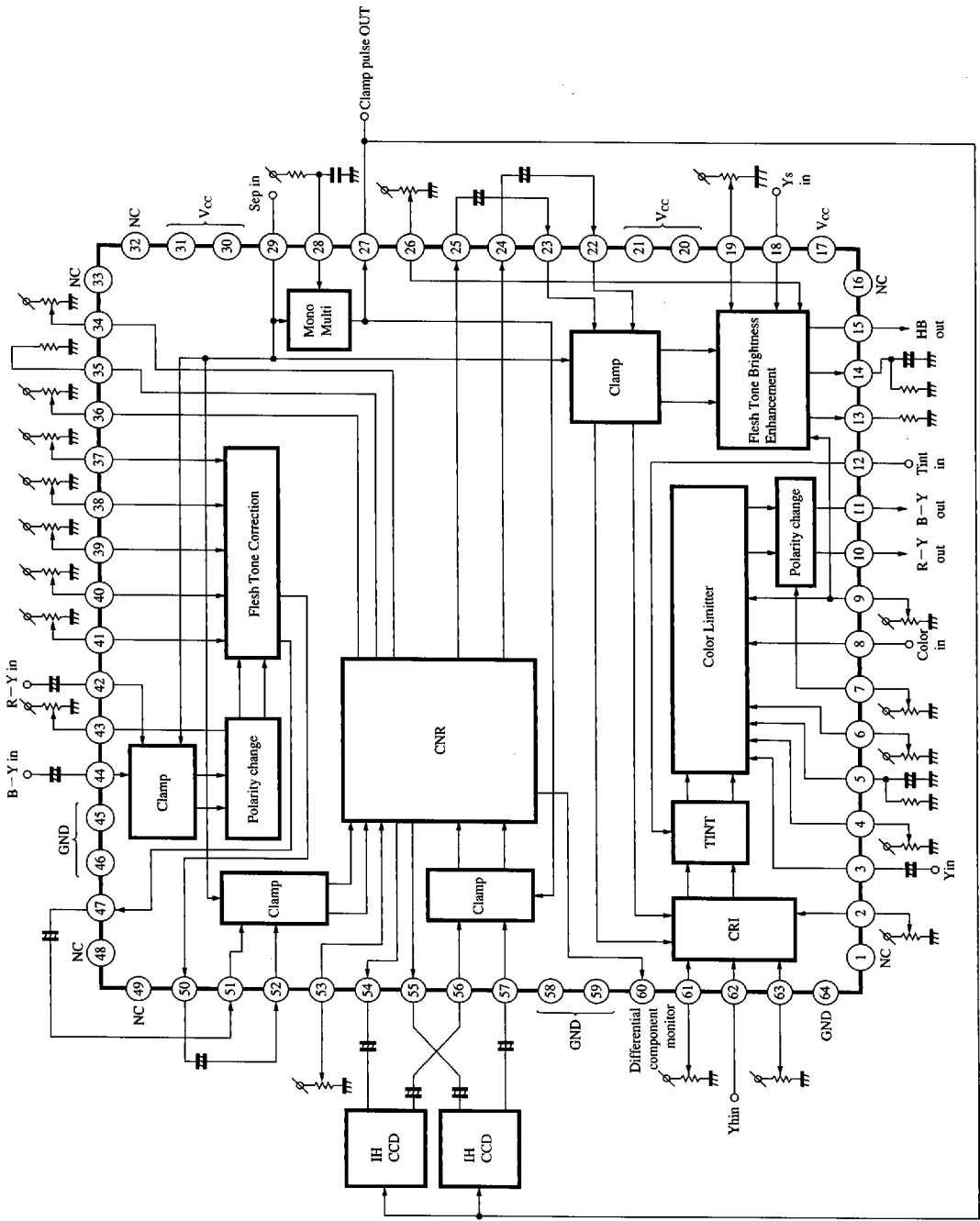
Recommended Operating Range ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	8.1V to 9.9V

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■ Block Diagram



ICs for TV

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■ Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Supply current (1)	I ₂₀		24.1	34.3	44.0	mA
Supply current (2)	I ₂₁		8.40	12.0	16.5	mA
Supply current (3)	I ₃₀		4.75	6.78	9.00	mA
Supply current (4)	I ₃₁		4.68	6.69	9.00	mA
Supply current (5)	I ₁₇		10.7	15.2	21.0	mA
Pin voltage	V ₂		2.65	3.15	3.65	V
Pin voltage	V ₄		3.79	4.29	4.79	V
Pin voltage	V ₁₂		2.69	3.19	3.69	V
Pin voltage	V ₁₉		2.10	2.60	3.10	V
Pin voltage	V ₂₆		3.12	3.62	4.12	V
Pin voltage	V ₃₆		2.85	3.35	3.85	V
Pin voltage	V ₃₇		2.82	3.32	3.82	V
Pin voltage	V ₃₈		3.13	3.63	4.13	V
Pin voltage	V ₃₉		3.62	4.12	4.62	V
Pin voltage	V ₄₀		2.61	3.11	3.61	V
Pin voltage	V ₄₁		2.62	3.12	3.62	V
Pin voltage	V ₆₂		2.32	2.82	3.32	V
Input impedance	R _{i4}	DC measurement	16.0	20.0	24.0	kΩ

Flesh tone Correction Circuit

Input amplitude gain control 1 (R-Y)	A _{C1R}	Gain at V ₄₃ =5V, input 1V _{P-P}	3.92	4.90	5.88	times
Input amplitude gain control ratio 1	R _{C1R/B}	(R-Y), (B-Y) gain ratio at V ₄₃ =5V, input 1V _{P-P}	0.88	1	1.12	times
Input amplitude gain control 2 (R-Y)	A _{C2R}	Gain at V ₄₃ =3.55V	1.55	2.08	2.39	times
Input amplitude gain control 2 (B-Y)	A _{C2B}	Gain at V ₄₃ =3.55V	1.62	2.17	2.49	times
Input amplitude gain control 3 (R-Y)	A _{C3R}	Gain at V ₄₃ =1V (Polarity inversion)	-5.88	-4.90	-3.92	times
Input amplitude gain control ratio 3	R _{C3R/B}	(R-Y), (B-Y) gain ratio at V ₄₃ =1V (Polarity inversion)	0.88	1	1.12	times
Input amplitude gain control 4 (R-Y)	A _{C4R}	Gain at V ₄₃ =2.7V (Polarity inversion)	-1.98	-1.72	-1.29	times
Input amplitude gain control 4 (B-Y)	A _{C4B}	Gain at V ₄₃ =2.7V (Polarity inversion)	-2.15	-1.87	-1.40	times
Flesh tone correction center axis	θ _{CC}	Center axis at V ₄₁ =3V	122	134	142	deg
Center axis variable width	Δθ _{CC}	Center axis at V ₄₁ =1 to 5V	41.5	56.5	74.5	deg
Flesh tone correction stop level	V _{CSTOP}	Output level difference between 123° and 143° at V ₃₈ =3.8V	179	224	269	mV
Flesh tone correction gain control	ΔV _{CC1}	Output level difference between 123° and 143° at V ₃₇ =3V	-176	-141	-106	mV
Flesh tone correction quantity (R-Y)	ΔV _{CCR}	Output level difference between 123° and 143°	45	115	185	mV
Flesh tone correction quantity (B-Y)	ΔV _{CCB}	Output level difference between 123° and 143°	80	150	220	mV
Flesh tone correction clamp voltage (R-Y)	V ₄₇		3.7	4.2	4.7	V
Flesh tone correction clamp voltage (B-Y)	V ₅₀		3.7	4.2	4.7	V
Sandcastle pulse slice level 1	V _{SCP1}		3.01	3.51	4.01	V

Flesh tone Brightness Enhancement Circuit

APL detection voltage	V _{APL}	Pin③ input, 0.714V _{O-P}	1.47	1.87	2.27	V
APL detection voltage ratio	ΔV _{APL}	Pin③ input, ratio input 0.357V _{O-P} to input 0.714V _{O-P}	0.14	0.34	0.54	times

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■ Electrical Characteristics (cont.) (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Y _S threshold voltage	V _{YSTH}	The lowest voltage at which Y _S is ON, when V ₁₈ is increased from 0V	1.55	2.05	2.25	V
Y _S characteristics	V _{YS}	When V ₁₈ =5V, V ₁₉ =4V	3.48	3.98	4.48	V
APL bias	V ₁₃	43kΩ between Pin⑬ to GND	7.54	8.04	8.54	V
Flesh tone brightness Enhancement maximum output	V _{HBmax}	When V ₂₆ =5V, V ₁₅ output level	0.49	0.68	0.76	V _{O-P}
Flesh tone brightness Enhancement correction ratio	ΔV _{HBCR}	When V ₂₆ =3V, ratio to V ₂₆ =5V	-10.67	-7.67	-4.67	dB
Flesh tone brightness Enhancement clamp voltage (R-Y)	V ₂₃		3.68	4.18	4.68	V
Flesh tone brightness Enhancement clamp voltage (B-Y)	V ₂₂		3.68	4.18	4.68	V

CRI Circuit

CRI standard output (R-Y)	V _{DER}	Pin② input, 30mV _{P-P} 1MHz V ₂ =3V	0.43	0.61	0.86	V _{P-P}
CRI standard output (B-Y)	V _{DEB}	Pin② input, 30mV _{P-P} 1MHz V ₂ =3V	0.98	1.38	1.95	V _{P-P}
CRI maximum output (R-Y)	ΔV _{DERmax}	V ₂ =5V Ratio to standard output	2.73	4.31	5.89	dB
CRI maximum output (B-Y)	ΔV _{DEBmax}	V ₂ =5V Ratio to standard output	2.79	4.17	5.75	dB
CRI minimum output (R-Y)	ΔV _{DERmin}	V ₂ =1V Ratio to standard output	—	—	-18	dB
CRI minimum output (B-Y)	ΔV _{DEBmin}	V ₂ =1V Ratio to standard output	—	—	-18	dB

TINT Circuit

Tint center	θ _{TC}	Calculate from the output when Pin②, ③ input is 3V _{P-P} , 10kHz and V ₁₂ open.	-8	0	8	deg
Tint control max.	Δθ _{Tmax}	Variation quantity from V ₁₂ =4V tint center	-54	-39	-24	deg
Tint control min.	Δθ _{Tmin}	Variation quantity from V ₁₂ =2V tint center	62	77	92	deg

Color Limiter Circuit

Color peak detection 1 (R-Y)	V _{PIR}	Pin② input 1.5V _{O-P} Pin⑤ output DC voltage	4.52	5.02	5.52	V
Color peak detection 1 (B-Y)	V _{P1B}	Pin② input 1.5V _{O-P} Difference voltage from R-Y	-0.4	0	0.4	V
Color peak detection 2 (R-Y)	V _{P2R}	Pin② input 0.5V _{O-P} Difference voltage from color peak detection 1 (R-Y)	-2.29	-1.89	-1.49	V
Color peak detection 2 (B-Y)	V _{P2B}	Pin② input 0.5V _{O-P} Difference voltage from color peak detection 2 (R-Y)	-0.4	0	0.4	V
Color limit level 1	V _{L1}	Pin② input 2V _{O-P} V ₁₁ where Pin⑥ to GND is 22kΩ	1.75	2.19	2.63	V _{O-P}
Color limit level 2	V _{L2}	Ratio to color limit level 1, when Pin⑥ to GND is 82kΩ	0.55	0.76	0.92	times
Output amplitude gain control 1 (R-Y)	A _{L1R}	Pin②, ③ input 3V _{P-P} at V ₇ =5V	0.81	1.08	1.24	times
Output amplitude gain control ratio 1	R _{L1R/B}	Pin②, ③ input 3V _{P-P} (R-Y), (B-Y) gain ratio at V ₇ =5V	0.88	1.0	1.12	times
Output amplitude gain control 2 (R-Y)	A _{L2R}	At V ₇ =3.5V	0.28	0.36	0.43	times
Output amplitude gain control 2 (B-Y)	A _{L2B}	At V ₇ =3.5V	0.28	0.36	0.43	times
Output amplitude gain control 3 (R-Y)	A _{L3R}	At V ₇ =1V (Polarity inversion)	-1.20	-1.04	-0.78	times
Output amplitude gain control ratio 3	R _{L3R/B}	At V ₇ =1V (Polarity inversion) (R-Y), (B-Y) gain ratio	0.88	1.0	1.12	times
Output amplitude gain control 4 (R-Y)	A _{L2B}	At V ₇ =2.5V (Polarity inversion)	-0.84	-0.73	-0.55	times

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■ Electrical Characteristics (cont.) (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Output amplitude gain control 4 (B-Y)	A _{L4B}	When V _I =2.5V (Polarity inversion)	-0.86	-0.75	-0.56	times
Color limit level 3	V _{L3}	Pin③ input 0.714V _{O-P} Ratio to limit level 1 when Pin⑥ to GND is 82kΩ	0.95	1.00	1.05	times
Color control 1 (R-Y)	A _{LC1R}	Pin②, ③ input 3V _{P-P} Output level at V ₈ =3V	0.35	0.44	0.53	times
Color control 1 (B-Y)	A _{LC1B}	Pin②, ③ input 3V _{P-P} Output level at V ₈ =3V	0.35	0.44	0.53	times
Color control 2 (R-Y)	A _{LC2R}	At V ₈ =1V, Ratio to V ₈ =3V	—	—	-40	dB
Color control 2 (B-Y)	A _{LC2B}	At V ₈ =1V, Ratio to V ₈ =3V	—	—	-40	dB
Pedestal clamp voltage	V ₃		3.06	3.56	4.06	V

CNR Circuit

CNR gain 1 (R-Y)	A _{N1R}	V ₅₃ =0V, input 3V _{P-P} , Pin⑤ input, Pin⑤ output	-1.5	0	1.5	dB
CNR gain ratio 1	R _{N1R/B}	R-Y/B-Y when V ₅₃ =0V, input 3V _{P-P}	0.88	1	1.12	times
Difference adjustment gain (R-Y)	A _{dR}	V ₃₆ =3V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	-5.74	-3.46	-1.18	dB
Difference adjustment gain ratio	R _{dR/B}	V ₃₆ =3V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	0.74	0.95	1.10	times
Difference adjustment maximum gain (R-Y)	A _{dRmax}	V ₃₆ =5V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	1.5	3.8	6.1	dB
Difference adjustment maximum gain (B-Y)	A _{dBmax}	V ₃₆ =5V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	2.3	4.6	6.9	dB
K operation offset (R-Y)	V _{K1R}	V ₃₅ =9V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-12	dB
K operation offset (B-Y)	V _{K1B}	V ₃₅ =9V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-12	dB
CNR gain 2 (R-Y)	A _{N2R}	V ₅₃ =0V, input 3V _{P-P} , Pin⑤ input, Pin⑤ output	-11.29	-8.29	-5.29	dB
CNR gain ratio 2	R _{N2R/B}	R-Y,B-Y ratio when V ₅₃ =0V, input 3V _{P-P}	0.88	1	1.12	times
K operation gain 1 (R-Y)	A _{K1R}	V ₃₄ =9V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-15	dB
K operation gain 1 (B-Y)	A _{K1B}	V ₃₄ =9V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-15	dB
K operation gain 2 (R-Y)	A _{K2R}	V ₃₄ =3V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	-5.5	-3.2	-0.9	dB
K operation gain 2 (B-Y)	A _{K2B}	V ₃₅ =3V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	-5.3	-2.6	0	dB
Sandcastle pulse slice level 2	V _{scp2}		1.8	2.3	2.8	V
Difference monitor amplitude	V _{MR}	Input 3V _{P-P} Pin⑤ input, Pin⑤ output	0.336	0.480	0.624	V _{P-P}
K control 1 (R-Y)	A _{NC1R}	V ₅₃ =0V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-30	dB
K control 1 (B-Y)	A _{NC1B}	V ₅₃ =0V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	—	—	-30	dB
K control 2 (R-Y)	A _{NC2R}	V ₅₃ =2V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	-6.1	-3.8	-1.5	dB
K control 2 (B-Y)	A _{NC2B}	V ₅₃ =2V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	-5.3	-3.0	-0.7	dB
K control 3 (R-Y)	A _{NC3R}	V ₅₃ =6V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	0.12	2.42	4.72	dB
K control 3 (B-Y)	A _{NC3B}	V ₅₃ =6V, input 60mV _{P-P} , Pin⑤ input, Pin⑤ output	1.08	3.38	5.68	dB

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■ Electrical Characteristics (cont.) (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
K control 4 (R-Y)	A _{NC4R}	V ₅₃ =0V, input 60mV _{P-P} , Pin ^{⑤⑥} input, Pin ^{⑤④} output	—	—	-30	dB
K control 4 (B-Y)	A _{NC4B}	V ₅₃ =0V, input 60mV _{P-P} , Pin ^{⑤⑦} input, Pin ^{⑤⑤} output	—	—	-30	dB
K control 5 (R-Y)	A _{NC5R}	V ₅₃ =2V, input 60mV _{P-P} , Pin ^{⑤⑥} input, Pin ^{⑤④} output	—	—	-30	dB
K control 5 (B-Y)	A _{NC5B}	V ₅₃ =2V, input 60mV _{P-P} , Pin ^{⑤⑦} input, Pin ^{⑤⑤} output	—	—	-30	dB
CNR clamp voltage (R-Y)	V ₅₁		3.60	4.10	4.60	V
CNR clamp voltage (B-Y)	V ₅₂		3.60	4.10	4.60	V
CCD clamp voltage (R-Y)	V ₅₆		6.34	6.84	7.34	V
CCD clamp voltage (B-Y)	V ₅₇		6.30	6.80	7.30	V
CNR switch threshold voltage	V _{CNRTH}	The lowest voltage at which CNR is ON, when V ₅₃ is increased from 0V	0.2	0.6	1.0	V

■ Electrical Characteristics [Reference Value] (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Flesh tone Correction Circuit						
+ side control range	θ_{C+}	Phase at V ₄₀ =3V	114	148	172	deg
+ side control variable width	$\Delta\theta_{C+}$	Control range variation quantity at V ₄₀ =2 to 5V	36	47	58	deg
- side control range	θ_{C-}	Phase at V ₃₉ =3V	80	91	102	deg
- side control variable width	$\Delta\theta_{C-}$	Control range variation quantity at V ₃₉ =2 to 5V	0	9	24	deg
Flesh tone correction quantity (R-Y) ambient temperature dependency	$\frac{\Delta V_{CCR}}{\Delta T}$	Color correction quantity (R-Y) variation rate, at Ta=-20 to +70℃ change	—	1.0	—	mV/℃
Flesh tone correction quantity (B-Y) ambient temperature dependency	$\frac{\Delta V_{CCB}}{\Delta T}$	Color correction quantity (B-Y) variation rate, at Ta=-20 to +70℃ change	—	2.0	—	mV/℃
Flesh tone correction quantity (R-Y) supply voltage dependency	$\frac{\Delta V_{CCR}}{\Delta V}$	Color correction quantity (R-Y) variation rate, at T _{CC} =9V -10% to +10% change	—	10	—	mV/V
Flesh tone correction quantity (B-Y) supply voltage dependency	$\frac{\Delta V_{CCB}}{\Delta V}$	Color correction quantity (B-Y) variation rate, at T _{CC} =9V -10% to +10% change	—	-3.0	—	mV/V

Flesh tone Brightness Enhancement Circuit

Flesh tone brightness enhancement maximum output ambient temperature dependency	$\frac{\Delta V_{HBmax}}{\Delta T}$	Flesh-color brightness maximum output variation rate at Ta=-20 to +70℃ change	—	-0.10	—	$\frac{mV_{O-P}}{℃}$
Flesh tone brightness enhancement maximum output supply voltage dependency	$\frac{\Delta V_{HBmax}}{\Delta V}$	Flesh color bright maximum output variation rate at V _{CC} =9V-10% to +10% change	—	90	—	$\frac{mV_{O-P}}{V}$

CRI Circuit

Coring quantity 1	V _{CORE1}	Between Pin ^① to GND, 510kΩ. Ratio to CRI standard output (B-Y)	0.50	0.81	1	times
Coring quantity 2	V _{CORE2}	Between Pin ^① to GND, 200kΩ. Ratio to CRI standard output (B-Y)	0.34	0.55	0.85	times
Slice level 1 (R-Y)	V _{SIR}	Between Pin ^③ to GND, 150kΩ. Ratio to CRI standard output (R-Y)	0.40	0.62	0.95	times
Slice level 1 (B-Y)	V _{SIB}	Between Pin ^③ to GND, 150kΩ. Ratio to CRI standard output (B-Y)	0.41	0.63	0.96	times
Slice level 2 (R-Y)	V _{S2R}	Between Pin ^③ to GND, 100kΩ. Ratio to CRI standard output (R-Y)	0.12	0.26	0.45	times
Slice level 2 (B-Y)	V _{S2B}	Between Pin ^③ to GND, 100kΩ. Ratio to CRI standard output (B-Y)	0.12	0.26	0.45	times

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

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■ Electrical Characteristics [Reference Value] (cont.) (Ta=25±2°C)

Parameter	Symbol	Condition	min	typ	max	Unit
CRI standard output (R-Y) ambient temperature dependency	$\frac{\Delta V_{DER}}{\Delta T}$	CRI standard output (R-Y) variation factor, at Ta = -20 to +70°C change	—	-0.5	—	$\frac{mV_{P-P}}{^{\circ}C}$
CRI standard output (B-Y) ambient temperature dependency	$\frac{\Delta V_{DEB}}{\Delta T}$	CRI standard output (B-Y) variation factor, at Ta = -20 to +70°C change	—	-3.0	—	$\frac{mV_{P-P}}{^{\circ}C}$
CRI standard output (R-Y) supply voltage dependency	$\frac{\Delta V_{DER}}{\Delta V}$	CRI standard output (R-Y) variation factor, at V _{CC} =9V -10% to +10% change	—	25	—	$\frac{mV_{P-P}}{V}$
CRI standard output (B-Y) supply voltage dependency	$\frac{\Delta V_{DEB}}{\Delta V}$	CRI standard output (B-Y) variation factor, at V _{CC} =9V -10% to +10% change	—	60	—	$\frac{mV_{P-P}}{V}$

TINT Circuit

TINT center ambient temperature dependency	$\frac{\Delta \theta_{CC}}{\Delta T}$	At Ta = -20 to +70°C change	—	0	—	deg/°C
TINT center supply voltage dependency	$\frac{\Delta \theta_{CC}}{\Delta V}$	At V _{CC} =9V -10% to +10% change	—	-0.5	—	deg/V

Color Limiter Circuit

Color limit level (R-Y) ambient temperature dependency	$\frac{V_{1,2R}}{\Delta T}$	Color limit level (R-Y) variation factor, at Ta = -20 to +70°C change	—	0.5	—	$\frac{mV_{P-P}}{^{\circ}C}$
Color limit level (B-Y) ambient temperature dependency	$\frac{V_{1,2B}}{\Delta T}$	Color limit level (B-Y) variation factor, at Ta = -20 to +70°C change	—	0.5	—	$\frac{mV_{P-P}}{^{\circ}C}$
Color limit level (R-Y) supply voltage dependency	$\frac{V_{1,2R}}{\Delta V}$	Color limit level (R-Y) variation factor, at V _{CC} =-10% to +10% change	—	100	—	$\frac{mV_{P-P}}{V}$
Color limit level (B-Y) supply voltage dependency	$\frac{V_{1,2B}}{\Delta V}$	Color limit level (B-Y) variation factor, at V _{CC} =-10% to +10% change	—	100	—	$\frac{mV_{P-P}}{V}$

CNR Circuit

Group delay time (R-Y)	G _{DR}	K operation delay time (R-Y) in CNRON	40.8	68.0	95.0	ns
Group delay time (B-Y)	G _{DB}	K operation delay time (B-Y) in CNRON	39.8	66.4	93.0	ns
DG _N (R-Y)	DG _{NR}	DG of Pin⑤① → Pin⑤④	-1	0	1	%
DG _N (B-Y)	DG _{NB}	DG of Pin⑤② → Pin⑤⑤	-1	0	1	%
Clamp pulse width	T _{CLP}	Pulse width of Pin②⑦	0.65	0.93	1.21	μs
K control 2 (R-Y) ambient temperature dependency	$\frac{\Delta A_{NC2R}}{\Delta T}$	K control 2 (R-Y) variation factor, at Ta = -20 to +70°C change	—	-0.015	—	dB/°C
K control 2 (B-Y) ambient temperature dependency	$\frac{\Delta A_{NC2B}}{\Delta T}$	K control 2 (B-Y) variation factor, at Ta = -20 to +70°C change	—	-0.015	—	dB/°C
K control 2 (R-Y) supply voltage dependency	$\frac{\Delta A_{NC2R}}{\Delta V}$	K control 2 (R-Y) variation factor, at V _{CC} =9V -10% to +10% change	—	0.35	—	dB/V
K control 2 (B-Y) supply voltage dependency	$\frac{\Delta A_{NC2B}}{\Delta V}$	K control 2 (B-Y) variation factor, at V _{CC} =9V -10% to +10% change	—	0.35	—	dB/V

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

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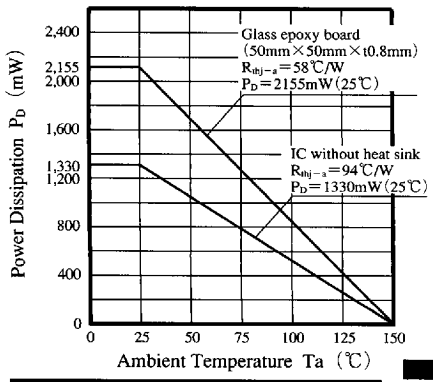
■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	NC	33	NC
2	CRI correction amount	34	K operation gain control
3	Y input	35	Offset control
4	Limit slice level	36	Difference control
5	Color peak detection	37	Flesh tone correction gain control
6	Color limit level	38	Flesh tone correction stop control
7	Output polarity gain control	39	− side compensation control
8	Color control voltage	40	+ side compensation control
9	APL inter lock limiter switch	41	Central axis control
10	R − Y output	42	R − Y input
11	B − Y output	43	Input polarity gain control
12	Tint control voltage	44	B − Y input
13	APL shift adj.	45	GND3 (B − Y system)
14	APL detection	46	GND4 (R − Y system)
15	Flesh tone brightness enhancement output	47	Flesh tone correction R − Y output
16	NC	48	NC
17	V _{CC3} (for CNR)	49	NC
18	YS input	50	Flesh tone correction B − Y output
19	External DC input	51	CNR R − Y input
20	V _{CC1} (Main)	52	CNR B − Y input
21	V _{CC2} (clamp system)	53	K control
22	Flesh tone brightness enhancement B − Y input	54	CCD R − Y input
23	Flesh tone brightness enhancement R − Y input	55	CCD B − Y input
24	CNR B − Y output	56	CCD R − Y output
25	CNR R − Y output	57	CCD B − Y output
26	Flesh tone brightness correction amount	58	GND1 (main)
27	Clamp pulse output	59	GND2 (clamp system)
28	Mono-multi CR	60	Difference monitor
29	SCP input	61	CRI coring level
30	V _{CC3} (B − Y system)	62	Y-high pass input
31	V _{CC4} (R − Y system)	63	CRI slice level
32	NC	64	GND5 (for CNR)

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■ Reference

Power Dissipation of Package
P_D − T_a



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