

# AN6337, AN6337S

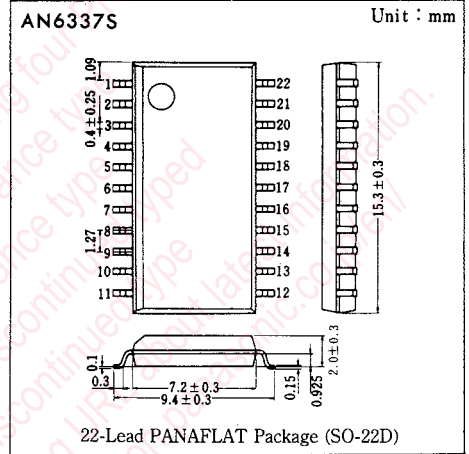
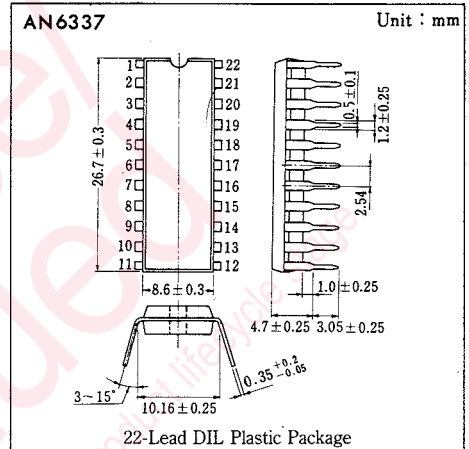
## VTR Playback Video Signal Processing Circuits

### ■ Outline

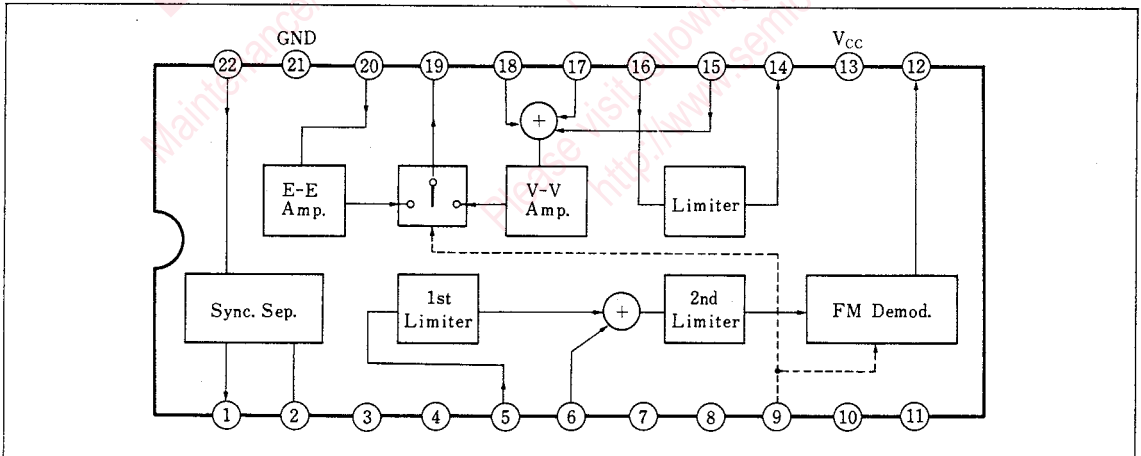
The AN6337 and the AN6337S are integrated circuits designed for VTR's playback video signal processing.

### ■ Features

- The functions consist of:  
 FM demodulator  
 Double limiter circuit  
 Noise-canceller circuit  
 Mixer Amplitude circuit  
 Synchro signal separator
- Supply voltage: 5V



### ■ Block Diagram



## ■ Pin


| Pin No. | Pin Name                 | Pin No. | Pin Name                 |
|---------|--------------------------|---------|--------------------------|
| 1       | Sync. Sep. Output        | 12      | FM Demod. Output         |
| 2       | Sync. Sep. Peak Det.     | 13      | V <sub>cc</sub>          |
| 3       | FM-Sub Limiter Cap. (1)  | 14      | Noise Canceller Output   |
| 4       | FM-Sub Limiter Cap. (2)  | 15      | Noise Canceller Mix Amp. |
| 5       | FM-Sub Limiter Input     | 16      | Noise Canceller Input    |
| 6       | FM-Main Limiter Input    | 17      | Video Amp. Color Input   |
| 7       | FM-Main Limiter Cap. (1) | 18      | Video Amp. Y Input       |
| 8       | FM-Main Limiter Cap. (2) | 19      | Video Amp. Y/C Output    |
| 9       | Mode Select SW           | 20      | E-E, Amp. Input          |
| 10      | FM Demod. Cap. (1)       | 21      | GND                      |
| 11      | FM Demod. Cap. (2)       | 22      | Sync. Sep. Input         |

## ■ Absolute Maximum Ratings (Ta=25°C)

| Item                           | Symbol           | Rating   | Unit |
|--------------------------------|------------------|----------|------|
| Supply voltage                 | V <sub>cc</sub>  | 6.0      | V    |
| Power dissipation<br>(Ta=70°C) | AN6337           | 380      | mW   |
|                                | AN6337S          | 270*     |      |
| Operating ambient temperature  | T <sub>opr</sub> | -20~+70  | °C   |
| Storage temperature            | AN6337           | -55~+150 | °C   |
|                                | AN6337S          | -40~+125 |      |

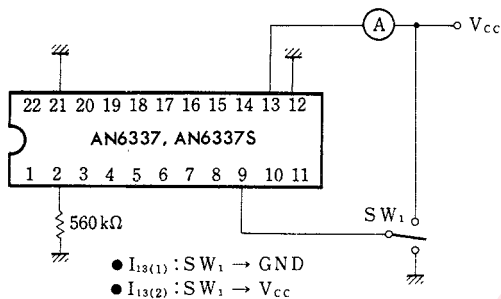
\* Indicates a package capability.

## ■ Electrical Characteristics (Ta=25°C ± 2°C)

| Item                                  | Symbol              | Test Circuit | Condition   | min.  | typ. | max. | Unit             |
|---------------------------------------|---------------------|--------------|---|-------|------|------|------------------|
| Circuit current (1)                   | I <sub>13(1)</sub>  | 1            | Pin⑩GND(V-Vmode)  | 35    |      | 65   | mA               |
| Circuit current (2)                   | I <sub>13(2)</sub>  | 1            | Pin⑩V <sub>cc</sub> (E-E mode)  | 20    |      | 40   | mA               |
| Demodulator detection sensitivity     | S <sub>12</sub>     | 2            | C=47pF, R <sub>12</sub> =900Ω, f=3.5~4.5MHz   | 80    |      | 140  | mV/MHz           |
| Demodulator detection limit           | f <sub>(lim)</sub>  | 2            | C=47pF, Input 0.1V <sub>P-P</sub>   | 7.0   |      |      | MHz              |
| Demodulator carrier leak (1)          | CL <sub>12-1</sub>  | 3            | C=47pF, 4MHz, 0.1V <sub>P-P</sub> , Input   |       |      | -30  | dB               |
| Demodulator carrier leak (2)          | CL <sub>12-2</sub>  | 4            | C=47pF, 4MHz, 0.2V <sub>P-P</sub> , Input   |       |      | -30  | dB               |
| Video amp. gain                       | G <sub>V18-18</sub> | 5            | 100kHz, 1.2V <sub>P-P</sub> , Input   | 3.2   |      | 6.4  | dB               |
| Chroma amp. gain                      | G <sub>V17-18</sub> | 6            |   | 7.2   |      | 10.8 | dB               |
| Noise canceller mix amp. gain         | G <sub>V15-18</sub> | 7            | 1MHz, 0.7V <sub>P-P</sub> , Input   | -10.8 |      | -7.2 | dB               |
| Noise canceller amp. gain             | G <sub>G16-14</sub> | 7            | 1MHz, 30mV <sub>P-P</sub> , Input   | 18.2  |      | 21.8 | dB               |
| Noise canceller amp. output amplitude | v <sub>O14</sub>    | 7            | 1MHz, 0.7V <sub>P-P</sub> , Input   | 0.5   |      | 0.83 | V <sub>P-P</sub> |
| E-E amp. gain                         | G <sub>20-18</sub>  | 6            | 100kHz, 0.7V <sub>P-P</sub> , Input   | 7.9   |      | 11.5 | dB               |
| Sync. sep. input sensitivity          | S <sub>22</sub>     | 8            | Video Input, V/S ratio5:2   | 0.4   |      |      | V <sub>P-P</sub> |
| Sync. Sep. output amplitude           | v <sub>O1</sub>     | 8            |  | 3.0   |      | 4.6  | V <sub>P-P</sub> |
| E-E/V-V select sensitivity            | S <sub>9-1</sub>    | 9            | STB→V-V   |       |      | 0.8  | V                |
| Input sensitivity (STB)               | S <sub>9-2</sub>    | 9            |   | 2.2   |      | 2.8  | V                |
| Muting sensitivity                    | S <sub>17</sub>     | 10           |   |       |      | 0.8  | V                |
| E-E/V-V cross talk                    | CT <sub>19-1</sub>  | 9            | Pin⑩Input, 3MHz, 0.7V <sub>P-P</sub>  |       |      | -40  | dB               |
| Muting cross talk                     | CT <sub>19-2</sub>  | 10           | Pin⑩Input, 1MHz, 1.2V <sub>P-P</sub>  |       |      | -40  | dB               |

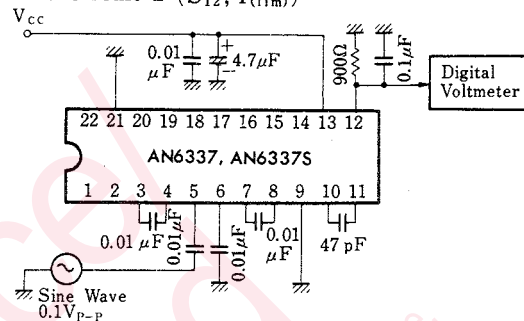
Note) Operating supply voltage range V<sub>cc(opr)</sub>=4.5~5.5

Test Circuit 1 ( $I_{13(1)}$ ,  $I_{13(2)}$ )



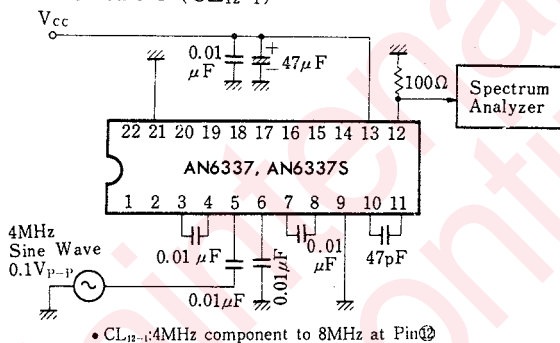
- $I_{13(1)}$ : SW<sub>1</sub> → GND
- $I_{13(2)}$ : SW<sub>1</sub> → V<sub>cc</sub>

Test Circuit 2 ( $S_{12}$ ,  $f_{(lim)}$ )



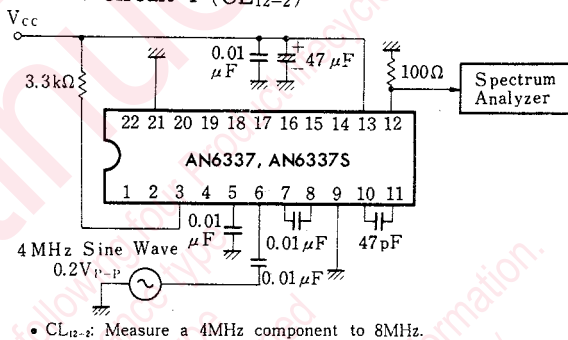
- $S_{12}$  Pin<sub>12</sub> output difference between Pin<sub>5</sub> input of 3.5MHz and 4.5MHz
- $f_{(lim)}$  Pin<sub>5</sub> input frequency at which Pin<sub>12</sub> output is turned linear

Test Circuit 3 ( $CL_{12-1}$ )



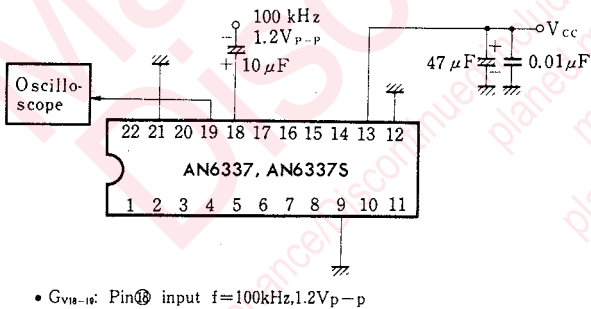
- $CL_{12-1}$ : 4MHz component to 8MHz at Pin<sub>12</sub>

Test Circuit 4 ( $CL_{12-2}$ )



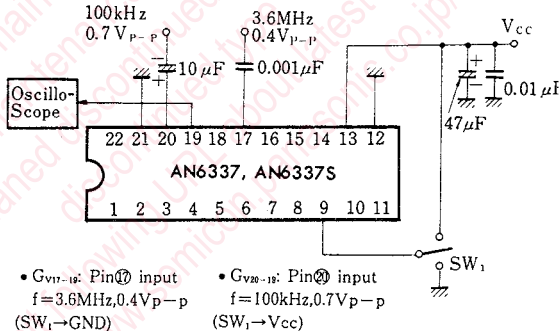
- $CL_{12-2}$ : Measure a 4MHz component to 8MHz.

Test Circuit 5 ( $G_{V18-19}$ )



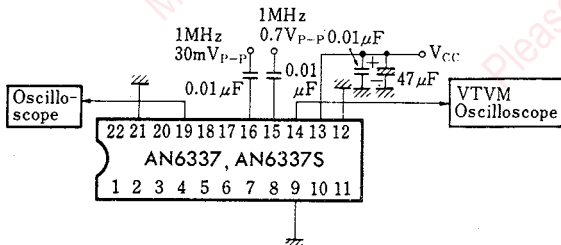
- $G_{V18-19}$ : Pin<sub>10</sub> input  $f=100\text{kHz}$ ,  $1.2\text{Vp-p}$

Test Circuit 6 ( $G_{V17-19}$ ,  $G_{V20-19}$ )



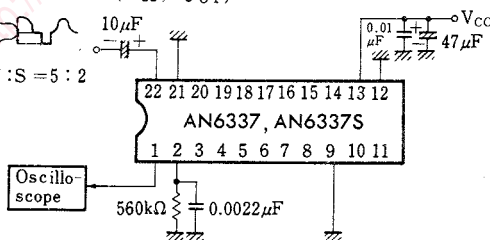
- $G_{V17-19}$ : Pin<sub>10</sub> input  $f=3.6\text{MHz}$ ,  $0.4\text{Vp-p}$
- $G_{V20-19}$ : Pin<sub>10</sub> input  $f=100\text{kHz}$ ,  $0.7\text{Vp-p}$  (SW<sub>1</sub> → GND)

Test Circuit 7 ( $G_{V15-19}$ ,  $G_{V16-14}$ ,  $v_{O14}$ )



- $G_{V15-19}$ : Pin<sub>10</sub> input  $f=1\text{MHz}$ ,  $0.7\text{Vp-p}$
- $G_{V16-14}$ : Pin<sub>10</sub> input  $f=1\text{MHz}$ ,  $30\text{mVp-p}$
- $v_{O14}$ : Pin<sub>10</sub> input  $f=1\text{MHz}$ ,  $0.7\text{Vp-p}$

Test Circuit 8 ( $S_{22}$ ,  $v_{O1}$ )



- $S_{22}$  Space Lowest input level (Pin<sub>10</sub>) at which V-Sync. can be separated with Pin<sub>1</sub> output
- $v_{O1}$  Space Input a video signal of  $1.2\text{Vp-p}$  to the Pin<sub>10</sub>.



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