

# AN2050FB

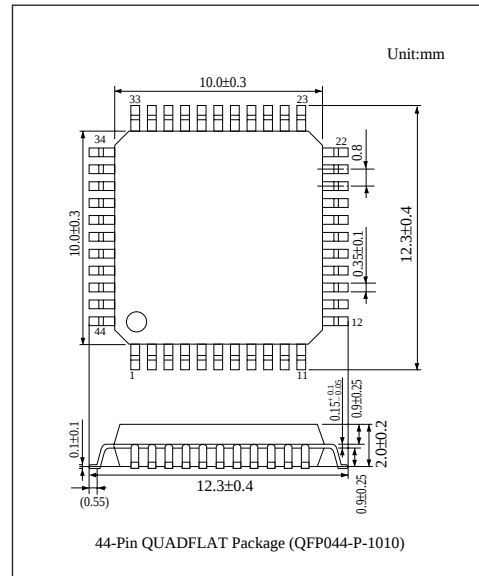
## CCD Monochrome Video Camera Signal Processor IC

### ■ Overview

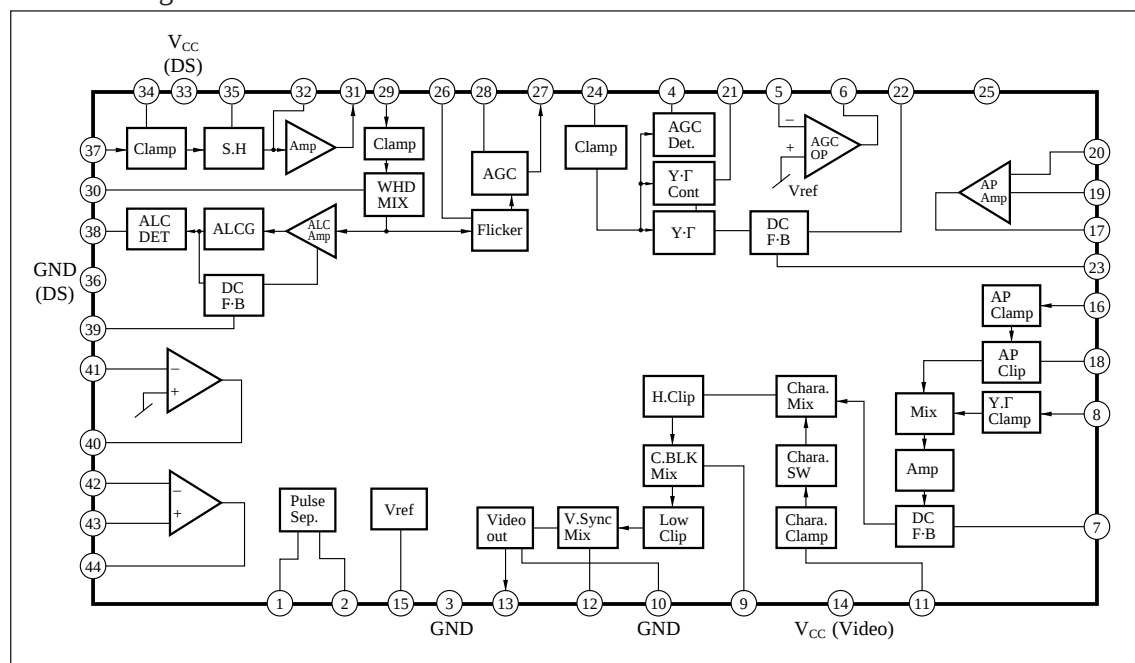
The AN2050FB is an integrated circuit specified to the monochrome CCD image element which is employed in the monitoring video cameras, door phones, TV telephone sets, etc. The high frequency block and power block that are composed of 3-chip of DS signal processing, AGC,  $\Gamma$  compensating and NTSC output so far, are integrated into one chip to offer low cost.

### ■ Features

- Frequency characteristics: 10MHz (incompatible with the CCD image element of 330,000 pixels)
- AGC range: 18dB (improved SN ratio)
- Operating supply voltage range: 4.5V to 5.3V (typ. 5V)
- Power consumption: typ. 225mW



### ■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

| Parameter                     | Symbol           | Rating      | Unit |
|-------------------------------|------------------|-------------|------|
| Supply voltage                | V <sub>CC</sub>  | 5.5         | V    |
| Supply current                | I <sub>CC</sub>  | 54          | mA   |
| Power dissipation             | P <sub>D</sub>   | 280         | mW   |
| Operating ambient temperature | T <sub>opr</sub> | −20 to +75  | °C   |
| Storage temperature           | T <sub>stg</sub> | −55 to +125 | °C   |

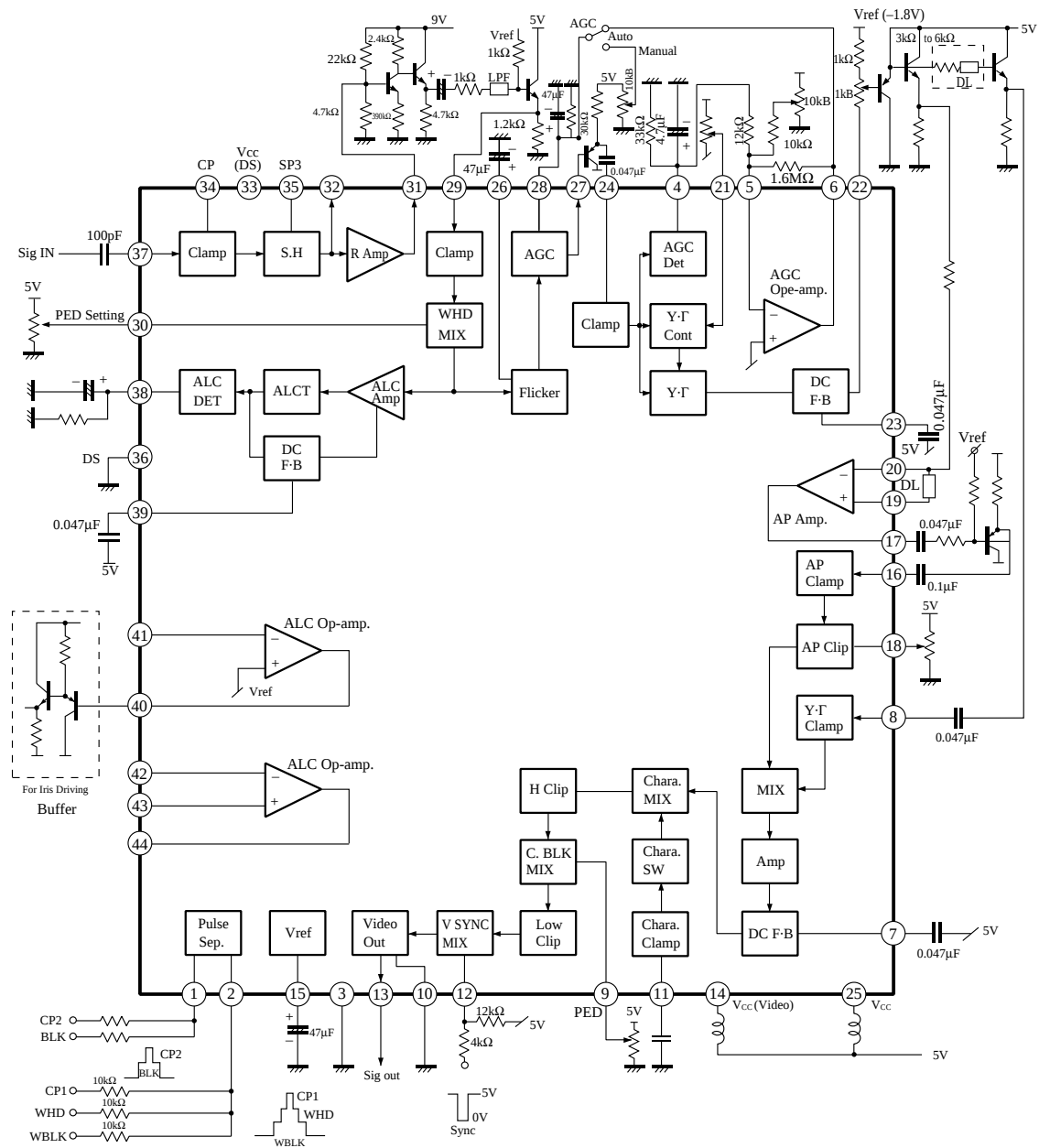
■ Recommended Operating Range (Ta=25°C)

| Parameter                      | Symbol          | Range        |
|--------------------------------|-----------------|--------------|
| Operating supply voltage range | V <sub>CC</sub> | 4.5V to 5.3V |

■ Electrical Characteristics (Ta=25°C)

| Parameter                  | Symbol               | Condition           | min  | typ  | max  | Unit             |
|----------------------------|----------------------|---------------------|------|------|------|------------------|
| OB control (1)             | V <sub>OB1</sub>     | V <sub>CC</sub> =5V | 35   | 55   | 75   | mV <sub>PP</sub> |
| OB control (2)             | V <sub>OB2</sub>     | V <sub>CC</sub> =5V | −85  | −65  | −45  | mV <sub>PP</sub> |
| AGC amp gain (1)           | G <sub>AGC1</sub>    | V <sub>CC</sub> =5V | 130  | 170  | 210  | mV <sub>PP</sub> |
| AGC amp gain (2)           | G <sub>AGC2</sub>    | V <sub>CC</sub> =5V | 16   | 19   | 22   | dB               |
| ALC DET output             | V <sub>ALC</sub>     | V <sub>CC</sub> =5V | 500  | 600  | 700  | mV <sub>PP</sub> |
| Γ circuit gain (1)         | GΓ <sub>1</sub>      | V <sub>CC</sub> =5V | 660  | 800  | 940  | mV <sub>PP</sub> |
| Γ circuit gain (2)         | GΓ <sub>2</sub>      | V <sub>CC</sub> =5V | —    | —    | 550  | mV <sub>PP</sub> |
| AGC DET output             | V <sub>AGC/DET</sub> | V <sub>CC</sub> =5V | 400  | 480  | 560  | mV <sub>PP</sub> |
| AP clip (1)                | G <sub>CL1</sub>     | V <sub>CC</sub> =5V | 0.9  | 1.1  | 1.4  | V <sub>PP</sub>  |
| AP clip (2)                | G <sub>CL2</sub>     | V <sub>CC</sub> =5V | —    | —    | −10  | dB               |
| YΓ amp gain                | G <sub>YΓ</sub>      | V <sub>CC</sub> =5V | 1.1  | 1.3  | 1.5  | V <sub>PP</sub>  |
| Supply current (1)         | I <sub>25</sub>      | V <sub>CC</sub> =5V | 26.5 | 31   | 35.5 | mA               |
| Supply current (2)         | I <sub>33</sub>      | V <sub>CC</sub> =5V | 9.5  | 14   | 18.5 | mA               |
| CP1 pulse separation level | V <sub>CP1</sub>     | V <sub>CC</sub> =5V | 3.4  | 3.8  | 4.2  | V                |
| WHD pulse separation level | V <sub>WHD</sub>     | V <sub>CC</sub> =5V | 2.15 | 2.55 | 2.95 | V                |
| WBL pulse separation level | V <sub>WBL</sub>     | V <sub>CC</sub> =5V | 0.4  | 0.8  | 1.2  | V                |
| CP2 pulse separation level | V <sub>CP2</sub>     | V <sub>CC</sub> =5V | 3.1  | 3.5  | 3.9  | V                |
| BLK pulse separation level | V <sub>BLK</sub>     | V <sub>CC</sub> =5V | 0.6  | 1    | 1.4  | V                |

## ■ Application Circuit



## Pin Descriptions

| Pin No. | Pin name              | Typ. waveform | Pin No. | Pin name                | Typ. waveform |
|---------|-----------------------|---------------|---------|-------------------------|---------------|
| 1       | Pulse input 1         |               | 23      | DC control              |               |
| 2       | Pulse input 2         |               | 24      | $\gamma$ input          |               |
| 3       | GND                   |               | 25      | $V_{CC}$                |               |
| 4       | AGC DET               |               | 26      | Flicker control         | Open 1.8V     |
| 5       | AGC op. amp. input –  |               | 27      | AGC output              |               |
| 6       | AGC op. amp. output   |               | 28      | AGC control             |               |
| 7       | DC control            |               | 29      | AGC input               |               |
| 8       | $Y\gamma$ input       |               | 30      | PED setting             |               |
| 9       | PED                   |               | 31      | DS amp. output          |               |
| 10      | GND                   |               | 32      | DC output               |               |
| 11      | Character input       |               | 33      | $V_{CC}$ (DS)           |               |
| 12      | SYNC input            |               | 34      | Clamp pulse input       |               |
| 13      | Video output          |               | 35      | Sample hold pulse input |               |
| 14      | $V_{CC}$ (Video)      |               | 36      | GND (DS)                |               |
| 15      | $V_{ref}$             |               | 37      | DS input                |               |
| 16      | Aperture input        |               | 38      | ALC DET                 |               |
| 17      | Aperture amp. output  |               | 39      | DC control              |               |
| 18      | Aperture clip         |               | 40      | ALC op. amp. output     |               |
| 19      | Aperture amp. input + |               | 41      | ALC op. amp. input –    |               |
| 20      | Aperture amp. input – |               | 42      | ALC op. amp. input –    |               |
| 21      | $\gamma$ control      |               | 43      | ALC op. amp. input +    |               |
| 22      | $\gamma$ output       |               | 44      | ALC op. amp. output     |               |