

AN2034FAP

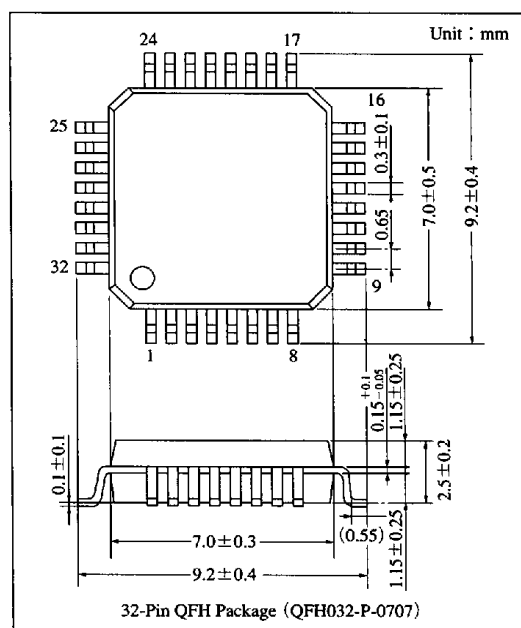
CCD Video Camera Signal Processor IC

Overview

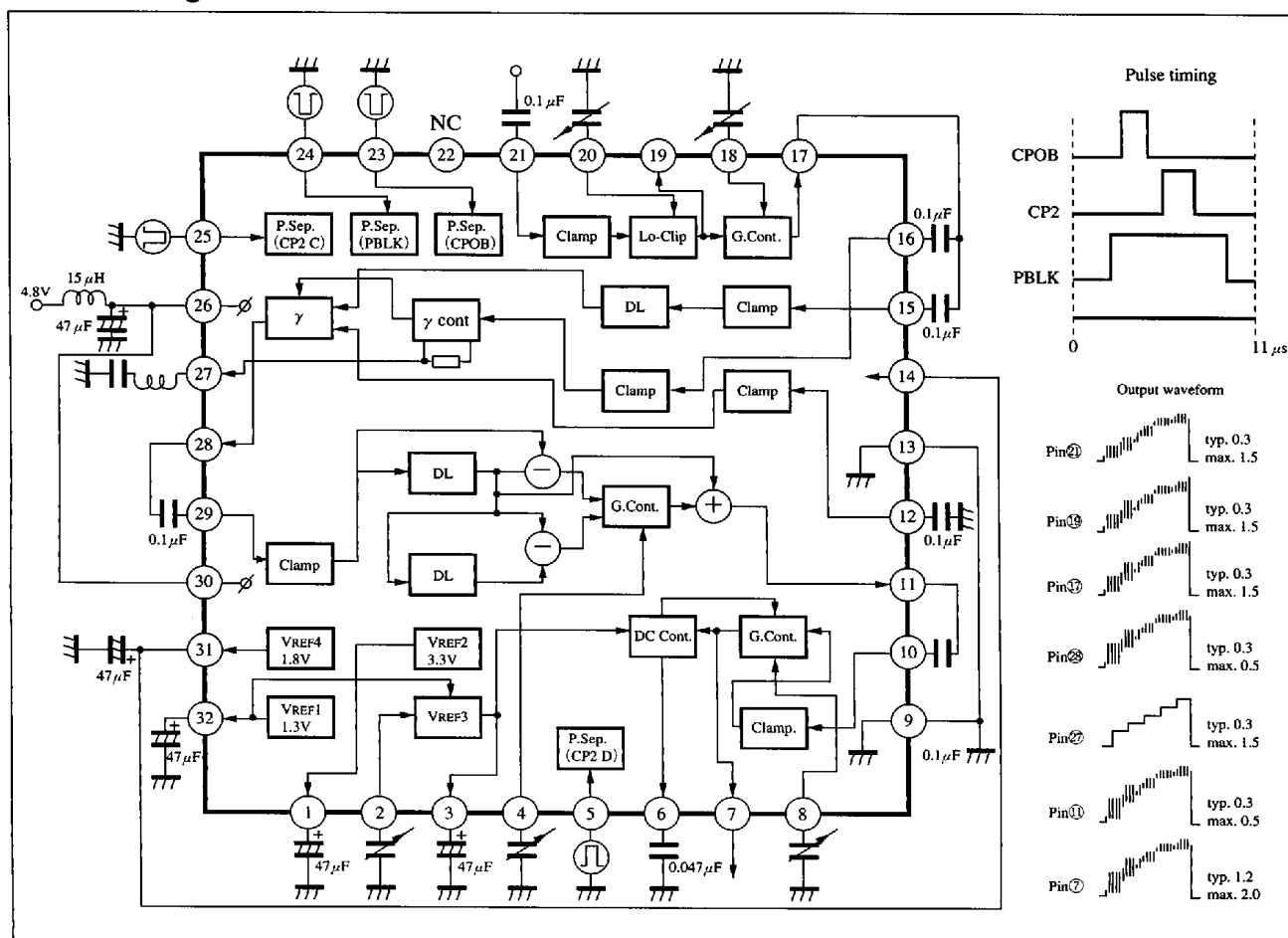
The AN2034FAP is a signal processor IC for a video camera. Receiving CDS signals, it performs AGC and γ correction, and outputs combined luminance and color signal.

Features

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



Block Diagram



ICs for
Video
Camera

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5.5	V
Supply current	I_{CC}	—	mA
Power dissipation ^{Note 2)}	P_D	200	mW
Operating ambient temperature ^{Note 1)}	T_{opr}	-20 to +70	°C
Storage temperature ^{Note 1)}	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 $T_a = 70^\circ\text{C}$.

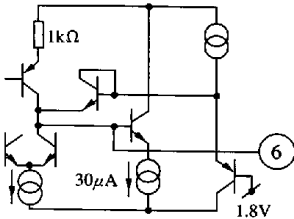
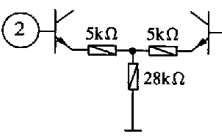
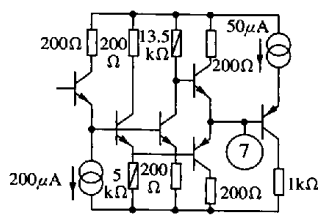
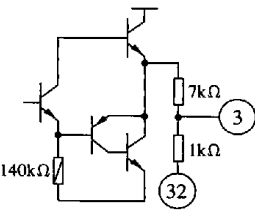
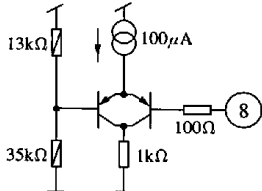
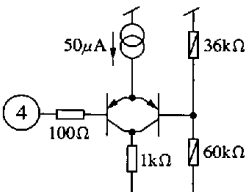
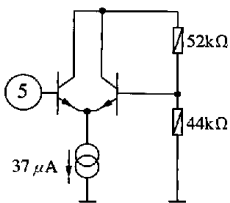
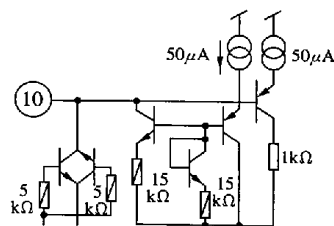
Recommended Operating Range ($T_a = 25^\circ\text{C}$)

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

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

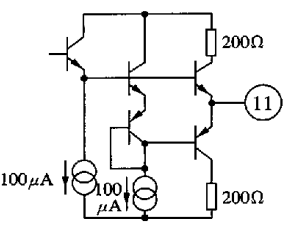
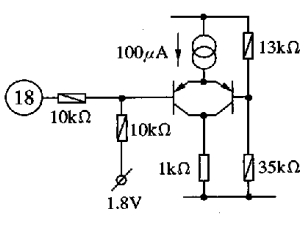
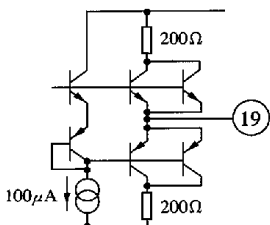
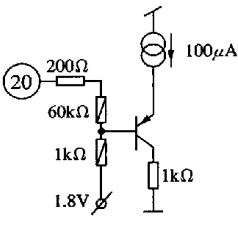
Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	I_{tot}	$V_{26} = 4.8\text{V}$, $V_{30} = 4.8\text{V}$	20	30	40	mA
Reference voltage (1)	V_{REF1}	$V_{26} = 4.8\text{V}$, $V_{30} = 4.8\text{V}$	1.22	1.32	1.42	V
Reference voltage (2)	V_{REF2}	$V_{26} = 4.8\text{V}$, $V_{30} = 4.8\text{V}$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

Pin Descriptions

Pin No.	Symbol	Equivalent circuit	Pin voltage	Pin No.	Symbol	Equivalent circuit	Pin voltage
1	VREF2 OUT		3.3V	6	DC- Cont.C		—
2	OBAAdj.		1.3V to 3.3V	7	A/D OUT		1.5V (15Ω)
3	VREF3 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

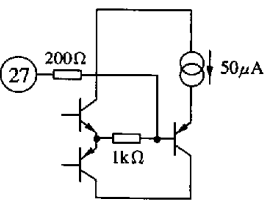
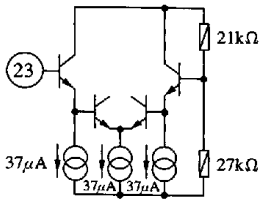
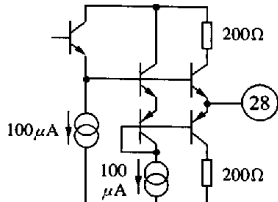
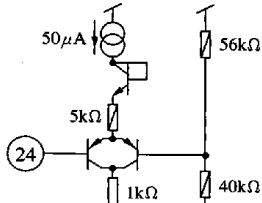
Note) A value in parentheses means impedance.

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	γCont. 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	VREF4 IN	—	—	19	AF OUT		—
15	γSIG IN	Same as for Pin⑩	—	20	PEDE Adj.		—

Note) A value in parentheses means impedance.

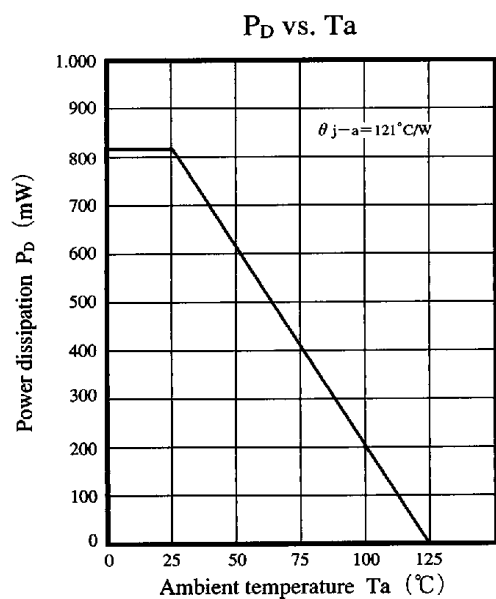
Pin Descriptions (cont.)

Pin No.	Symbol	Equivalent circuit	Pin voltage	Pin No.	Symbol	Equivalent circuit	Pin voltage
21	(CDS – OUT) IN	Same as for Pin⑩	—	26	V _{CC1}	—	—
22	NC	(Surge diode only)	—	27	Trap OUT		—
23	CPOB IN		Thresh 2.7V	28	rOUT		—
24	PBLK IN		Thresh 1.5V	29	Pre-Apa IN	Same as for Pin⑩	—
				30	V _{CC2}	—	—
25	CP2IN	Same as for Pin⑬	Thresh 2.7V	31	V _{REF4} OUT	—	1.8V
				32	V _{REF1} OUT	—	1.3V

■ Pin Descriptions

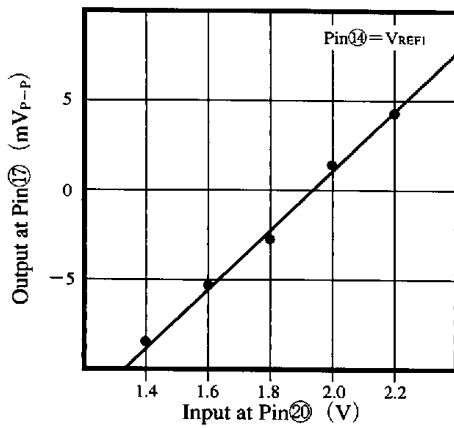
Pin No.	Pin name	Pin No.	Pin name
1	V _{REF2} OUT (3.3V)	17	AGC OUT
2	OB adj	18	AGC Cont
3	V _{REF3} OUT	19	AF OUT
4	Pre Apa G. Cont	20	Pedestal adjustment
5	CP2 IN	21	(CDS—OUT) IN
6	DC Cont—C	22	No connection (surge diode only)
7	A/D OUT	23	CPOB IN
8	Output amp. G. Cont.	24	PBLK IN
9	GND1	25	CP2 IN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

■ Reference

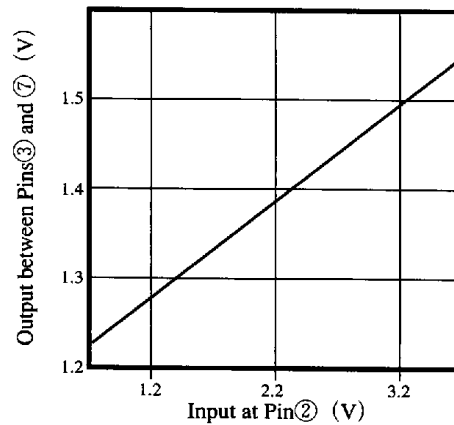


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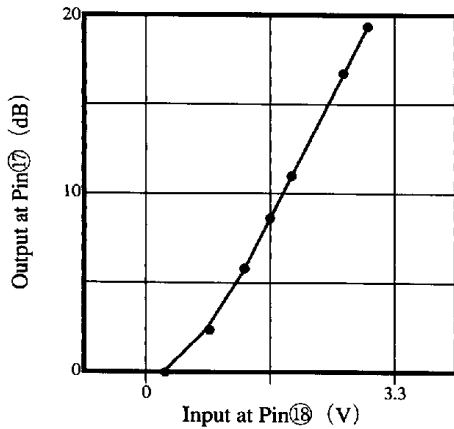
Pedestal characteristics



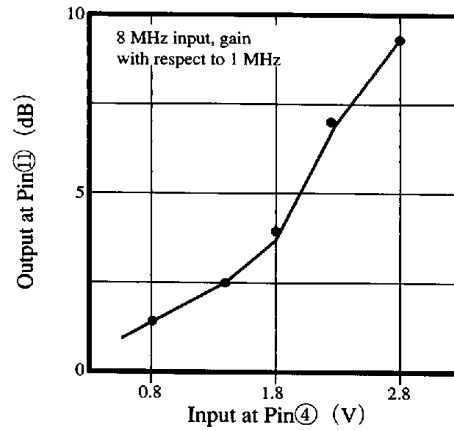
OB adjustment characteristics



AGC characteristics



Pre Apa. gain control



Output amp. gain control

