

<b>SANYO</b>	No. 4543	<b>LC89925, 89925M</b>
		<b>PAL 1H Delay Line</b>

### Overview

The LC89925 and LC89925M are delay lines and produce a 1H delayed signal for the PAL format, with an external low-pass filter.

### Functions

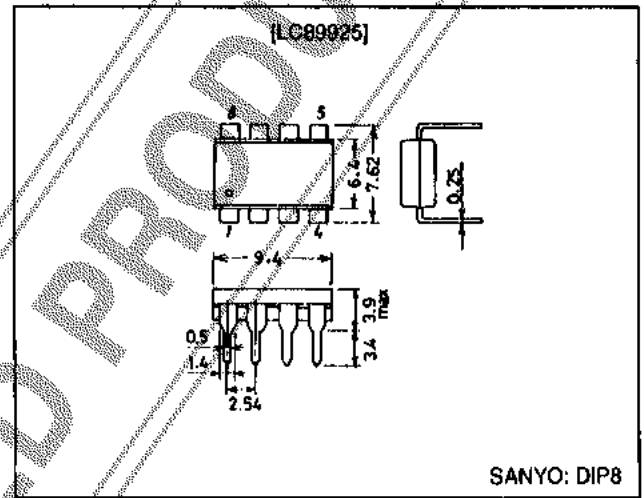
- 566-stage shift register that can be switched to function as a 562-stage shift register
- Auto-bias circuit
- Sync tip clamp circuit
- Sample-and-hold circuit
- Delay time switching circuit

### Features

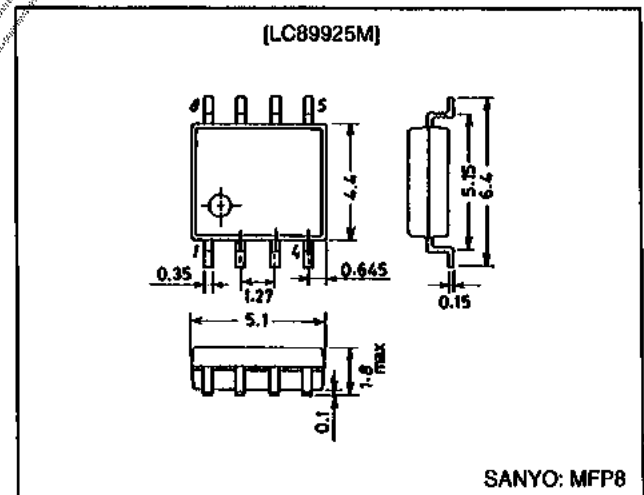
- Single 5 V power supply
- Operates on a low-amplitude clock input.
- Operates with minimal external circuits since peripheral circuits are built in.
- Positive phase signal input, positive phase signal output
- Can be switched (with a control pin input) to produce an NTSC format 1H delayed signal.

### Package Dimensions

unit: mm  
**3001B-DIP8**



unit: mm  
**3032B-MFP8**



### Specifications

**Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Rating	Unit
Maximum supply voltage	V <sub>DD</sub> max		-0.3 to +8.0	V
Allowable power dissipation	Pd max	LC89925	400	mW
		LC89925M	140	mW
Operating temperature	T <sub>opr</sub>		-10 to +60	°C
Storage temperature	T <sub>stg</sub>		-55 to +150	°C

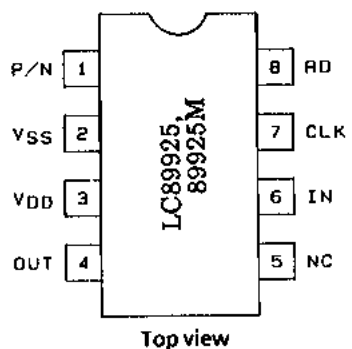
## LC89925, 89925M

### Allowable Operating Ranges at $T_a = 25^\circ\text{C}$

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	$F_{CLK}$			8.8672375		MHz
Signal input amplitude	$V_{IN}$	*		500		mVp-p

Note: \* Since sync tip clamping is normally performed, the input signal must be connected in a low impedance state.

### Pin Assignment

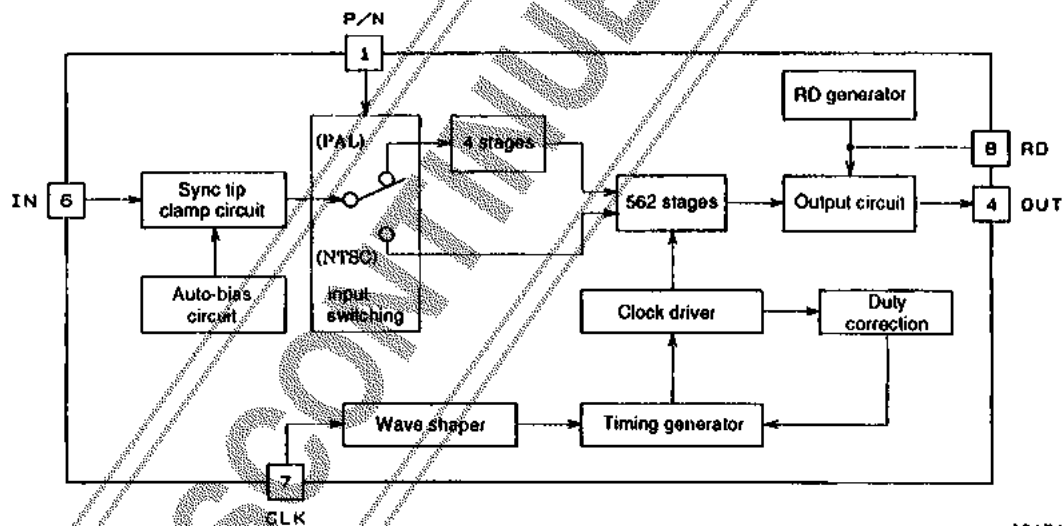


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### Pin Functions

Pin No.	Symbol	Function
1	P/N	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	High voltage generator output for Reset Drain

### Block Diagram



A01718

### Functional Description

The delay time is switched by the state of the P/N control pin (pin 1).

0 V: PAL mode

In this mode, the LC89925 provides a PAL 1H (64.0  $\mu\text{s}$ ) delay using a 566-stage delay line.

5 V: NTSC mode

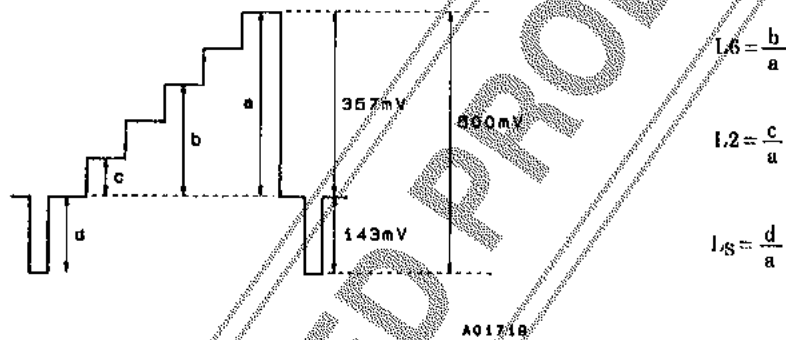
In this mode, the LC89925 provides an NTSC 1H (63.5  $\mu\text{s}$ ) delay using a 562-stage delay line.

LC89925, 89925M

Electrical Characteristics at  $T_a = 25^\circ\text{C}$ ,  $V_{DD} = 5.0\text{ V}$ ,  $\text{CLK} = 8.8672375\text{ MHz}$ ;  $300\text{ mVp-p}$ ; sine wave

Parameter	Symbol	Conditions	min	typ	max	Unit
Supply current	$I_{DD}$	No signal input	5	10	15	mA
Voltage gain	$G_V$	With a 200 kHz 0.5 Vp-p input	2.5	4.5	6.5	dB
Frequency response	$G_f$	3.0 MHz, 0.2 Vp-p/200 kHz, 0.2 Vp-p	-3.0	-2.0		dB
Linearity	$L_1$	*	56	60	64	%
	$L_2$	*	16	20	22	%
	$L_S$	*	37	40	43	%
Clock leakage	$L_{CLK}$	No signal input, the 2 fsc component		16	36	mVrms
Noise level	$N_O$	No signal input, 4.2 MHz bandwidth		0.7	2.0	mVrms
Output impedance	$Z_O$		200	300	400	$\Omega$
Delay time	$T_{D-P}$			63.91		$\mu\text{s}$
	$T_{D-N}$			63.47		$\mu\text{s}$

Note: \* Input signal/output signal



Sample Application Circuit

