

# AN6368, AN6368S

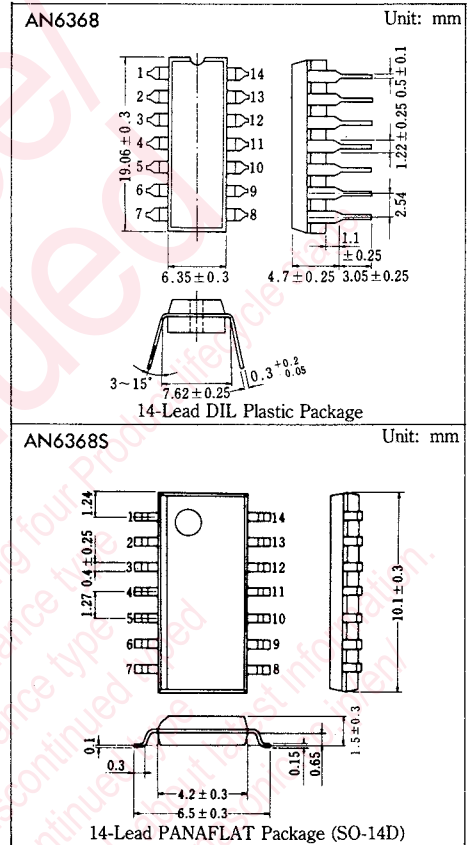
## VTR PAL/SECAM Signal Detector Circuits

### Outline

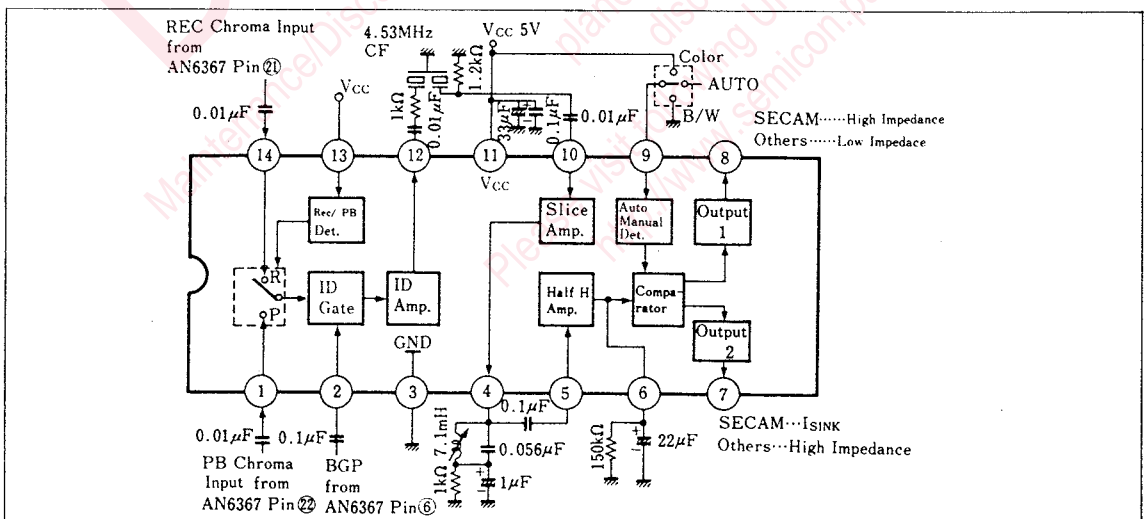
The AN6368 and The AN6368S are integrated circuits provided with the function which discriminates PAL/ SECAM and generates a control signal when constituting a VTR color signal processing circuit with the AN6367 or the MN6163A.

### Features

- Built-in REC/PB input selection switch
- Burst gate pulse can be directly connected from the MN6163A
- Output the control signals for the AN6367 and the MN6136A
- Built-in automatic/manual switch



### Block Diagram



■ Pin

| Pin No. | Pin Name                        | Pin No. | Pin Name                       |
|---------|---------------------------------|---------|--------------------------------|
| 1       | PB Chroma Input                 | 8       | SECAM/Others Det. Output(1)    |
| 2       | Burst Gate Pulse Input          | 9       | Auto/Manual Switch             |
| 3       | GND                             | 10      | Slice Amp. Input               |
| 4       | 0.5f <sub>H</sub> Tuning Output | 11      | V <sub>CC</sub>                |
| 5       | 0.5f <sub>H</sub> Amp. Input    | 12      | ID Gate Signal Input           |
| 6       | Sample & Hold Terminal          | 13      | Rec./PB Switching Signal Input |
| 7       | SECAM/Others Det. Output(2)     | 14      | Rec. Chroma Input              |

■ Absolute Maximum Ratings (T<sub>a</sub>=25°C) T<sub>a</sub>=25°C

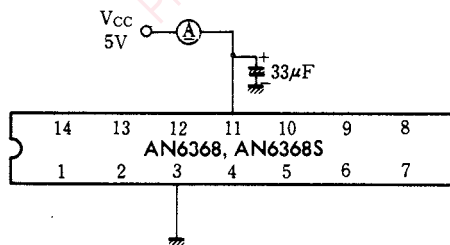
| Item                          | Symbol           | Rating   | Unit |
|-------------------------------|------------------|----------|------|
| Supply voltage                | V <sub>CC</sub>  | 6        | V    |
| Power dissipation             | P <sub>D</sub>   | 70       | mW   |
| Operating ambient temperature | T <sub>opr</sub> | -20~+70  | °C   |
| Storage temperature           | T <sub>stg</sub> | -40~+150 | °C   |

■ Electrical Characteristics (T<sub>a</sub>=25°C)

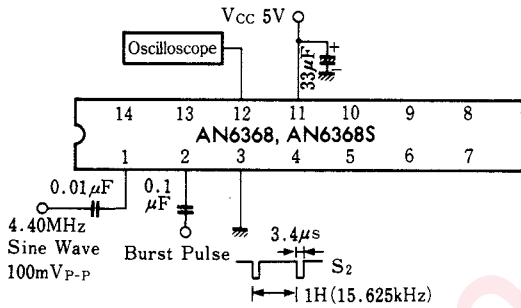
| Item  | Symbol            | Test Circuit | Condition  | min. | typ. | max. | Unit             |
|---|-------------------|--------------|--|------|------|------|------------------|
| Circuit current                                   | I <sub>CC</sub>   | 1            | V <sub>CC</sub> =5V                                    | 4.3  | 6.3  | 8.3  | mA               |
| Burst gate pulse input sensitivity                | S <sub>2</sub>    | 2            | V <sub>CC</sub> =5V                                    | 0.6  |      | 2.2  | V <sub>P-P</sub> |
| ID amp. gain                                      | G <sub>V-12</sub> | 2            | V <sub>CC</sub> =5V, Input 4.4MHz 100mV <sub>P-P</sub> | 17   |      | 22   | dB               |
| REC select voltage                                | V <sub>REC</sub>  | 3            | V <sub>CC</sub> =5V                                    | 3.5  |      | 5    | V                |
| PB select voltage                                 | V <sub>PB</sub>   | 3            | V <sub>CC</sub> =5V                                    | 0    |      | 1.5  | V                |
| ID amp. cross talk                                | CT <sub>12</sub>  | 3            | V <sub>CC</sub> =5V, Input 4.4MHz 100mV <sub>P-P</sub> |      |      | -40  | dB               |
| Forced color input voltage                        | V <sub>H-9</sub>  | 4            | V <sub>CC</sub> =5V                                    | 4.6  |      | 5    | V                |
| Forced monochrome input voltage                   | V <sub>L-9</sub>  | 5            | V <sub>CC</sub> =5V                                    | 0    |      | 0.5  | V                |
| Discrimination output 1 SECAM output voltage      | V <sub>H-8</sub>  | 4            | V <sub>CC</sub> =5V, 1mA                               | 3.5  |      | 5    | V                |
| Discrimination output 1 monochrome output voltage | V <sub>L-8</sub>  | 5            | V <sub>CC</sub> =5V, 1mA                               | 0    |      | 1.5  | V                |
| Discrimination output 2 SECAM lead-in current     | I <sub>S-7</sub>  | 4            | V <sub>CC</sub> =5V, V <sub>7</sub> =2V                | 0.2  | 0.5  | 0.8  | mA               |
| Discrimination output 2 monochrome leak current   | I <sub>L-7</sub>  | 5            | V <sub>CC</sub> =5V, V <sub>7</sub> =2V                |      | 0    | 5    | μA               |
| Comparator SECAM discrimination voltage           | V <sub>H-6</sub>  | 6            | V <sub>CC</sub> =5V                                    | 3.1  |      | 5    | V                |
| Comparator monochrome discrimination voltage      | V <sub>L-6</sub>  | 6            | V <sub>CC</sub> =5V                                    | 1    |      | 2.5  | V                |

Note) Operating supply voltage range: V<sub>CC(oper)</sub>=4.5~5.5V

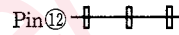
Test Circuit 1 (I<sub>CC</sub>)



Test Circuit 2 ( $S_2$ ,  $G_{V-12}$ )



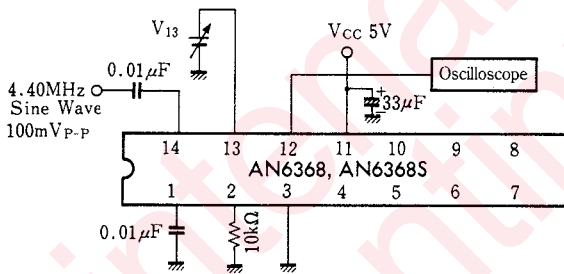
- $S_2$  : Pin ⑫ input amplitude for a signal of about 900 mV<sub>p-p</sub> to be output to the Pin ⑫ as shown below



- $G_{V-12}$

$$G_{V-12} = \frac{\text{Pin ⑫ Burst Amplitude}}{\text{Pin ⑫ Input Amplitude}} \quad (100\text{mV}_{pp})$$

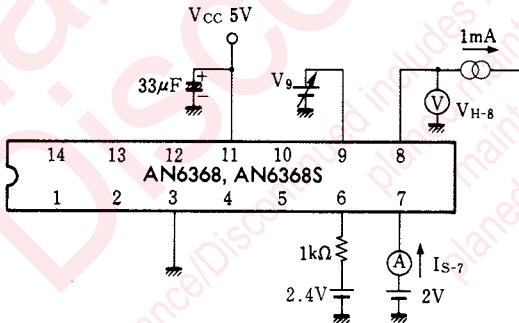
Test Circuit 3 ( $V_{REC}$ ,  $V_{PB}$ ,  $CT_{12}$ )



- $V_{REC}$  :  $V_{13}$  voltage when  $V_{13}$  is changed and a signal of about 900 mV<sub>p-p</sub> is output to the Pin ⑫
- $V_{PB}$  :  $V_{13}$  voltage when  $V_{13}$  is changed and nothing is output to the Pin ⑫
- $CT_{12}$  : Output amplitude ratio of the Pin ⑫ when  $V_{13}$  is changed

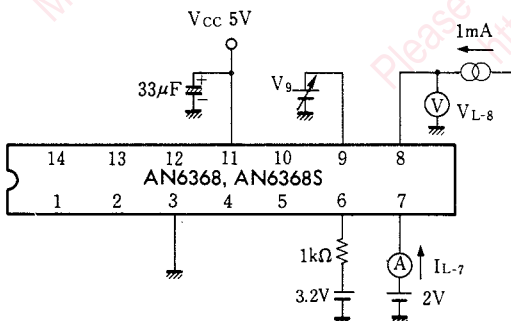
$$CT_{12} = \frac{V_{12}(\text{at } V_{PB})}{V_{12}(\text{at } V_{REC})}$$

Test Circuit 4 ( $V_{H-9}$ ,  $V_{H-8}$ ,  $I_{S-7}$ )



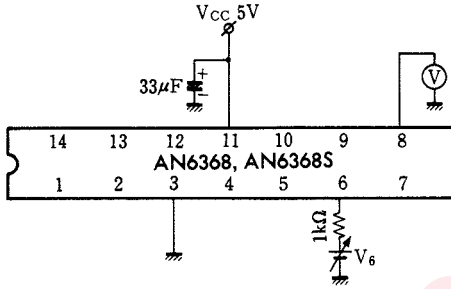
- $V_{H-9}$  :  $V_9$  value when  $V_9$  is changed and a Pin ⑧ voltage becomes 3.5 V or higher
- $V_{H-8}$ ,  $V_{S-7}$  : Value when a Pin ⑧ voltage  $V_9$  is 4 V

Test Circuit 5 ( $V_{L-9}$ ,  $V_{L-8}$ ,  $I_{L-7}$ )



- $V_{L-9}$  :  $V_9$  value when  $V_9$  is changed and a Pin ⑧ voltage becomes 1.5 V or less
- $V_{L-8}$ ,  $V_{L-7}$  : Value when the Pin ⑧ voltage  $V_9$  is 1 V

**Test Circuit 6** ( $V_{H-6}$ ,  $V_{L-6}$ )



- $V_{H-6}$  :  $V_6$  value when  $V_6$  is changed and a Pin ⑥ voltage becomes 3.5 V or higher
- $V_{L-6}$  :  $V_6$  value when  $V_6$  is changed and the Pin ⑥ voltage becomes 1.5 V or lower

**Precautions for Use**

- 1) Allowable supply voltage :  $V_{CC}=4.5$  to  $5.5$  V
  - 2) This is a SECAM signal discriminating IC when using the AN6367 and the MN6163 in a VTR for PAL/ pseudo SECAM.
  - 3) Burst gate pulses are input from the Pin ②. However, since an input circuit's discrimination point is  $1/2 V_{CC}$ , input an amplitude which makes a pulse width  $1/V_{CC}$ .
- Note) Do not directly connect the Pin ⑬ of the MN6163.

5) Half H frequency adjustment

For Pin ⑥ external LC, select an LC value which allows  $\frac{f_H}{2} = \frac{1}{2\pi\sqrt{LC}}$ .

6) AUTO/MANUAL selection

SECAM discrimination is selected with Pin ⑨. This IC determination is output in Pin ⑨ Open state.

7) For an input chroma signal ;

- Input an AN6367 Pin ② signal to the Pin ⑭ of this IC when recording.
- Input an AN6367 Pin ② signal to the Pin ① of this IC when playing back.

8) Connect Pin ⑦ discrimination output 2 to the AN6367 Pin ⑩.

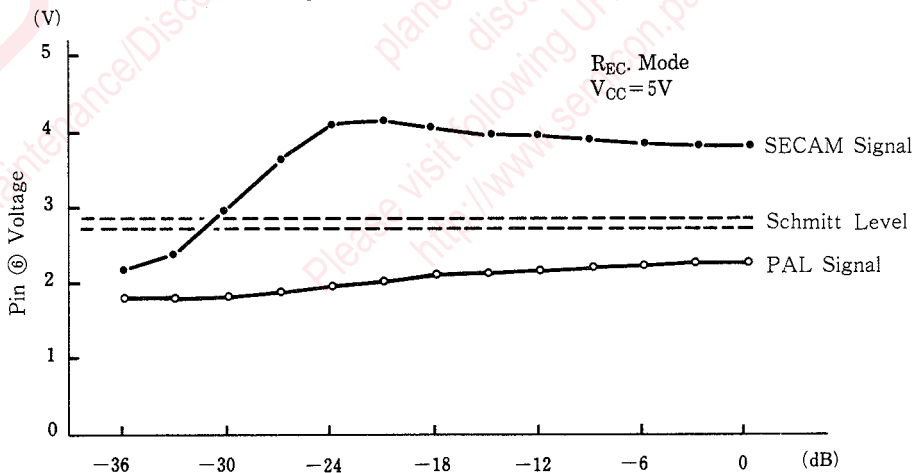
This turns off the AN6367 Killer in case of SECAM.

9) Pin ⑧ discrimination output 1 is push-pull output. Use as a SECAM discrimination signal.



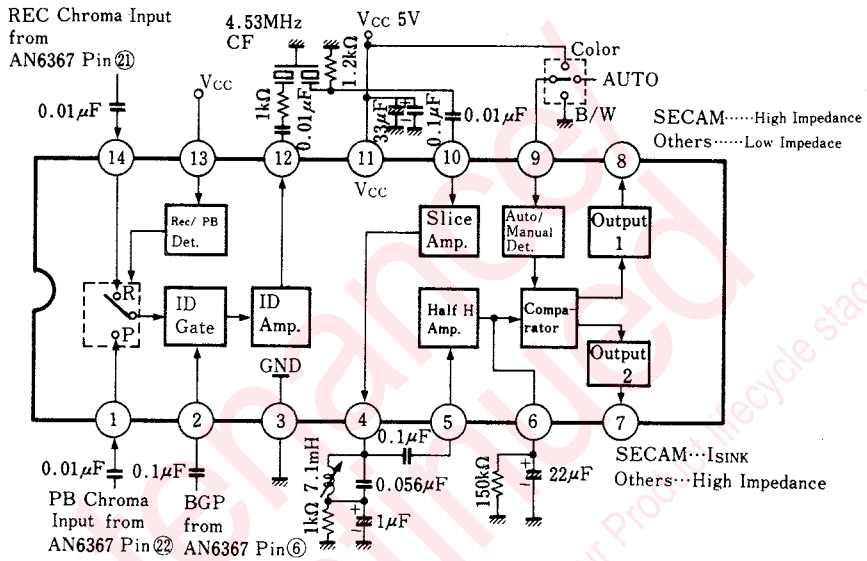
- 4) A Pin ⑫ output discriminating filter should have the following specifications :
  - ①Center : 4.53 MHz
  - ②Insertion loss : 8 dB or less
  - ③Attenuation : 20 dB or less (output difference between 4.40 MHz and 4.25 MHz)

Example of Discrimination Characteristic

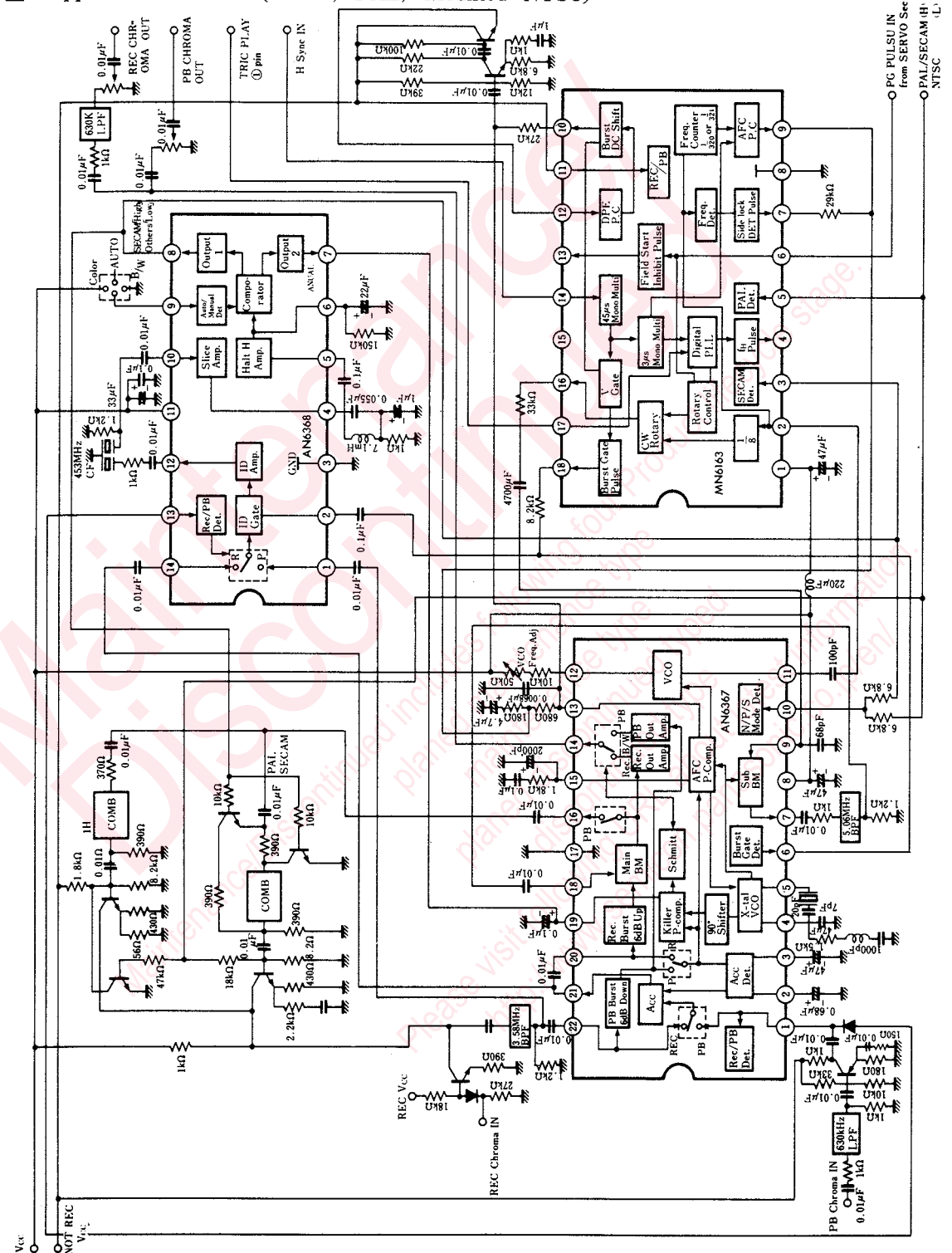


AN6367 Pin ② Input Amplitude (0 dB=Burst, 100 mVp-p)

■ Application Circuit



Application Circuit (NTSC, PAL, Modified NTSC)



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