



SANYO Semiconductors

# DATA SHEET

# LA7217

# LA7217M

Monolithic Linear IC

## Synchronizing Signal Separator with AFC and Sync Detector

### Overview

The LA7217 and LA7217M 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.

### Features

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

### Functions

- Horizontal sync separation.
- Vertical sync separation.
- VCO (32fH).
- AFC.
- Sync signal detection.

### Specifications

#### Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max		7	V
Allowable power dissipation	Pd max		150	mW
Operating temperature	T <sub>opr</sub>		-15 to +65	°C
Storage temperature	T <sub>stg</sub>		-40 to +125	°C

#### Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		5.0	V
Operating voltage range	V <sub>CC</sub> op		4.5 to 5.5	V

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# LA7217,LA7217M

Electrical Characteristics at Ta = 25°C, VCC = 5V

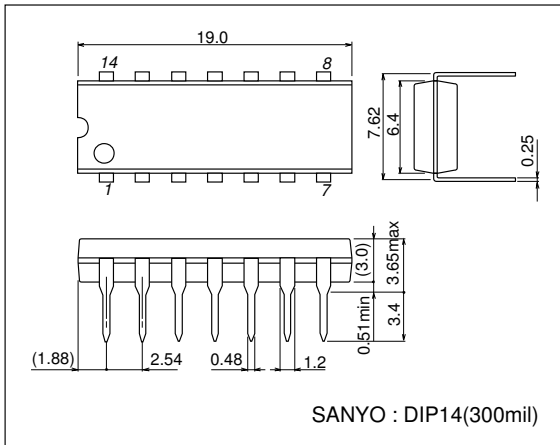
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I <sub>CC</sub>	Standard color bar input	4.9	7	9.1	mA
Sync separation minimum input level	V <sub>IN min</sub>		-15	-11	-8	dB
HD output delay time	t <sub>HD</sub>	From pin 2 to pin 9	0.1	0.5	0.9	μs
HD output pulse width	t <sub>HW</sub>		3.6	4.0	4.4	μs
VD output delay time	t <sub>VD</sub>	From pin 2 to pin 5	9	13	17	μs
VD output pulse width	t <sub>VW</sub>		0.16	0.21	0.26	ms
Free-running frequency	f <sub>O</sub>	SW1 off	15.4	15.75	16.1	kHz
Capture range 1	f <sub>CH</sub>	Judgment by comparison of pin 9 with pin 2	300	500		Hz
Capture range 2	f <sub>CL</sub>	Judgment by comparison of pin 9 with pin 2	1000	1500		Hz
Sync out, high level voltage	V <sub>SH</sub>	Level on pin 4	3.9	4.2		V
Sync out, low level voltage	V <sub>SL</sub>	Level on pin 4		0.8	1.0	V
HD out, high level voltage	V <sub>HH</sub>	Level on pin 9	3.9	4.2		V
HD out, low level voltage	V <sub>HL</sub>	Level on pin 9		0.8	1.0	V
VD out, high level voltage	V <sub>VH</sub>	Level on pin 5	3.9	4.2		V
VD out, low level voltage	V <sub>VL</sub>	Level on pin 5		0.8	1.0	V
DET out, high level voltage	V <sub>DH</sub>		4.8	5.0		V
DET out, low level voltage	V <sub>DL</sub>	SW1 off		0.1	0.3	V
Comparator threshold high level voltage	V <sub>TH</sub>	SW2-a	2.7	2.95	3.2	V
Comparator threshold low level voltage	V <sub>TL</sub>	SW2-a	2.4	2.7	3.0	V
Threshold width	V <sub>TW</sub>	V <sub>TH</sub> -V <sub>TL</sub>	0.10	0.22	0.40	V
DET operating current, high level	I <sub>DH</sub>	SW2-b	40	65	90	μA
DET operating current, high level	I <sub>DL</sub>	SW2-b	40	65	90	μA

## Package Dimensions

unit : mm (typ)

3003B

[LA7217]

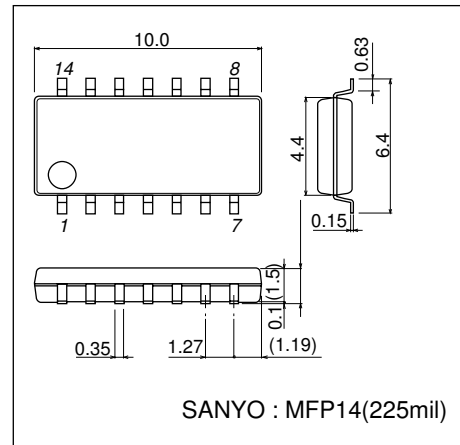


## Package Dimensions

unit : mm (typ)

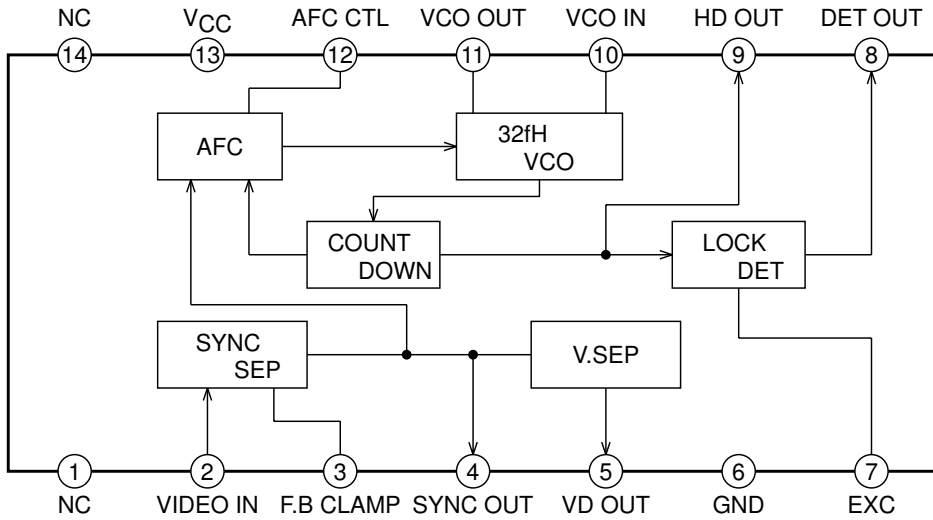
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[LA7217M]

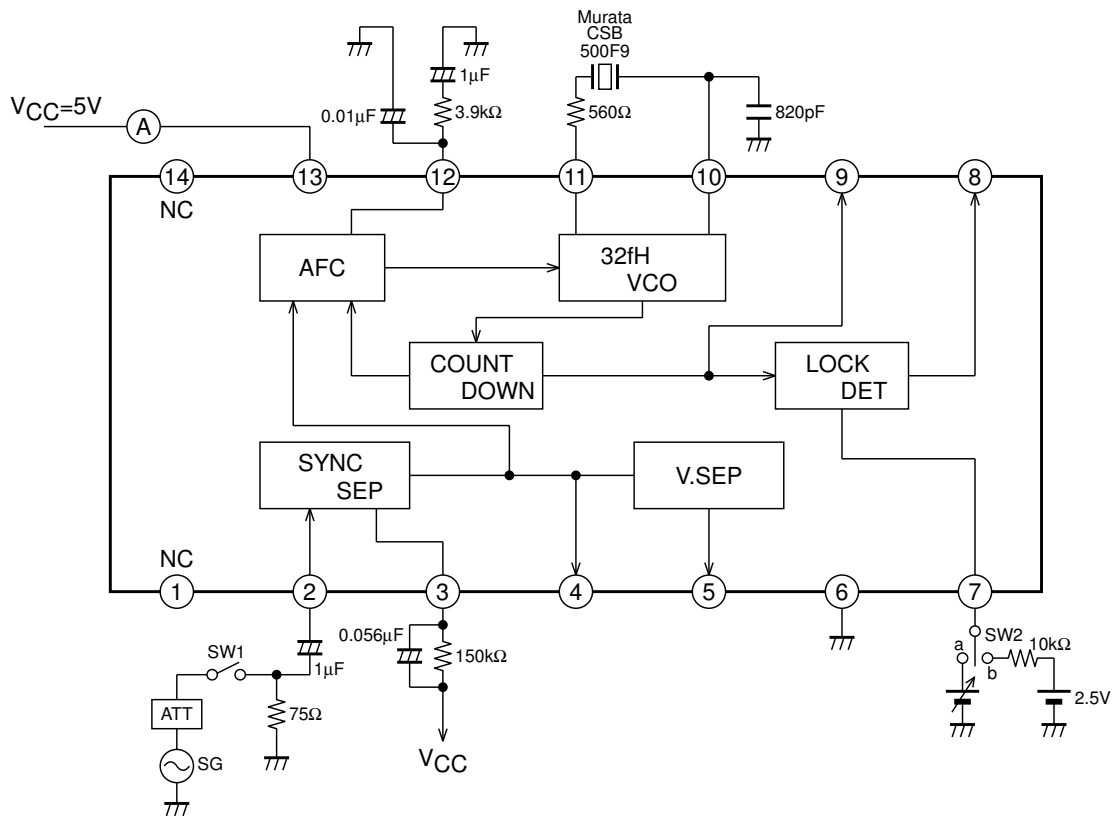


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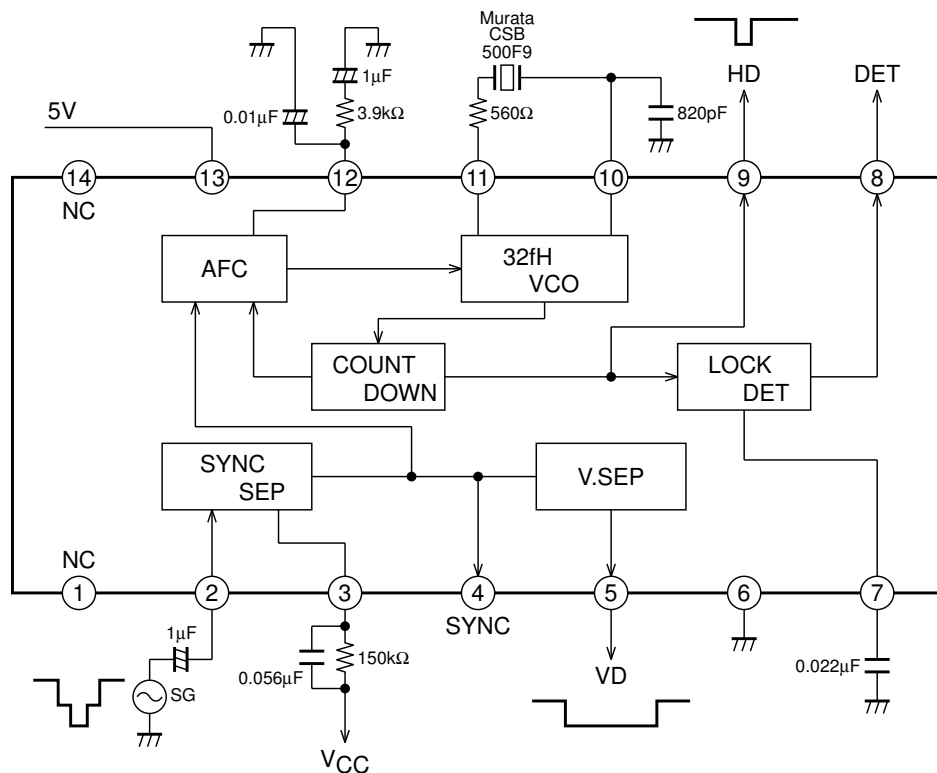
## Block Diagram



## Test Circuit



Application Circuit Example



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

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