

Monolithic Digital IC



NO.3029B

**LB8902M**

**3-Channel Clock Driver**

**Overview**

- The LB8902M is designed to drive a capacitive load at a high speed.
- Suited for horizontal clock drive of CCD image sensor

**Functions and Features**

- 3-channel inverter buffer amplifier
- Fast propagation time (10ns typ. for 100pF load)
- Low-voltage operation available (5V min.)
- Low quiescent current (10µA max.)

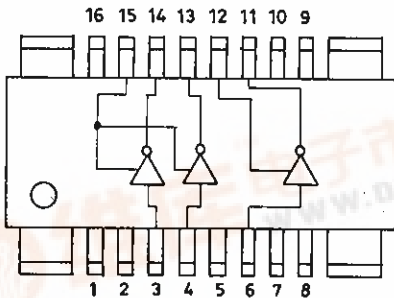
**Absolute Maximum Ratings at Ta = 25°C**

Maximum Supply Voltage	VCC max	-0.3 to +12.0	V
Input Supply Voltage	VIN	-0.3 to +6.0	V
Maximum Output Current	IOUT	150	mA
Allowable Power Dissipation	Pd max	900	mW
Operating Temperature	ToPr	-10 to +70	°C
Storage Temperature	Tstg	-40 to +125	°C

**Allowable Operating Conditions at Ta = 25°C**

Operating Voltage	5 to 11	V
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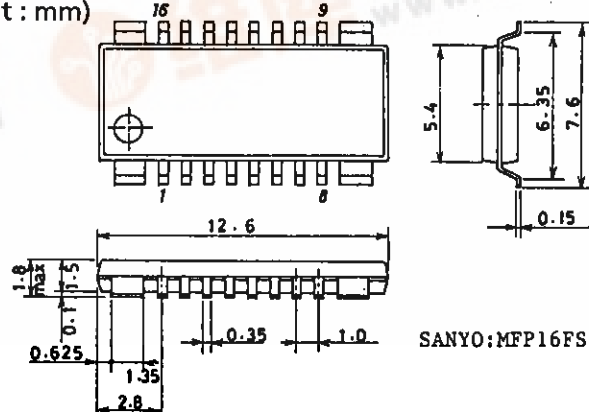
**Pin Assignment**



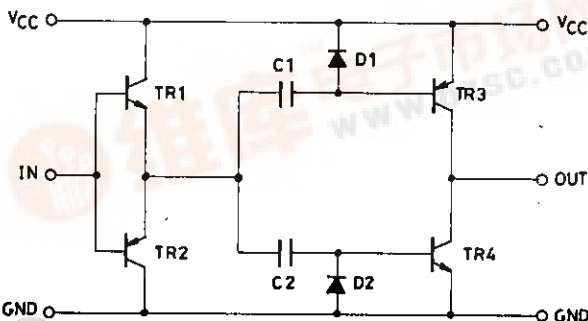
Pin No.	Function	Pin No.	Function
1	Frame GND	9	Frame GND
2	GND	10	N.C.
3	IN 1	11	OUT 3
4	IN 2	12	VCC 2
5	GND	13	OUT 2
6	IN 3	14	OUT 1
7	N.C.	15	VCC 1
8	Frame GND	16	Frame GND

Note) Do not use the N.C. pin.

**Package Dimensions 3097-M16FSIC (unit : mm)**



**Equivalent Circuit Block Diagram**



## LB8902M

### Electrical Characteristics (DC Characteristics) at $T_a = 25^\circ\text{C}, V_{CC1} = V_{CC2} = 11\text{V}$

			min	typ	max	unit
Leakage Current	Across $V_{CC}$ and GND	I Leak 1			10	$\mu\text{A}$
	Across IN and $V_{CC}$	I Leak 2	$V_{IN} = 0\text{V}$		10	$\mu\text{A}$
	Across IN and GND	I Leak 3	$V_{IN} = 6\text{V}$		10	$\mu\text{A}$
	Across OUT and $V_{CC}$	I Leak 4	$V_{OUT} = 0\text{V}$		10	$\mu\text{A}$
	Across OUT and GND	I Leak 5	$V_{OUT} = 11\text{V}$		10	$\mu\text{A}$

### Switching Characteristics at $T_a = 25^\circ\text{C}, V_{CC1} = V_{CC2} = 9\text{V}, V_{in} = 5\text{Vp-p}$ ( $f = 14.3\text{MHz}$ )

			$t_r, t_f \leq 6\text{ns}$ , load conditions: $R_L = 25\Omega, C_L = 100\text{pF}$	min	typ	max	unit
Propagation Time	$t_{PLH}$ 1-3	See Fig.A.			10	15	ns
	$t_{PHL}$ 1-3	See Fig.A.			8	15	ns
Transient Time	$t_r$ 1-3	See Fig.A.			8	15	ns
	$t_f$ 1-3	See Fig.A.			8	15	ns
Output Amplitude	$V_{OP-p}$	See Fig.A.		$V_{CC} - 0.8$		$V_{CC}$	Vp-p
Current Dissipation	$I_{CC1}$	See Fig.A.		32			mA
	$I_{CC2}$	See Fig.A.		32			mA
	$I_{CC3}$	See Fig.A.		32			mA

### Test Circuit

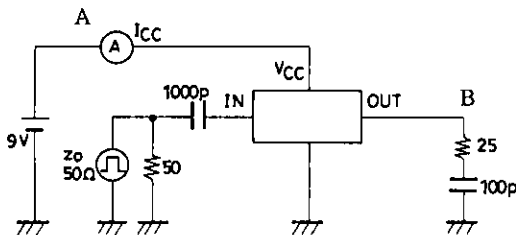
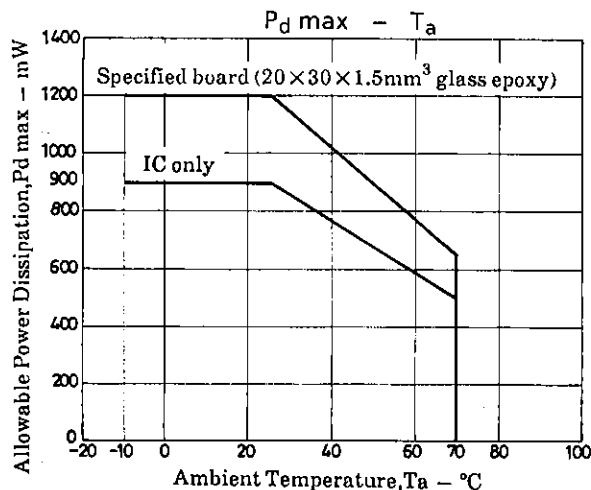
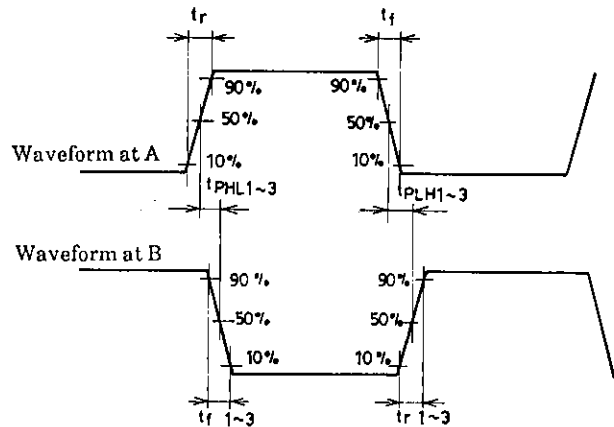


Fig.A Propagation Time, Transient Time



### Proper Cares to be Taken in Designing a Printed Circuit Board

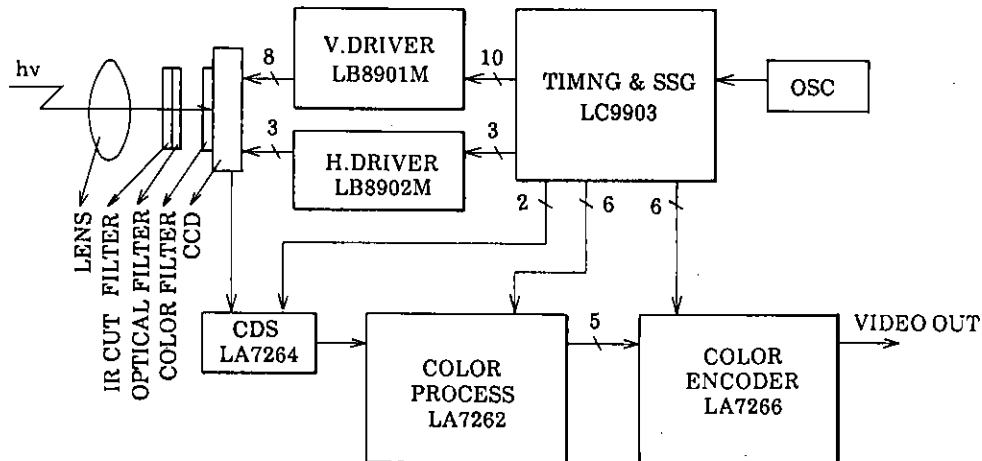
The LB8902M is designed to drive a load at a very high speed. When designing a printed circuit board, keep in mind the following points.

- 1) Make the pattern of the power supply, GND lines as large as possible.
- 2) Place the bypass capacitor as close to the IC as possible (less than 1cm).
- 3) Make the wiring of the input signal line as short as possible to minimize the effect of stray capacitance.
- 4) Make the wiring of the output signal line also as short as possible, because the inductance of a long signal line may affect the output waveforms adversely.

Take such necessary measures that a small resistance is inserted in series with a load.

## LB8902M

### Sample Application Circuit : Camera Block Diagram



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