

**SANYO**

No.3804A

**LA7217,7217M****Synchronizing Signal Separator  
with AFC and Sync Detector**

The LA7217 and 7217M are synchronizing signal separator ICs with AFC and AFC Lock detector designed to be used in video equipments such as VCR and TV sets. VCO with ceramic oscillator and PLL horizontal sync detector provide an adjust-free, precision sync detection system.

**Functions**

- Horizontal sync separation
- Vertical sync separation
- VCO ( $32f_H$ )
- AFC
- Sync signal detection

**Features**

- Use of a ceramic oscillator requires no adjustment
- Negative polarity output
- High impedance video signal input pin
- 5 V supply voltage

**Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

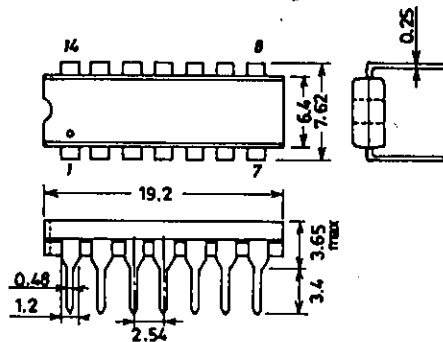
|                             |              |                | unit                         |
|-----------------------------|--------------|----------------|------------------------------|
| Maximum Supply Voltage      | $V_{CC}$ max | Quiescent time | 7 V                          |
| Allowable Power Dissipation | $P_d$ max    |                | 150 mW                       |
| Operating Temperature       | $T_{opr}$    |                | -15 to +65 $^\circ\text{C}$  |
| Storage Temperature         | $T_{stg}$    |                | -40 to +125 $^\circ\text{C}$ |

**Operating Conditions at  $T_a = 25^\circ\text{C}$** 

|                            |             |  | unit         |
|----------------------------|-------------|--|--------------|
| Recommended Supply Voltage | $V_{CC}$    |  | 5.0 V        |
| Operating Voltage Range    | $V_{CC}$ op |  | 4.5 to 5.5 V |

**Package Dimensions 3003A**

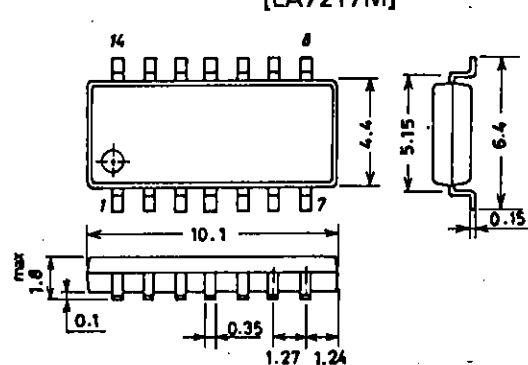
(unit: mm) [LA7217]



SANYO : DIP14

**Package Dimensions 3034A**

(unit: mm) [LA7217M]

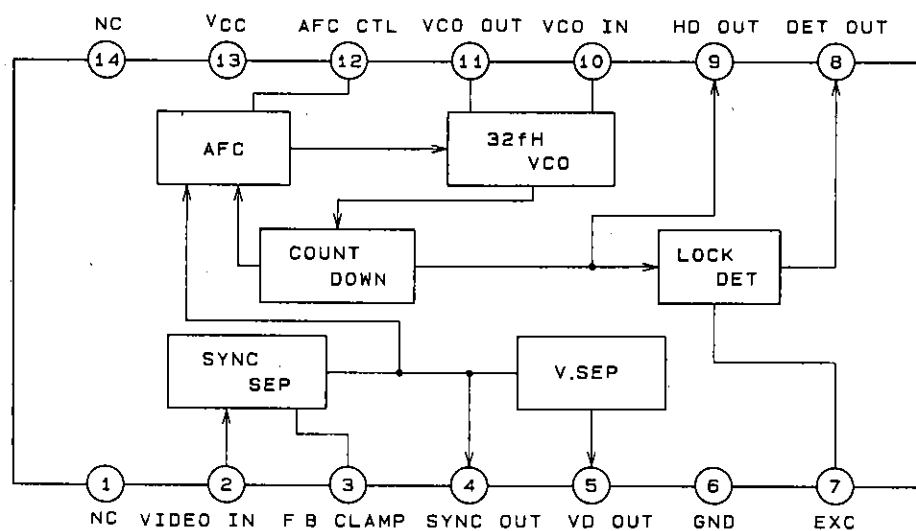


SANYO : MFP14

Operating Characteristics at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 5\text{V}$ 

|                                 |           |                                            | min  | typ   | max  | unit          |
|---------------------------------|-----------|--------------------------------------------|------|-------|------|---------------|
| Current Dissipation             | $I_{CC}$  | Standard color bar input                   | 4.9  | 7     | 9.1  | mA            |
| Minimum Separable Input Voltage | $V_I$ min |                                            | -15  | -11   | -8   | dB            |
| HD Output Delay Time            | $T_{HD}$  | From pin 2 to pin 9                        | 0.1  | 0.5   | 0.9  | $\mu\text{s}$ |
| HD Output Pulse Width           | $T_{HW}$  |                                            | 3.6  | 4.0   | 4.4  | $\mu\text{s}$ |
| VD Output Delay Time            | $T_{VD}$  | From pin 2 to pin 5                        | 9    | 13    | 17   | $\mu\text{s}$ |
| VD Output Pulse Width           | $T_{VW}$  |                                            | 0.16 | 0.21  | 0.26 | ms            |
| Free-running Frequency          | FO        | SW1 off                                    | 15.4 | 15.75 | 16.1 | kHz           |
| Capture Range 1                 | $F_{CH}$  | Judgment by comparison of pin 9 with pin 2 | 300  | 500   |      | Hz            |
| Capture Range 2                 | $F_{CL}$  | Judgment by comparison of pin 9 with pin 2 | 1000 | 1500  |      | Hz            |
| SYNC Out, H Voltage             | $V_{SH}$  | Level on pin 4                             | 3.9  | 4.2   |      | V             |
| SYNC Out, L Voltage             | $V_{SL}$  | Level on pin 4                             |      | 0.8   | 1.0  | V             |
| HD Out, H Voltage               | $V_{HH}$  | Level on pin 9                             | 3.9  | 4.2   |      | V             |
| HD Out, L Voltage               | $V_{HL}$  | Level on pin 9                             |      | 0.8   | 1.0  | V             |
| VD Out, H Voltage               | $V_{VH}$  | Level on pin 5                             | 3.9  | 4.2   |      | V             |
| VD Out, L Voltage               | $V_{VL}$  | Level on pin 5                             |      | 0.8   | 1.0  | V             |
| DET Out, H Voltage              | $V_{DH}$  |                                            | 4.8  | 5.0   |      | V             |
| DET Out, L Voltage              | $V_{DL}$  | SW1 off                                    |      | 0.1   | 0.3  | V             |
| Comparator Threshold H Voltage  | $V_{TH}$  | SW2-a                                      | 2.7  | 2.95  | 3.2  | V             |
| Comparator Threshold L Voltage  | $V_{TL}$  | SW2-a                                      | 2.4  | 2.7   | 3.0  | V             |
| Threshold Width                 | $V_{TW}$  | $V_{TH}-V_{TL}$                            | 0.10 | 0.22  | 0.40 | V             |
| DET Operating Current, H        | $I_{DH}$  | SW2-b                                      | 40   | 65    | 90   | $\mu\text{A}$ |
| DET Operating Current, L        | $I_{DL}$  | SW2-b                                      | 40   | 65    | 90   | $\mu\text{A}$ |

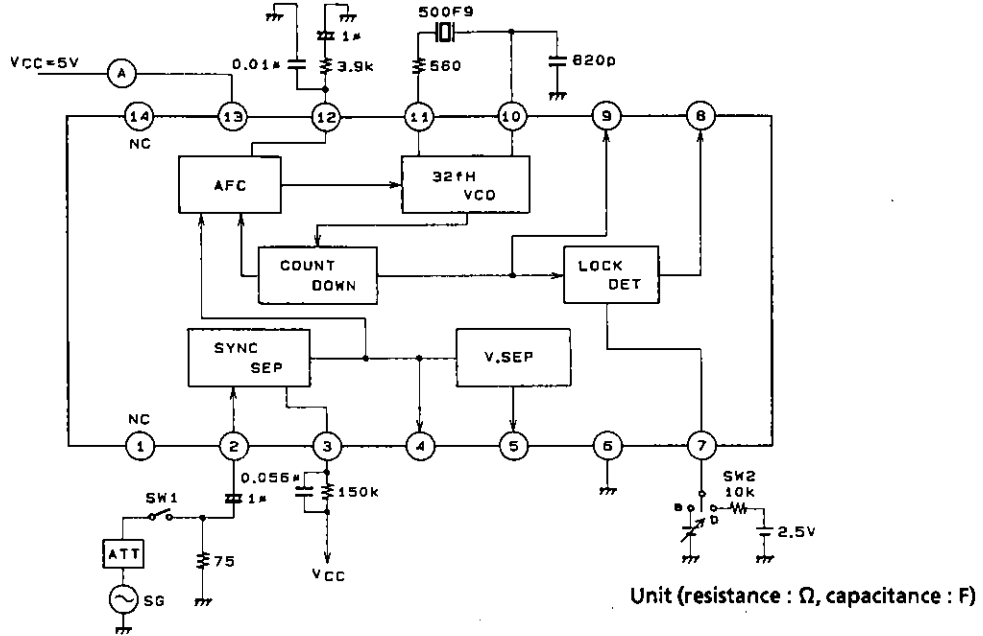
## Block Diagram



A00487

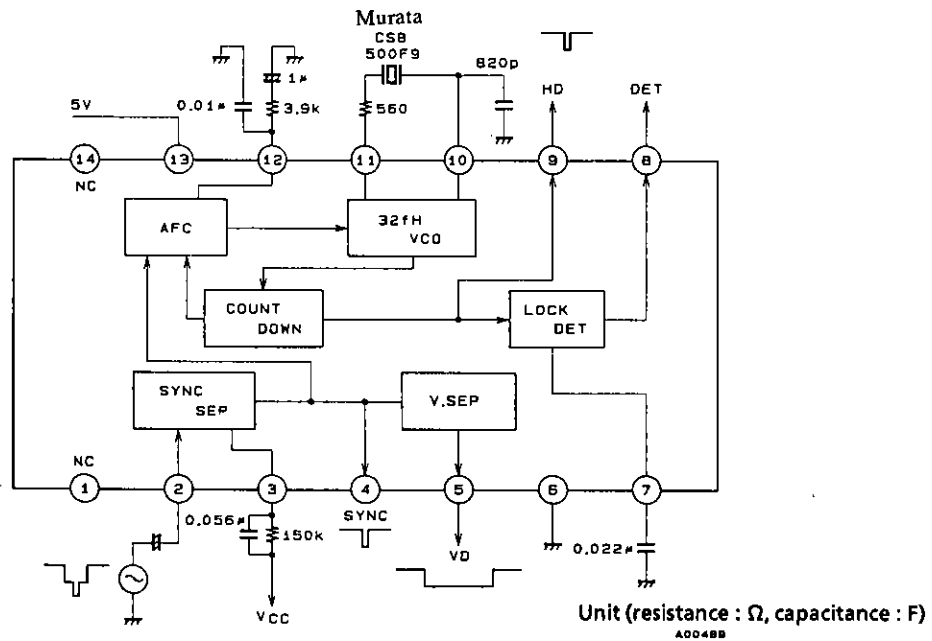
# LA7217, 7217M

## Test Circuit



A00488

## Typical Application



A00488

- DET OUT becomes H upon lock
- When feeding video signal to the input pin directly, keep DC level between 2 and 3.5 volts.
- Standard video input is 1 Vp-p

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