

Overview

The LC89915 and LC89915M are delay lines that produce a 1 H delayed signal for NTSC format with an external low-pass filter. It can also provide 1 H delayed signal for PAL format by changing the number of its CCD shift register.

Functions

- 453.5 bits (switchable to 456.5 bits) CCD shift register
- Auto-bias circuit
- Sync tip clamping circuit
- Sample-and-hold circuit
- Delay time switching circuit

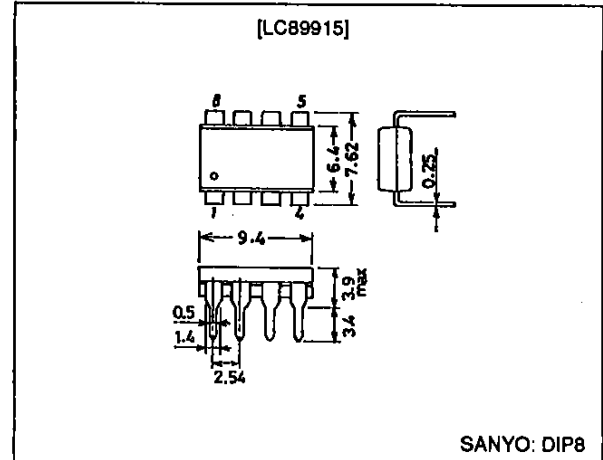
Features

- Single 5 V power supply
- Operates on a low-amplitude clock input.
- Built-in peripheral circuits allow applications to be constructed with a minimum number of external components.
- Positive-phase signal input/positive-phase signal output
- Control pin switchable to provide a PAL 1 H delayed signal.

Package Dimensions

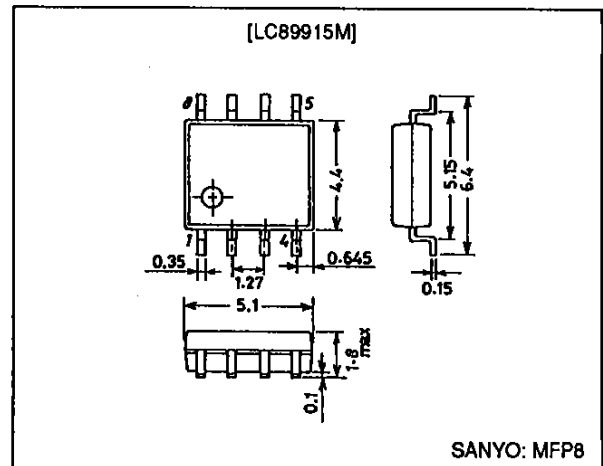
unit: mm

3001B-DIP8



unit: mm

3032B-MFP8



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{DD\ max}$		-0.3 to +6.0	V
Allowable power dissipation	$P_d\ max$	LC89915	400	mW
		LC89915M	140	mW
Operating temperature	T_{opr}		-10 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

SANYO Electric Co., Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

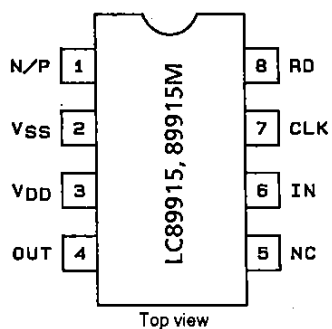
72595TH (OT) No. 5115-1/4

Allowable Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	min	typ	max	Unit
Supply voltage	V _{DD}		4.75	5.00	5.25	V
Clock input amplitude	V _{CLK}	Sine wave	100	300	1000	mVp-p
Clock frequency	F _{CLK}		—	7.1590909	—	MHz
Signal input amplitude	V _{IN}	*	—	500	—	mVp-p

Note: * Connect the input signal with a low impedance to assure correct sync tip clamping.

Pin Assignment

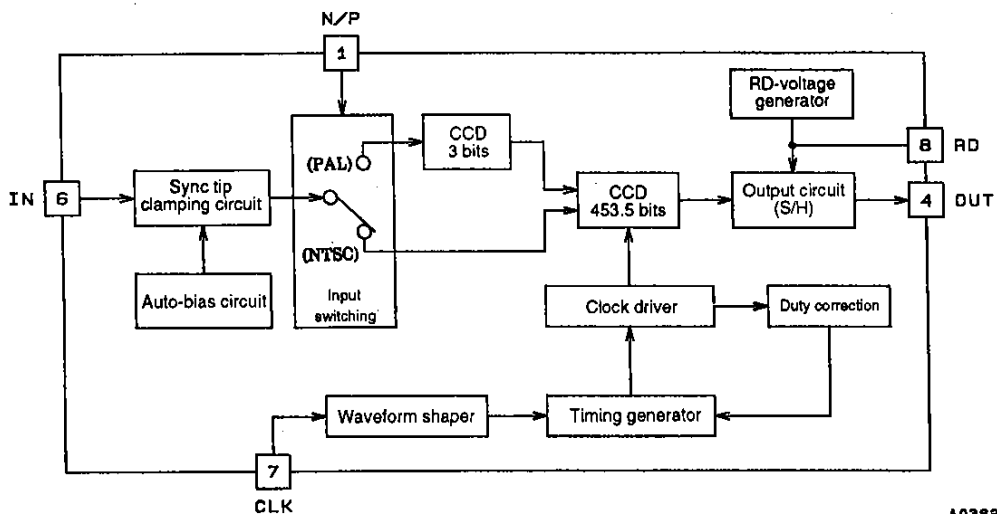


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Pin Functions

Pin No.	Symbol	Function
1	N/P	Delay time switching
2	V _{SS}	GND
3	V _{DD}	Power supply
4	OUT	Delayed signal output
5	NC	
6	IN	Signal input
7	CLK	Clock input
8	RD	RD-voltage generator output

Block Diagram



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Functional Description

The delay time can be switched with the N/P control pin (pin 1).

0 V — NTSC mode

The CCD has a length of 453.5 bits and the delay time corresponds to 1 H (63.5 μs) in the NTSC format.

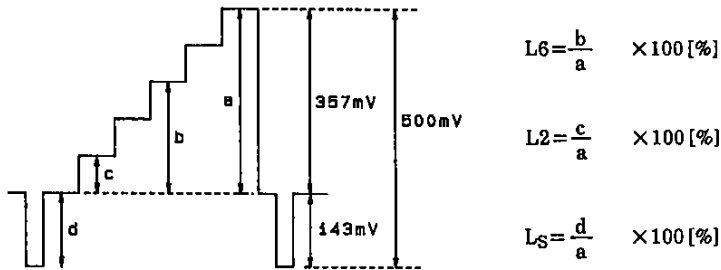
5 V — PAL mode

The CCD has a length of 456.5 bits and the delay time corresponds to 1 H (64.0 μs) in the PAL format.

LC89915, 89915M

Electrical Characteristics at Ta = 25°C, VDD = 5.0 V, CLK = 7.1590909 MHz; 300 mVp-p; sine wave

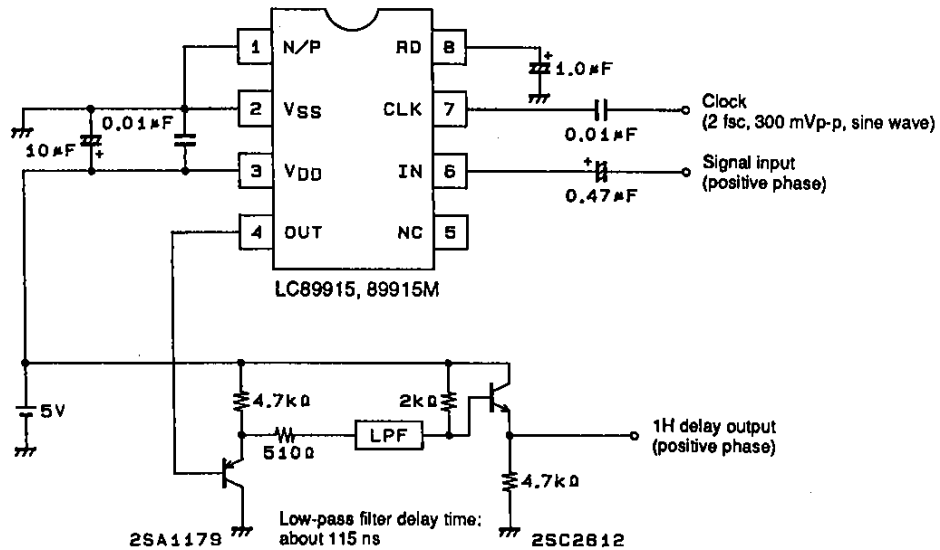
Parameter	Symbol	Conditions	min	typ	max	Unit
Current drain	I _{DD}	No signal input	4	8	12	mA
Voltage gain	G _V	With a 200 kHz 0.5 Vp-p input	2.5	4.5	6.5	dB
Frequency characteristics	G _f	2.0 MHz, 0.2 Vp-p/200 kHz, 0.2 Vp-p	-3.0	-1.5		dB
Linearity	L ₆	*	56	60	64	%
	L ₂	*	18	20	22	%
	L _S	*	37	40	43	%
Clock leakage	I _{CLK}	No signal input, the 2 fsc component		10	30	mVrms
Noise	N _O	No signal input, 4.2 MHz bandwidth		1.0	2.0	mVrms
Output impedance	Z _O		200	300	400	Ω
Delay time	T _{D-N}			63.44		μs
	T _{D-P}			63.88		μs



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Note: * Input signal/output signal

Sample Application Circuit



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