AN2585FAP

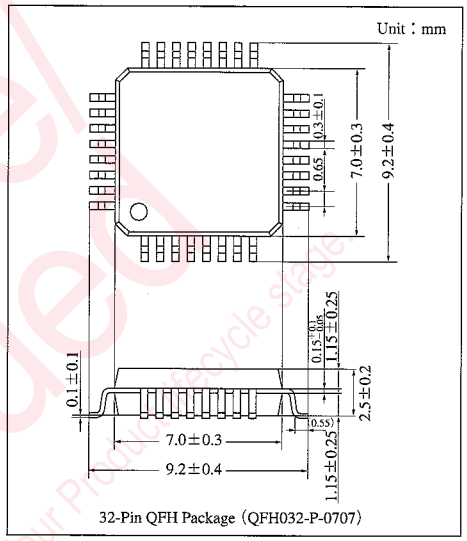
Digital Auto-Focus Interface IC

■ Overview

The AN2585FAP is an interface IC for a digital auto-focus system. It contains all peripheral circuits needed for the system, contributing to a reduced number of components of the system.

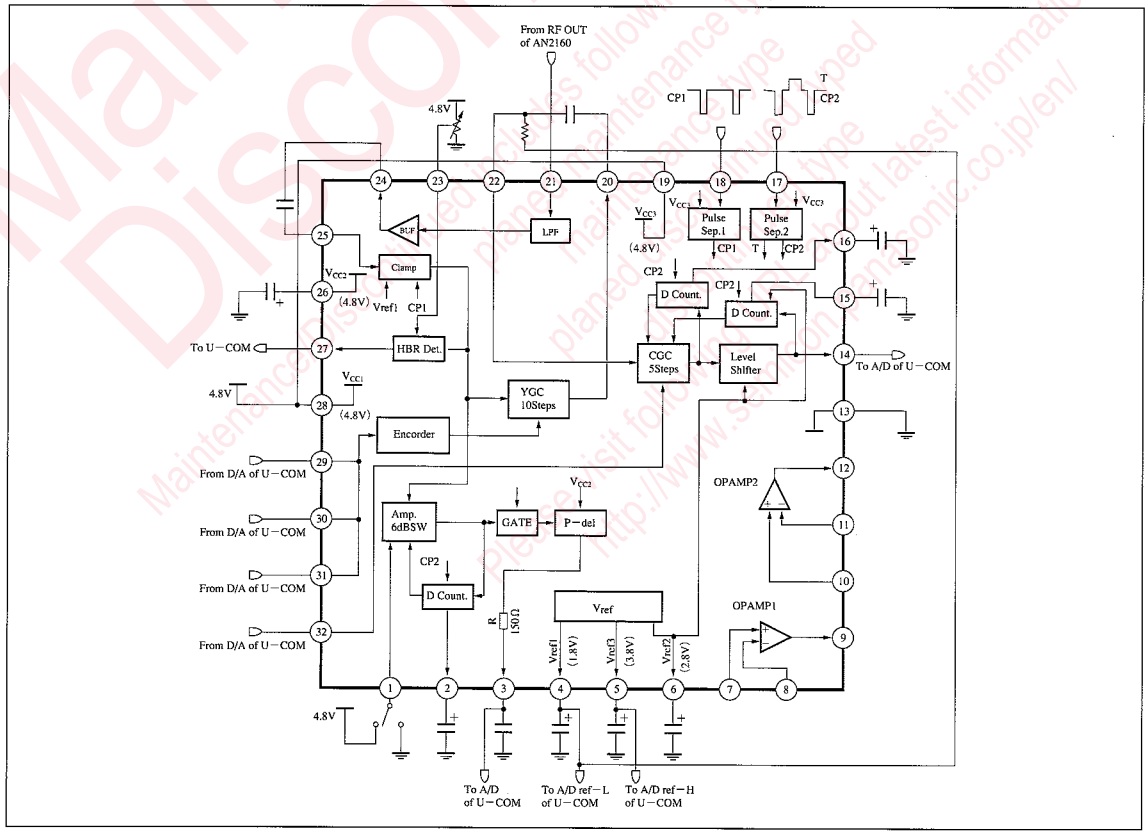
■ Features

- Built-in low-pass filters
- Built-in operational amplifiers
- Built-in voltage reference



32-Pin QFH Package (QFH032-P-0707)

■ Block Diagram



ICs for Video Camera

■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	−6dB SW	17	Pulse input (2)
2	Luminance offset correction capacitor	18	Pulse input (1)
3	Luminance detection output	19	Power supply input (3)
4	Voltage reference (1)	20	Luminance gain control output
5	Voltage reference (3)	21	Low-pass filter input
6	Voltage reference (2)	22	Contrast gain control input
7	Operational amp. (1) positive input	23	High-brightness control input
8	Operational amp. (1) negative input	24	Low-pass filter output
9	Operational amp. (1) output	25	Luminance clamp input
10	Operational amp. (2) positive input	26	Power supply input (2)
11	Operational amp. (2) negative input	27	High-brightness detection output
12	Operational amp. (2) output	28	Power supply input (1)
13	GND	29	Luminance control input (0)
14	Main signal output	30	Luminance control input (1)
15	Main signal offset correction	31	Luminance control input (2)
16	Contrast gain control offset correction	32	Contrast gain control input

■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5.5	V
Supply current	I_{CC}	35	mA
Power dissipation	P_D	190	mW
Operating ambient temperature Note 1)	T_{opr}	−20 to +75	℃
Storage temperature Note 1)	T_{stg}	−55 to +125	℃

Note 1) Ta=25℃ except operating ambient temperature and storage temperatures.
The recommended operating ambient temperature range T is −10 to +60℃.

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	4.5V to 5.1V

■ Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	Itot	$V_{CC1,2,3}$=4.8V, (below V_{CC}=4.8V)	10	15	20	mA
Voltage reference 1	Vref1	$V_{CC1,2,3}$=4.8V, (below V_{CC}=4.8V)	1.68	1.78	1.88	V
Voltage reference 2	Vref2	$V_{CC1,2,3}$=4.8V, (below V_{CC}=4.8V)	2.69	2.79	2.89	V
Voltage reference 3	Vref3	$V_{CC1,2,3}$=4.8V, (below V_{CC}=4.8V)	3.69	3.79	3.89	V
Clamp voltage	ΔV_{CLP}	$V_{CC1,2,3}$=4.8V, difference from Vref1	−50	0	50	mV
OPAMP 1, 2	ΔV_{OPH}	Input 3.9V, difference voltage between input and output	−100	0	100	mV
OPAMP 1, 2	ΔV_{OPL}	Input 1.0V, difference voltage between input and output	−100	0	100	mV
HBRdet	ΔV_{HBR}	Input 1.0V, Pin㉓ 2.8V	3.5	—	—	V
Pulse separation level 1 (CP1)	V_{CP1}	Input 1.0V, Pin㉓ 2.8V	1.9	2.4	2.9	V
Pulse separation level 2 (CP2)	V_{CP2}	Input 1.0V, Pin㉓ 2.8V	1.5	2.0	2.5	V
Pulse separation level 3 (Y)	V_Y	Input 1.0V, Pin㉓ 2.8V	3.5	4.0	4.5	V
Luminance gain (max.)	$GV_{(Y1)}$	700kHz 60mV_{P-P}, Sine wave input with BLK	300	337	380	mV_{P-P}
Luminance gain ratio	$\frac{GV_{(Yn)}}{GV_{(Yn-1)}}$	700kHz 60mV_{P-P}, ratio to former stage change-over	0.6	0.7	0.8	times
Luminance gain frequency characteristics	$GV_{(YF)}$	3MHz 60mV_{P-P}, Sine wave input with BLK	0.8	—	—	times
Luminance detection offset	V_{off}	No-signal input	−100	0	100	mV
Luminance detection output 1	$V_{D(Y1)}$	200kHz 600mV_{P-P}, Sine wave input with BLK	1.55	1.85	2.15	V
Luminance detection output 2	$V_{D(Y2)}$	2MHz 600mV_{P-P}, Sine wave input with BLK	0.8	0.9	1.0	times
Luminance detection output 3	$V_{D(Y3)}$	200kHz 600mV_{P-P}, Sine wave input with BLK	0.48	0.53	0.58	times
Main output gain (max.)	$GV_{(M1)}$	700kHz 70mV_{P-P}, Sine wave input with BLK	1150	1300	1450	mV_{P-P}
Main output gain ratio	$\frac{GV_{(Mn)}}{GV_{(Mn-1)}}$	700kHz 70mV_{P-P}, ratio to former stage change-over	0.6	0.7	0.8	times
Main output frequency characteristics	$GV_{(MF)}$	3MHz 70mV_{P-P}, Sine wave input with BLK	−3.0	—	—	dB
Main output DC offset	V_{Moff}	No-signal input	−100	0	100	mV
LPF f-characteristics 1	$GV_{(LF1)}$	500kHz 1.2V_{P-P}, Sine wave input	−0.8	0	0.5	dB
LPF f-characteristics 2	$GV_{(LF2)}$	2.8MHz 1.2V_{P-P}, Sine wave input	−5.1	−4.1	−3.1	dB
DC control terminal voltage 1	V_{DC2}	$V_{CC1,2,3}$=4.8V, Pin② output	—	1.8	—	V
DC control terminal voltage 2	V_{DC15}	$V_{CC1,2,3}$=4.8V, Pin⑮ output	—	3.5	—	V
DC control terminal voltage 3	V_{DC16}	$V_{CC1,2,3}$=4.8V, Pin⑯ output	—	3.2	—	V
LPF output DC voltage	V_{LF24}	$V_{CC1,2,3}$=4.8V, Pin㉔ output	—	2.5	—	V
Luminance gain control output DC voltage	V_{YGC}	$V_{CC1,2,3}$=4.8V, Pin⑳ output	—	1.8	—	V
LPF delay 1	$GD_{(LF1)}$	500kHz, 1.2V_{P-P}, sine wave delay of output from input	—	180	—	ns
LPF delay 2	$GD_{(LF2)}$	2.8MHz 1.2V_{P-P}, sine wave delay of output from input	—	180	—	ns

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