AN2154FAP

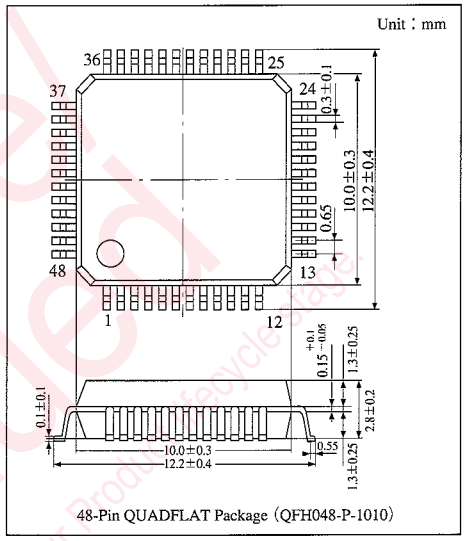
Luminance/Color-Difference Signal Processing IC

■ Overview

The AN2154FAP is an integrated circuit for outputting luminance, color-difference and vertical aperture signal from output-signal of the CDS processing IC.

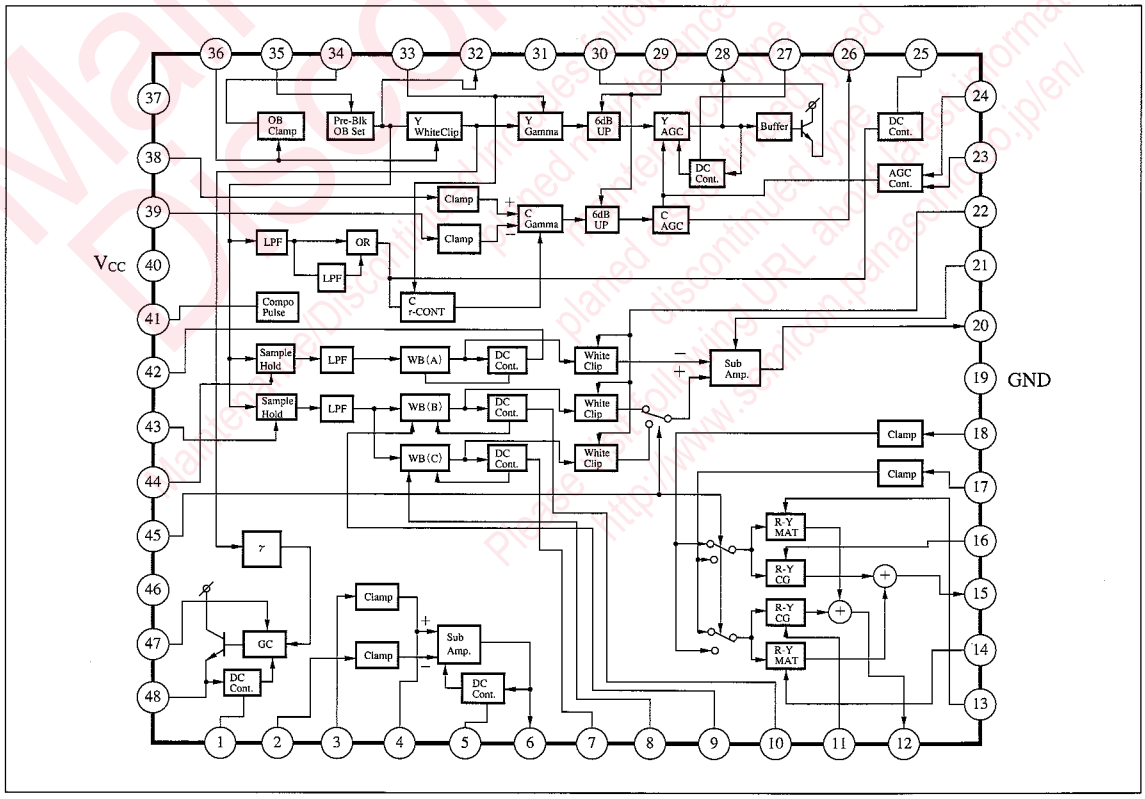
■ Features

- Low power consumpton : 190mW typ.
- Color separating high-speed sample-hold built-in
- γ KNEE point can be set externally.
- The camera signal processing is made up in combination with the AN2254FAP.
- QFP−48pins (0.65mm pitch) package



48-Pin QUADFLAT Package (QFH048-P-1010)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5.5	V
Supply current	I_{CC}	60	mA
Power dissipation	P_D	280	mW
Operating ambient temperature	T_{opr}	−20 to +75	℃
Storage temperature	T_{stg}	−55 to +125	℃

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	4.6V to 5V

■ Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Supply current	I_{CC}	V_{CC}=4.8V, V_{REF}=1.73V	30	45	60	mA
Pin voltage (1) Pin⑫	V_{12}	V_{CC}=4.8V, V_{REF}=1.73V	2	2.6	3.2	V
Pin voltage (2) Pin⑮	V_{15}	V_{CC}=4.8V, V_{REF}=1.73V	2	2.6	3.2	V
Pin voltage (3) Pin⑳	V_{20}	V_{CC}=4.8V, V_{REF}=1.73V	2	2.6	3.2	V
Pin voltage (4) Pin㉜	V_{32-31}	V_{CC}=4.8V, V_{REF}=1.73V	−120	0	120	mV
Pin voltage (5) Pin㊼	V_{47-46}	V_{CC}=4.8V, V_{REF}=1.73V	−120	0	120	mV
Pulse separation level 1 (CPOB)	P_{sep1}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊱ variable	3.3	3.75	4.2	V
Pulse separation level 2 (CP2)	P_{sep2}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊶ variable	3.3	3.75	4.2	V
Pulse separation level 3 (Pre-Blk)	P_{sep3}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊶ variable	1.8	2.25	2.7	V
Pulse separation level 4 (f_H/2)	P_{sep4}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊺ variable	0.6	1	1.4	V
Pulse separation level 5 (SP1)	P_{sep5}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊸ variable	0.8	1.15	1.5	V
Pulse separation level 6 (SP2)	P_{sep6}	V_{CC}=4.8V, V_{REF}=1.73V Pin㊹ variable	0.8	1.15	1.5	V
6dB up SW threshold	$V_{TH(6dB)}$	V_{CC}=4.8V, V_{REF}=1.73V Pin㉙ variable	3.4	3.75	4.3	V
Y white clip	Y_{WC}	V_{CC}=4.8V, V_{REF}=1.73V 10step 1V_{PP}	35	50	65	mV_{PP}
Y γ characteristics (1)	γ_{Y-1}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (1st step)	6	—	17	mV_{PP}
Y γ characteristics (2)	γ_{Y-2}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (3rd step)	2.25	2.75	3.1	—
Y γ characteristics (3)	γ_{Y-3}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (7th step)	4	4.6	5.5	—
Y AGC MIN GAIN	G_{V1}	V_{CC}=4.8V, V_{REF}=1.73V 10step 30mV_{PP}	80	100	120	mV_{PP}
AGC DET	G_{V2}	V_{CC}=4.8V, V_{REF}=1.73V 10step 30mV_{PP}	0.85	1	1.15	—
Y AGC 6dB	G_{V3}	V_{CC}=4.8V, V_{REF}=1.73V 10step 30mV_{PP}	5	6	7	dB
Y AGC MAX GAIN	G_{V4}	V_{CC}=4.8V, V_{REF}=1.8V 10step 30mV_{PP}	7	—	—	dB
Y AGC characteristics (1)	G_{V5}	V_{CC}=4.8V, V_{REF}=1.8V 10step 30mV_{PP}	75	95	115	mV_{PP}
Y AGC characteristics (2)	G_{V6}	V_{CC}=4.8V, V_{REF}=1.8V 10step 600mV_{PP}	270	300	330	mV_{PP}

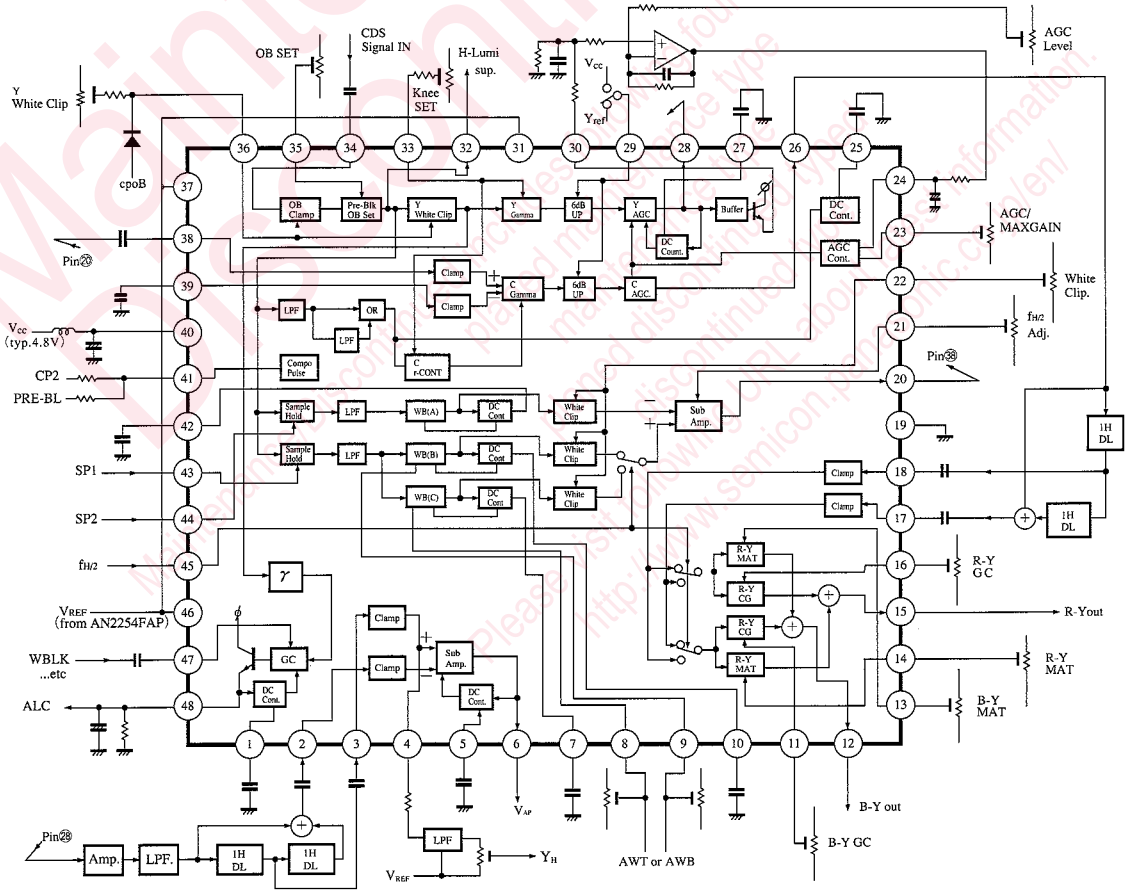
■ Electrical Characteristics (cont.) (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Y AGC output offset	V_{O28}	V_{CC}=4.8V, V_{REF}=1.8V 10step 600mV_{PP}	−50	—	50	mV
Y AGC f-characteristics	G_{V7}	V_{CC}=4.8V, V_{REF}=1.8V 10MHz Sine wave 300mV_{PP}	210	—	—	mV_{PP}
C AGC characteristics (1)	G_{V7}	V_{CC}=4.8V, V_{REF}=1.8V 10step 30mV_{PP}	35	50	65	mV_{PP}
C AGC characteristics (2)	G_{V8}	V_{CC}=4.8V, V_{REF}=1.8V 10step 300mV_{PP}	130	150	170	mV_{PP}
C AGC output offset	V_{O26}	V_{CC}=4.8V, V_{REF}=1.8V 10step 300mV_{PP}	−500	—	500	mV
C γ leak	G_{V9}	V_{CC}=4.8V, V_{REF}=1.8V 10step 300mV_{PP}	−15	—	15	mV
AGC DET voltage	V_{30}	V_{CC}=4.8V, V_{REF}=1.8V No-signal input	−100	—	400	mV
White balance (1)	G_{V10}	V_{CC}=4.8V, V_{REF}=1.8V 10step 200mV_{PP}	200	250	300	mV_{PP}
White balance (2)	G_{V11}	V_{CC}=4.8V, V_{REF}=1.8V 10step 200mV_{PP}	0.85	1	1.15	—
White balance (3)	G_{V12}	V_{CC}=4.8V, V_{REF}=1.8V 10step 200mV_{PP}	200	250	300	mV_{PP}
White balance (4)	G_{V13}	V_{CC}=4.8V, V_{REF}=1.8V 10step 200mV_{PP}	0.85	1	1.15	—
LPF characteristics (1)	G_{V14}	V_{CC}=4.8V, V_{REF}=1.8V 2.5MHz Sine wave, 200mV_{PP}	—	—	−16	dB
LPF characteristics (2)	G_{V15}	V_{CC}=4.8V, V_{REF}=1.8V 2.5MHz Sine wave, 200mV_{PP}	—	—	−16	dB
C S/H characteristics (1)	G_{V16}	V_{CC}=4.8V, V_{REF}=1.8V 500kHz pulse, 200mV_{PP}	200	250	—	mV_{PP}
C S/H characteristics (2)	G_{V17}	V_{CC}=4.8V, V_{REF}=1.8V 500kHz pulse, 200mV_{PP}	0.85	1	1.15	—
C clip level (1)	G_{V18}	V_{CC}=4.8V, V_{REF}=1.8V 10step 500mV_{PP}	−10	—	20	mV
C clip level (2)	G_{V19}	V_{CC}=4.8V, V_{REF}=1.8V 10step 500mV_{PP}	−15	—	15	mV
C γ characteristics (1)	γ_{C-1}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (1st step)	4	—	10	mV_{PP}
C γ characteristics (2)	γ_{C-2}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (3rd step)	2	2.5	3	—
C γ characteristics (3)	γ_{C-3}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP} (10th step)	4.8	5.4	6	—
ALC characteristics (1)	G_{V20}	V_{CC}=4.8V, V_{REF}=1.73V 10step 30mV_{PP}	25	30	35	mV_{PP}
ALC characteristics (2)	G_{V21}	V_{CC}=4.8V, V_{REF}=1.73V 10step 600mV_{PP}	280	320	350	mV_{PP}
ALC gate level difference	G_{V22}	V_{CC}=4.8V, V_{REF}=1.73V No-signal input	−50	—	50	mV
ALC output DC voltage	V_{O48}	V_{CC}=4.8V, V_{REF}=1.73V No-signal input	−100	—	100	mV
R-Y amp (1)	G_{V23}	V_{CC}=4.8V, V_{REF}=1.73V 500kHz Sine wave, 200mV_{PP}	900	—	—	mV_{PP}
R-Y amp (2)	G_{V24}	V_{CC}=4.8V, V_{REF}=1.73V 500kHz Sine wave, 200mV_{PP}	—	—	120	mV_{PP}
B-Y amp (1)	G_{V25}	V_{CC}=4.8V, V_{REF}=1.73V 500kHz Sine wave, 200mV_{PP}	900	—	—	mV_{PP}
B-Y amp (2)	G_{V26}	V_{CC}=4.8V, V_{REF}=1.73V 500kHz Sine wave, 200mV_{PP}	—	—	120	mV_{PP}
R-Y matrix	G_{V27}	V_{CC}=4.8V, V_{REF}=1.73V 10step 200mV_{PP}	−200	—	−100	mV

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

Parameter	Symbol	Condition	min	typ	max	Unit
B-Y matrix	G_{V28}	V_{CC}=4.8V, V_{REF}=1.73V 10step 200mV_{PP}	100	—	200	mV
Synchronizing offset (1)	G_{V29}	V_{CC}=4.8V, V_{REF}=1.73V No-signal input	−15	—	15	mV
Synchronizing offset (2)	G_{V30}	V_{CC}=4.8V, V_{REF}=1.73V No-signal input	−15	—	15	mV
Y_H output	G_{V31}	V_{CC}=4.8V, V_{REF}=1.73V 1MHz Sine wave, 300mV_{PP}	280	300	320	mV_{PP}
Y_H input offset	V_{O4}	V_{CC}=4.8V, V_{REF}=1.73V 1MHz Sine wave, 300mV_{PP}	−50	—	50	mV
VAP output	G_{V32}	V_{CC}=4.8V, V_{REF}=1.73V 1MHz Sine wave, 300mV_{PP}	500	600	650	mV_{PP}
VAP output offset	V_{O6}	V_{CC}=4.8V, V_{REF}=1.73V 1MHz Sine wave, 300mV_{PP}	−50	—	50	mV
VAP CMRR	C_{MR}	V_{CC}=4.8V, V_{REF}=1.73V 1MHz Sine wave, 300mV_{PP}	—	—	−26	dB
Y.Buff output	G_{V33}	V_{CC}=4.8V, V_{REF}=1.73V 10step 300mV_{PP}	275	300	320	mV_{PP}

■ Application Circuit



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