Monolithic Linear IC



LA7217, 7217M Synchronizing Signal Separator

with AFC and Sync Detector

Overview

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, percision sync detection system.

Functions

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

Features

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

Package Dimensions

unit:mm

3003A-DIP14





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Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		7	V
Allowable power dissipation	Pd max		150	mW
Operating temperature	Topr		–15 to +65	°C
Storage temperature	Tstg		-40 to +125	°C

Operating Conditons at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	VCC		5.0	V
Operating voltage range	V _{CC} op		4.5 to 5.5	V

Operating Characteristics at Ta = 25°C, V_{CC}=5V

Parameter	Symbol	Conditions	Ratings			Linit
			min	typ	max	
Current drain	ICC	Standard color bar input	4.9	7	9.1	mA
Sync separation minimum input level	V _{IN} min		-15	-11	-8	dB
HD output delay time	tHD	From pin 2 to pin 9	0.1	0.5	0.9	μs
HD output pulse width	tHW		3.6	4.0	4.4	μs
VD output delay time	^t VD	From pin 2 to pin 5	9	13	17	μs
VD output pulse width	tvw		0.16	0.21	0.26	ms
Free-running frequency	fO	SW1 off	15.4	15.75	16.1	kHz
Capture Range 1	fсн	Judgment by comparison of pin 9 with pin 2	300	500		Hz
Capture Range 2	fCL	Judgment by comparison of pin 9 with pin 2	1000	1500		Hz
SYNC out, high level voltage	VSH	Level on pin 4	3.9	4.2		V
SYNC out, low level voltage	V _{SL}	Level on pin 4		0.8	1.0	V
HD out, high level voltage	VHH	Level on pin 9	3.9	4.2		V
HD out, low level voltage	V _{HL}	Level on pin 9		0.8	1.0	V
VD out, high level voltage	VVH	Level on pin 5	3.9	4.2		V
VD out, low level voltage	V _{VL}	Level on pin 5		0.8	1.0	V
DET out, high level voltage	VDH		4.8	5.0		V
DET out, low level voltage	V _{DL}	SW1 off		0.1	0.3	V
Comparator threshold high level voltage	VTH	SW2–a	2.7	2.95	3.2	V
Comparator threshold low level voltage	VTL	SW2–a	2.4	2.7	3.0	V
Threshold width	VTW	V _{TH} -V _{TL}	0.10	0.22	0.40	V
DET operating current, high level	IDH	SW2-b	40	65	90	μA
DET operating current, low level	IDL	SW2-b	40	65	90	μA

Block Diagram



A11103

Test Circuit



Sample Application Circuit



• 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 1 Vp-p.

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