

# AN2034FAP

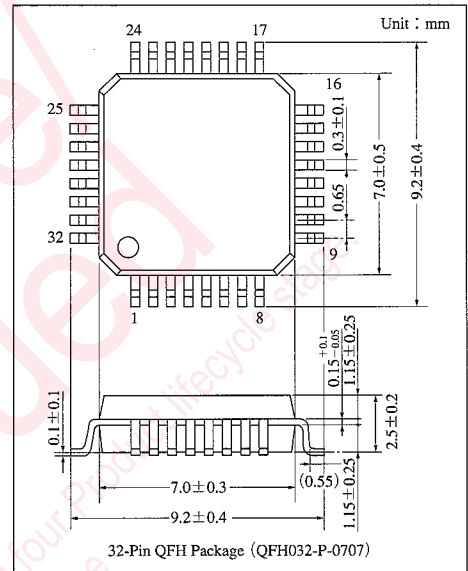
## CCD Video Camera Signal Processor IC

### Overview

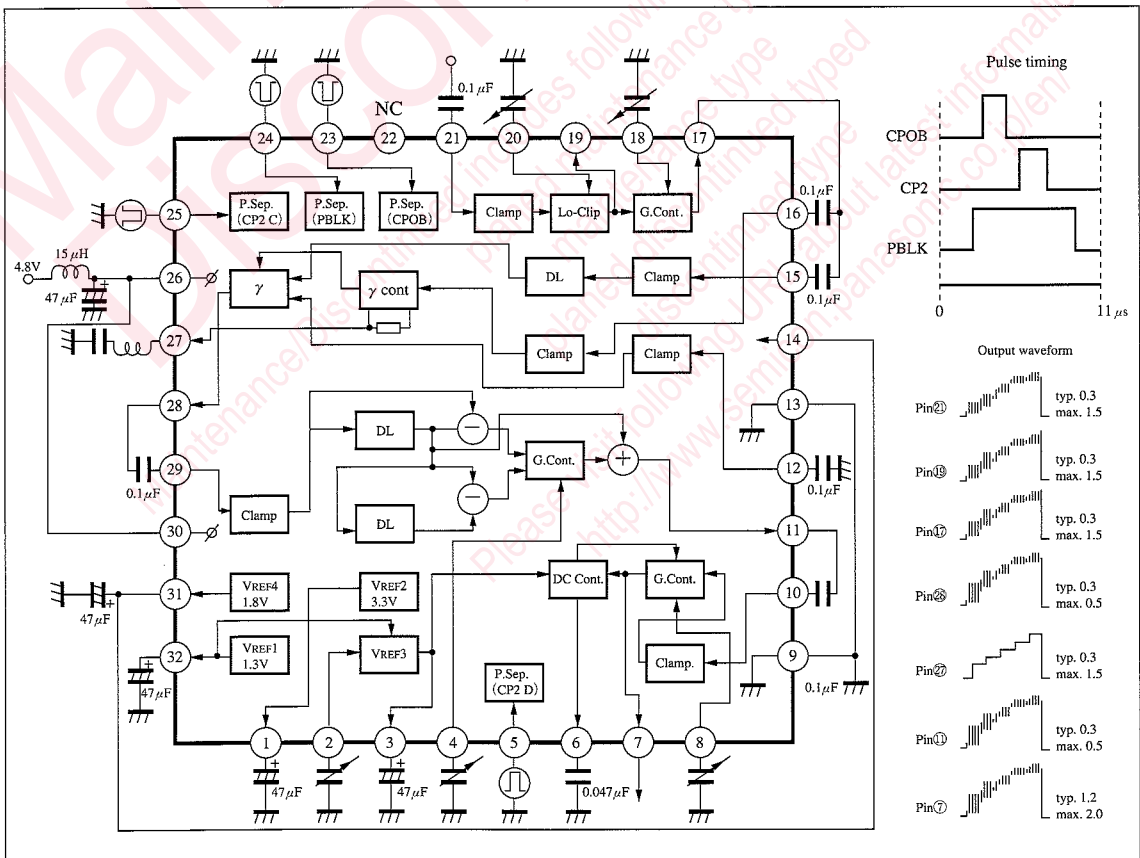
The AN2034FAP is a signal processor IC for a video camera. Receiving CDS signals, it performs AGC and  $\gamma$  correction, and outputs combined luminance and color signal.

### Features

- Operating on low voltage ( $V_{CC} = 4.8V$ )
- 1.3 and 3.3V outputs for AD converter reference



### Block Diagram



## Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5.5	V
Supply current	$I_{CC}$	—	mA
Power dissipation <sup>Note 2)</sup>	$P_D$	200	mW
Operating ambient temperature <sup>Note 1)</sup>	$T_{opr}$	-20 to +70	°C
Storage temperature <sup>Note 1)</sup>	$T_{stg}$	-55 to +125	°C

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

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

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

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

## Electrical Characteristics ( $T_a=25\pm 2^\circ\text{C}$ )

Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	$I_{tot}$	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	20	30	40	mA
Reference voltage (1)	$V_{REF1}$	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	1.22	1.32	1.42	V
Reference voltage (2)	$V_{REF2}$	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	3.22	3.32	3.42	V
Reference voltage (3)	$V_{REF3}$	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	1.74	1.84	1.94	V
Pulse separation (1)	CPOB	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	2.4	2.7	2.9	V
Pulse separation (2)	CP2	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	2.4	2.7	2.9	V
Pulse separation (3)	PBLK	$V_{26}=4.8\text{V}$ , $V_{30}=4.8\text{V}$	1.2	1.5	1.8	V
AGC f-characteristics	$G_{FA}$	10MHz with BLK below sine wave 300mV <sub>P-P</sub>	-3.0	-0.5	1.5	dB
AGC level adjustment	$V_{ADJ}$	10step 300mV <sub>P-P</sub>	0.9	1.35	1.8	V
AGC output D range	$V_{AG3}$	10step 1.2V <sub>P-P</sub>	1000	1200	1400	mV <sub>P-P</sub>
AGC max gain	$G_{AG}$	10step 100mV <sub>P-P</sub>	18.5	21.0	24.0	dB
Pre-Aperture corr. output D range	$V_{PR1}$	10step 1.2V <sub>P-P</sub>	1000	1200	1400	mV <sub>P-P</sub>
Pre-Aperture corr. gain (1)	$G_{PR1}$	8MHz with BLK below sine wave 300mV <sub>P-P</sub>	3.5	5.0	6.5	dB
Pre-Aperture corr. gain (2)	$G_{PR2}$	8MHz with BLK below sine wave 300mV <sub>P-P</sub>	-5.0	-2.2	-1.0	dB
Pre-Aperture corr. gain (3)	$G_{PR3}$	8MHz with BLK below sine wave 300mV <sub>P-P</sub>	2.5	5.5	8.0	dB
$\gamma$ f-characteristics	$G_{FG}$	10MHz with BLK below sine wave 300mV <sub>P-P</sub>	-3.0	-0.5	1.5	dB
$\gamma$ characteristics (1)	$V_{GM1}$	10step 300mV <sub>P-P</sub>	80	100	120	mV <sub>P-P</sub>
$\gamma$ characteristics (2)	$G_{GM2}$	10step 300mV <sub>P-P</sub>	5.0	6.0	7.0	dB
$\gamma$ characteristics (3)	$G_{GM3}$	10step 300mV <sub>P-P</sub>	8.5	9.5	10.5	dB
$\gamma$ characteristics (4)	$G_{GM4}$	10step 1.5V <sub>P-P</sub>	1.0	2.5	4.0	dB
$\gamma$ characteristics (5)	$V_{GH}$	10step 1.5V <sub>P-P</sub>	40	—	—	mV <sub>P-P</sub>
Output amp. f-characteristics	$G_{FB}$	10MHz with BLK below sine wave 300mV <sub>P-P</sub>	-3.0	-0.5	1.5	dB
Output amp. gain (1)	$V_{AD1}$	10step 300mV <sub>P-P</sub>	900	1100	1300	mV <sub>P-P</sub>
Output amp. gain (2)	$G_{AD2}$	10step 300mV <sub>P-P</sub>	-5.5	-2.5	-1.0	dB
Output amp. gain (3)	$G_{AD3}$	10step 300mV <sub>P-P</sub>	1.5	4.0	6.5	dB

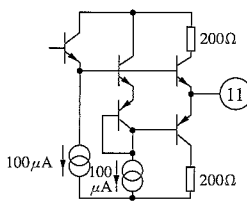
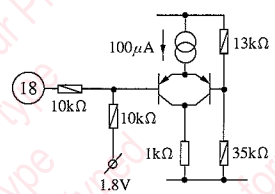
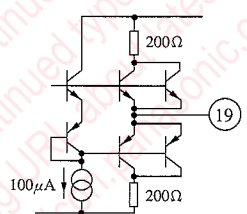
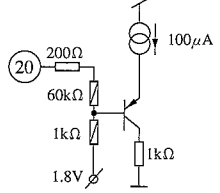
Pin Descriptions

Pin No.	Symbol	Equivalent circuit	Pin voltage	Pin No.	Symbol	Equivalent circuit	Pin voltage
1	V <sub>REF2</sub> OUT	—	3.3V	6	DC— Cont.C		—
2	OBA <sub>Adj.</sub>		1.3V to 3.3V	7	A/D OUT		1.5V  (15Ω)
3	V <sub>REF3</sub> OUT		1.2V to 1.5V	8	Output amp. G. Cont		—
4	Pre—Apa GC		—	9	GND1	—	—
5	CP2 IN		Thresh 2.7V	10	Output amp. IN		1.8V clamp

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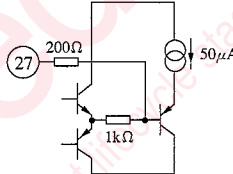
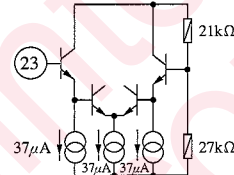
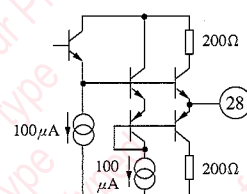
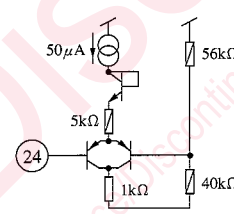
Note) A value in parentheses means impedance.

■ Pin Descriptions (cont.)

Pin No.	Symbol	Equivalent circuit	Pin voltage	Pin No.	Symbol	Equivalent circuit	Pin voltage
11	Pre-Apa. OUT		1.7V (60Ω)	16	$\gamma$ Cont. IN	Same as for Pin⑩	—
12	DUMMY	Same as for Pin⑩	—	17	AGC OUT	Same as for Pin⑪	—
13	GND 2	—	—	18	AGC Cont.		—
14	V <sub>REF4</sub> IN	—	—	19	AF OUT		—
15	$\gamma$ SIG IN	Same as for Pin⑩	—	20	PEDE Adj.		—

Note) A value in parentheses means impedance.

■ Pin Descriptions (cont.)

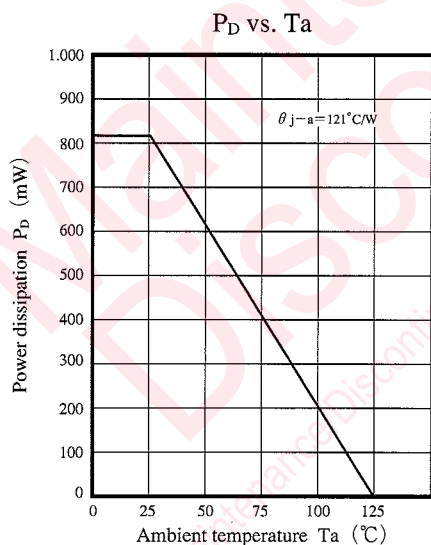
Pin No.	Symbol	Equivalent circuit	Pin voltage	Pin No.	Symbol	Equivalent circuit	Pin voltage
21	(CDS- OUT) IN	Same as for Pin⑩	—	26	V <sub>CC1</sub>	—	—
22	NC	(Surge diode only)	—	27	Trap OUT		—
23	CPOB IN		Thresh 2.7V	28	γOUT		—
24	PBLK IN		Thresh 1.5V	29	Pre-Apa. IN	Same as for Pin⑩	—
				30	V <sub>CC2</sub>	—	—
25	CP2IN	Same as for Pin⑭	Thresh 2.7V	31	V <sub>REF4</sub> OUT	—	1.8V
				32	V <sub>REF1</sub> OUT	—	1.3V

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## Pin Descriptions

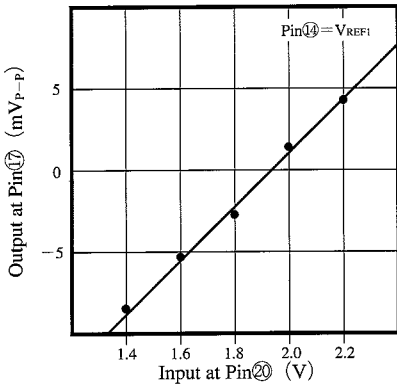
Pin No.	Pin name	Pin No.	Pin name
1	V <sub>REF2</sub> OUT (3.3V)	17	AGC OUT
2	OB adj	18	AGC Cont
3	V <sub>REF3</sub> OUT	19	AF OUT
4	Pre Apa G. Cont	20	Pedestal adjustment
5	CP2 IN	21	(CDS - OUT) IN
6	DC Cont - C	22	No connection (surge diode only)
7	A/D OUT	23	CPOB IN
8	Output amp. G. Cont.	24	PBLK IN
9	GND1	25	CP2 IN
10	Output amp. IN	26	V <sub>CC1</sub>
11	Pre Apa OUT	27	Trap OUT
12	DUMMY Clamp	28	γOUT
13	GND2	29	Pre-aperture corr. IN
14	V <sub>REF4</sub> IN	30	V <sub>CC2</sub>
15	γSIG IN	31	V <sub>REF4</sub> OUT (1.8V)
16	γCont IN	32	V <sub>REF1</sub> OUT (1.3V)

## Reference

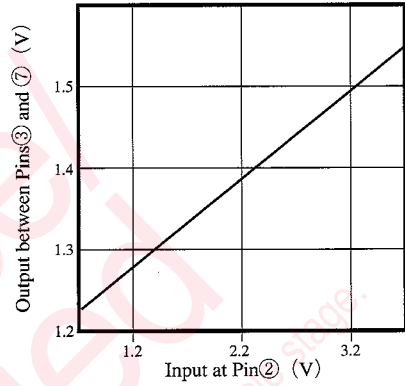


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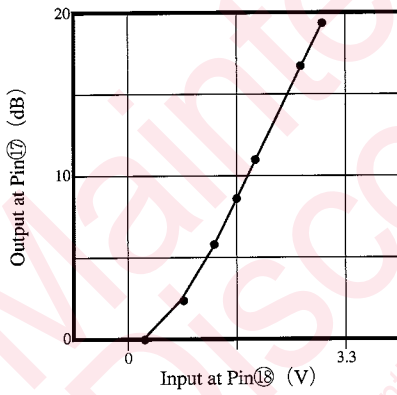
Pedestal characteristics



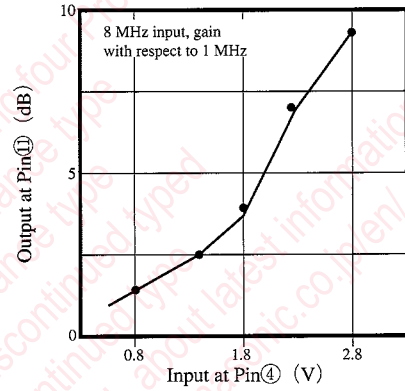
OB adjustment characteristics



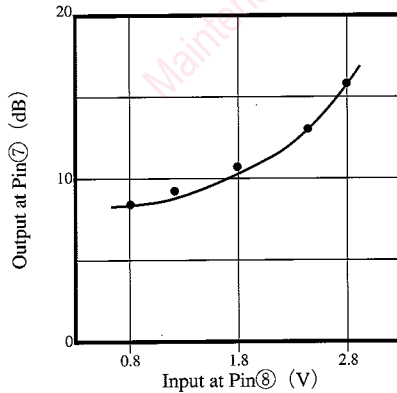
AGC characteristics



Pre Apa. gain control



Output amp. gain control



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