

AN6368, AN6368S

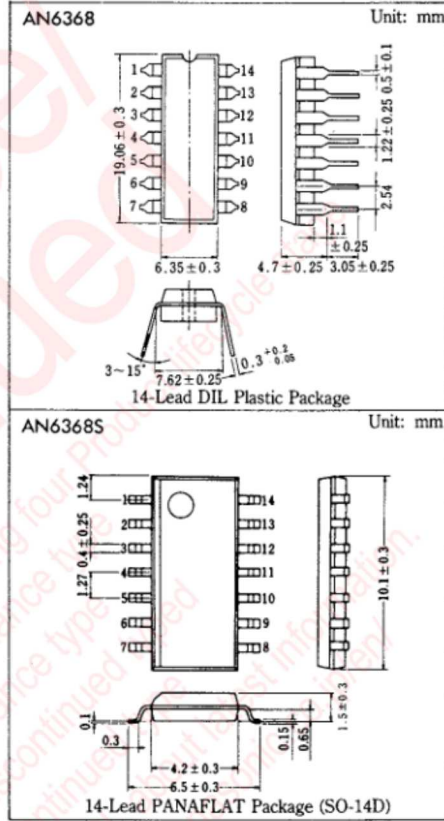
VTR PAL/SECAM Signal Detector Circuits

Outline

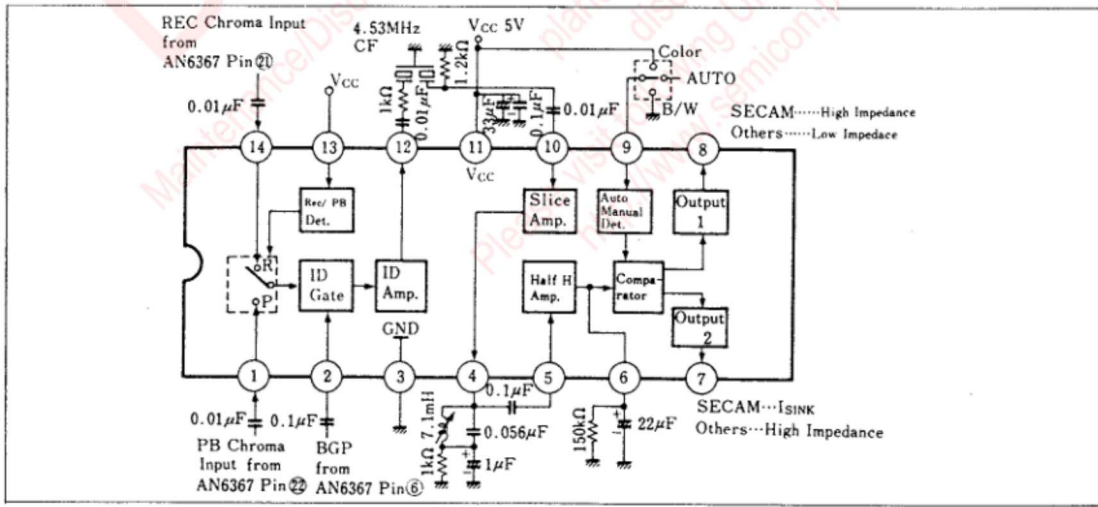
The AN6368 and The AN6368S are integrated circuits provided with the function which discriminates PAL/ SECAM and generates a control signal when constituting a VTR color signal processing circuit with the AN6367 or the MN6163A.

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 _H Tuning Output | 11 | V _{cc} |
| 5 | 0.5f _H 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 |

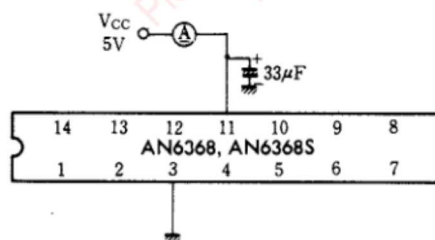
■ Absolute Maximum Ratings (T_a=25°C) T_a=25°C

| Item | Symbol | Rating | Unit |
|-------------------------------|------------------|----------|------|
| Supply voltage | V _{CC} | 6 | V |
| Power dissipation | P _D | 70 | mW |
| Operating ambient temperature | T _{opr} | -20~+70 | °C |
| Storage temperature | T _{stg} | -40~+150 | °C |

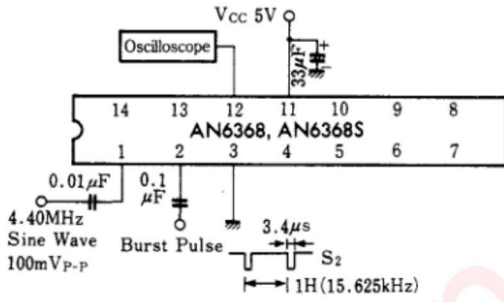
■ Electrical Characteristics (T_a=25°C)

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

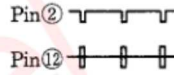
Note) Operating supply voltage range: V_{CC(oper)}=4.5~5.5V

Test Circuit 1 (I_{CC})

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



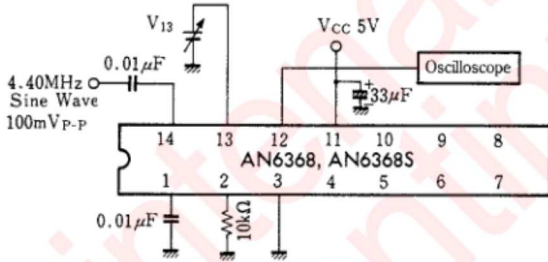
- S_2 : Pin ② input amplitude for a signal of about 900 mVp-p to be output to the Pin ⑫ as shown below



- G_{V-12}

$$G_{V-12} = \frac{\text{Pin ⑫ Burst Amplitude}}{\text{Pin ① Input Amplitude}} \quad (100\text{mVpp})$$

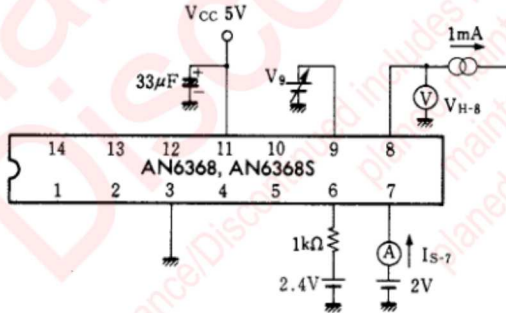
Test Circuit 3 (V_{REC} , V_{PB} , CT_{12})



- V_{REC} : V_{13} voltage when V_{13} is changed and a signal of about 900 mVp-p 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

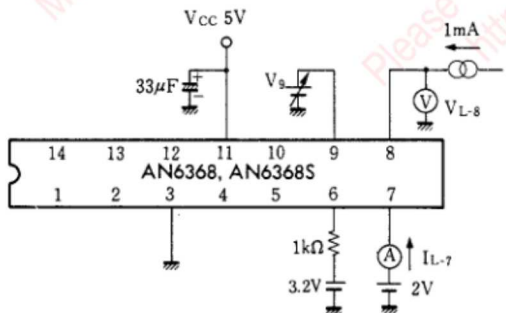
$$CT_{12} = \frac{V_{12}(\text{at } V_{PB})}{V_{12}(\text{at } V_{REC})}$$

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



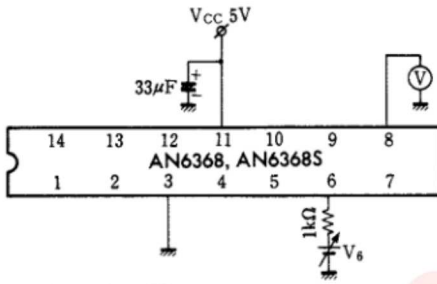
- V_{H-9} : V_9 value when V_9 is changed and a Pin ⑧ voltage becomes 3.5 V or higher
- V_{H-8} , V_{S-7} : Value when a Pin ⑧ voltage V_8 is 4 V

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_8 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 ⑧ voltage becomes 3.5 V or higher
- V_{L-6} : V_6 value when V_6 is changed and the Pin ⑧ voltage becomes 1.5 V or lower

■ Precautions for Use

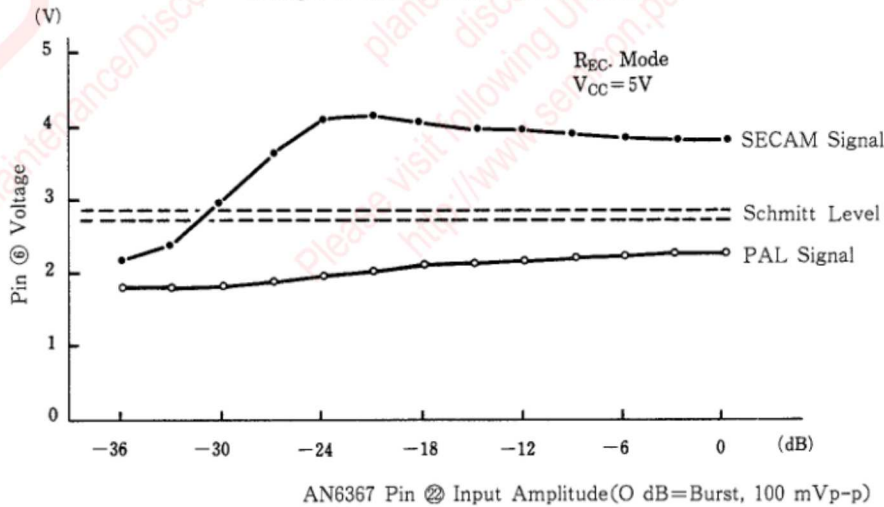
- 1) Allowable supply voltage: $V_{CC}=4.5$ to 5.5 V
 - 2) This is a SECAM signal discriminating IC when using the AN6367 and the MN6163 in a VTR for PAL/pseudo SECAM.
 - 3) Burst gate pulses are input from the Pin ②. However, since an input circuit's discrimination point is $1/2 V_{CC}$, input an amplitude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



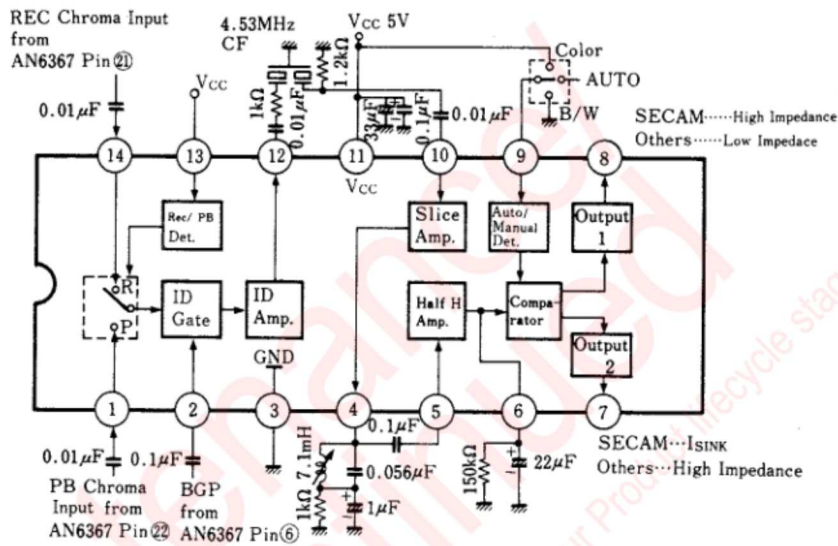
- 4) A Pin ⑫ output discriminating filter should have the following specifications:
 - ①Center: 4.53 MHz
 - ②Insertion loss: 8 dB or less
 - ③Attenuation: 20 dB or less (output difference between 4.40 MHz and 4.25 MHz)

- 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 ⑩. This IC determination is output in Pin ⑨ Open state.
- 7) For an input chroma signal;
 - Input an AN6367 Pin ⑫ signal to the Pin ⑭ of this IC when recording.
 - Input an AN6367 Pin ⑫ signal to the Pin ① of this IC when playing back.
- 8) Connect Pin ⑦ discrimination output 2 to the AN6367 Pin ⑬. 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.

Example of Discrimination Characteristic



■ Application Circuit



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