**Panasonic**

# 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

Unit : mm



32-Pin QFH Package (QFH032-P-0707)
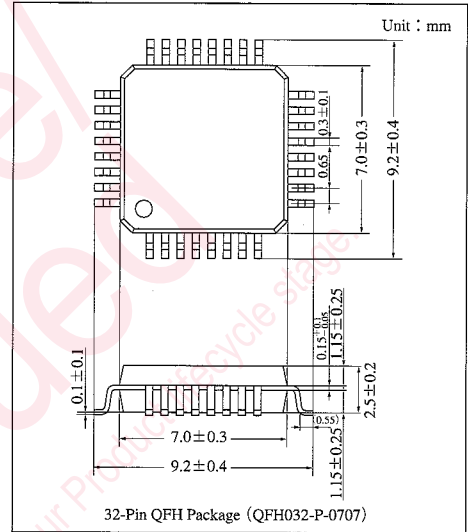
### ■ Block Diagram
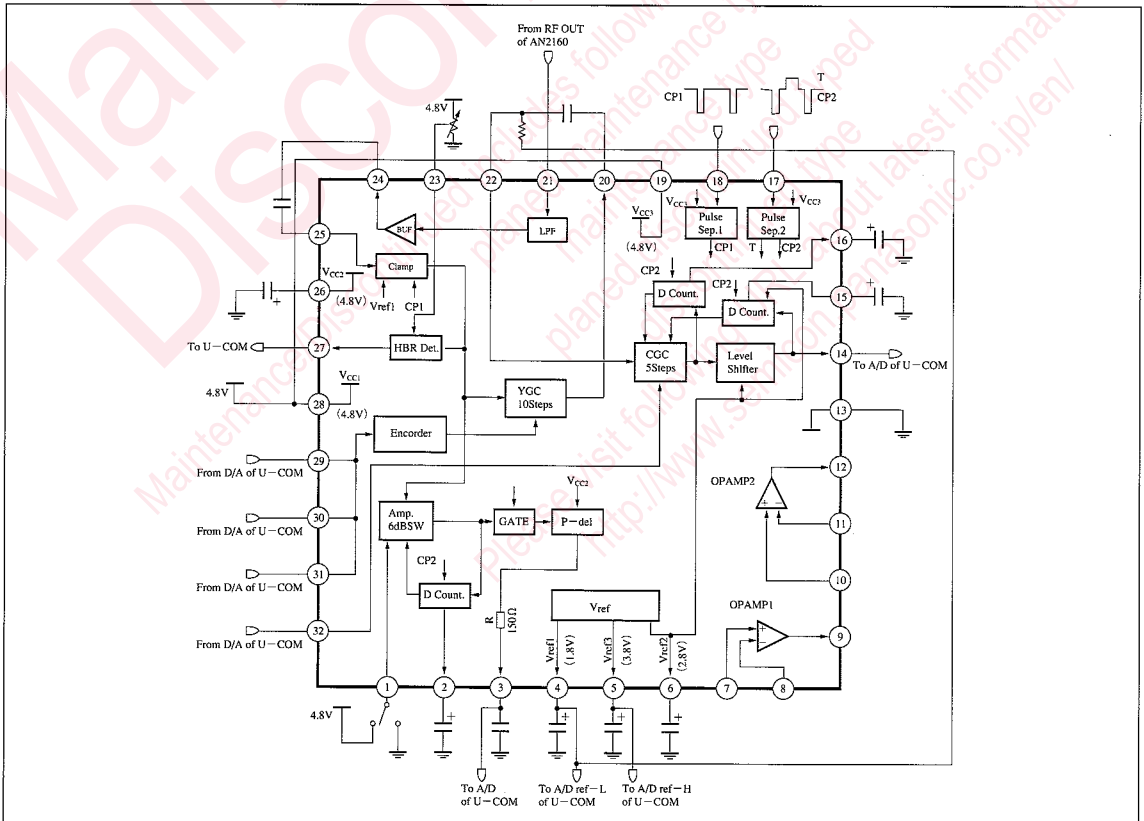


ICs for
Video
Camera

## ■ 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 | $\Delta V_{CLP}$ | $V_{CC1,2,3}$＝4.8V, difference from Vref1 | −50 | 0 | 50 | mV |
| OPAMP 1, 2 | $\Delta V_{OPH}$ | Input 3.9V, difference voltage between input and output | −100 | 0 | 100 | mV |
| OPAMP 1, 2 | $\Delta V_{OPL}$ | Input 1.0V, difference voltage between input and output | −100 | 0 | 100 | mV |
| HBRdet | $\Delta V_{HBR}$ | 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 60m$V_{P-P}$, Sine wave input with BLK | 300 | 337 | 380 | $mV_{P-P}$ |
| Luminance gain ratio | $\dfrac{GV_{(Yn)}}{GV_{(Yn-1)}}$ | 700kHz 60m$V_{P-P}$, ratio to former stage change-over | 0.6 | 0.7 | 0.8 | times |
| Luminance gain frequency characteristics | $GV_{(YF)}$ | 3MHz 60m$V_{P-P}$, 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 600m$V_{P-P}$, Sine wave input with BLK | 1.55 | 1.85 | 2.15 | V |
| Luminance detection output 2 | $V_{D(Y2)}$ | 2MHz 600m$V_{P-P}$, Sine wave input with BLK | 0.8 | 0.9 | 1.0 | times |
| Luminance detection output 3 | $V_{D(Y3)}$ | 200kHz 600m$V_{P-P}$, Sine wave input with BLK | 0.48 | 0.53 | 0.58 | times |
| Main output gain (max.) | $GV_{(M1)}$ | 700kHz 70m$V_{P-P}$, Sine wave input with BLK | 1150 | 1300 | 1450 | $mV_{P-P}$ |
| Main output gain ratio | $\dfrac{GV_{(Mn)}}{GV_{(Mn-1)}}$ | 700kHz 70m$V_{P-P}$, ratio to former stage change-over | 0.6 | 0.7 | 0.8 | times |
| Main output frequency characteristics | $GV_{(MF)}$ | 3MHz 70m$V_{P-P}$, 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 1.2$V_{P-P}$, Sine wave input | −0.8 | 0 | 0.5 | dB |
| LPF f-characteristics 2 | $GV_{(LF2)}$ | 2.8MHz 1.2$V_{P-P}$, 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, 1.2$V_{P-P}$, sine wave delay of output from input | — | 180 | — | ns |
| LPF delay 2 | $GD_{(LF2)}$ | 2.8MHz 1.2$V_{P-P}$, sine wave delay of output from input | — | 180 | — | ns |

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