Ordering number:ENN3029B

Monolithic Digital IC

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.

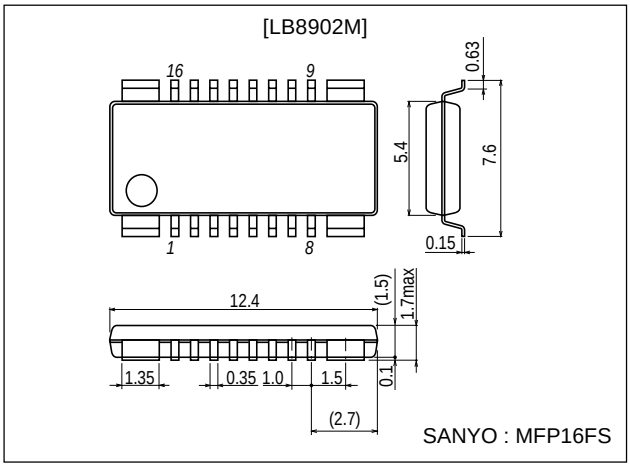
Functions and Features

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

Package Dimensions

unit:mm

3097A-MFP16FS



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		–0.3 to +12.0	V
Input supply voltage	V_{IN}		–0.3 to +6.0	V
Maximum output current	I_{OUT}		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 Ranges at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Operating voltage			5 to 11	V

Electrical Characteristics (DC Characteristics) at Ta = 25˚C, $V_{CC}1=V_{CC}2=11V$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Leakage Current]						
Across V_{CC} and GND	I Leak1				10	μA
Across IN and V_{CC}	I Leak2	V_{IN}=0V			10	μA
Across IN and GND	I Leak3	V_{IN}=6V			10	μA
Across OUT and V_{CC}	I Leak4	V_{OUT}=0V			10	μA
Across OUT and GND	I Leak5	V_{OUT}=11V			10	μA

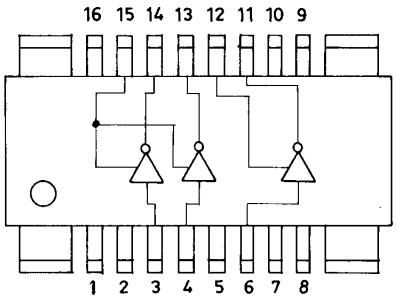
SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Switching Characteristics at Ta = 25˚C, $V_{CC}1=V_{CC}2$=9V, Vin=5Vp-p (f=14.3MHz), t_r, t_f≤6ns, load conditions : R_L=25Ω, C_L=100pF

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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_r1-3	See Fig.A.		8	15	ns
	t_f1-3	See Fig.A.		8	15	ns
Output amplitude	V_{OP-P}	See Fig.A.	V_{CC}–0.8		V_{CC}	Vp-p
Current drain	I_{CC}1	See Fig.A.		32		mA
	I_{CC}2	See Fig.A.		32		mA
	I_{CC}3	See Fig.A.		32		mA

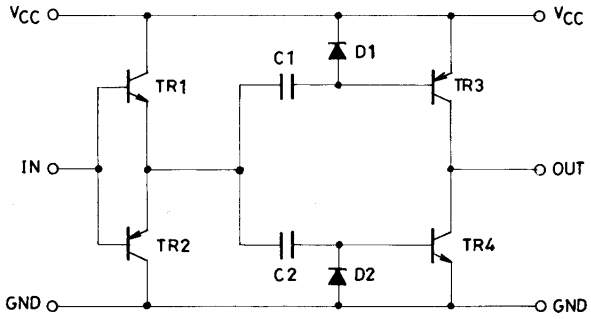
Pin Assignment



Pin No.	Function	Pin No.	Function
1	Frame GND	9	Frame GND
2	GND	10	N.C.
3	IN1	11	OUT3
4	IN2	12	V_{CC}2
5	GND	13	OUT2
6	IN3	14	OUT1
7	N.C.	15	V_{CC}1
8	Frame GND	16	Frame GND

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

Equivalent Circuit Block Diagram



Unit (resistance : Ω, capacitance : F)

Test Circuit

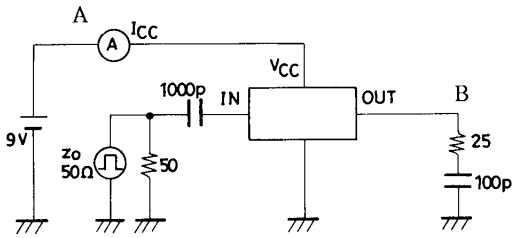
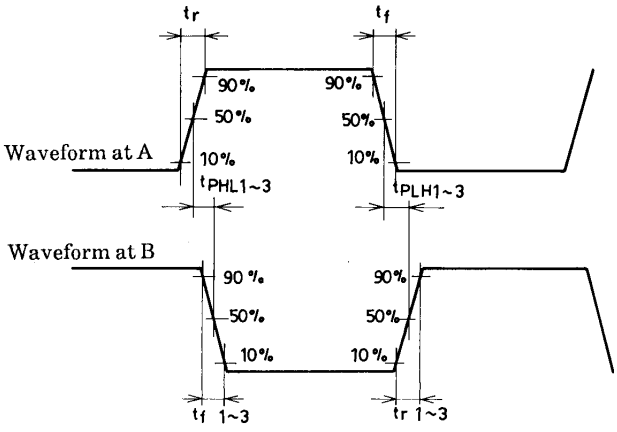
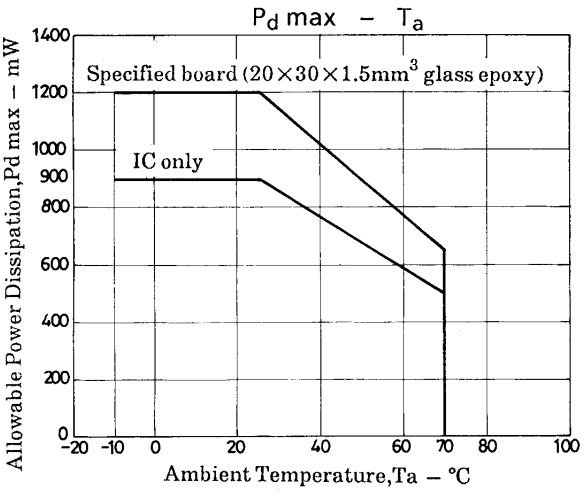


Fig. A Propagation Time, Transient Time





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.

Sample Application Circuit : Camera Block Diagram