Pulse driver for LCD drive
BU9764FV

The BU9764FV is a level converter IC designed for LCD drive, which receives 5V signals and converts them to 16V signals. The compact SSOP-B16 package contains six internal level converters.

●Applications
Small- to medium-sized TFT liquid crystal panels for movie projectors, LCD projectors, and other similar devices

●Features
1) Six internal level converter channels.
2) TTL input.
3) Shifts levels to convert 5V signals into 16V signals.
4) Compact SSOP-B16 package.

●Absolute maximum ratings (Ta = 25°C)

| Parameter	Symbol	Limits	Unit	Pin
Power supply voltage (1)	V_{DD1}	$- 0.5 \sim V_{SS} + 7.0$	V	V_{DD1}
Power supply voltage (2)*1	V_{DD2}	$- 0.5 \sim V_{SS} + 20.0$	V	V_{DD2}
Input voltage	V_{IN}	$- 0.5 \sim V_{DD1} + 0.5$	V	$V_{IN1} \sim V_{IN6}$
Output voltage	V_{OUT}	$- 0.5 \sim V_{DD2} + 0.5$	V	$V_{OUT1} \sim V_{OUT6}$
Output current	I_{OUT}	± 10	mA	$V_{OUT1} \sim V_{OUT6}$
Operating temperature range	Topr	$- 25 \sim + 85$	°C	—
Storage temperature range	Tstg	$- 65 \sim + 150$	°C	—
Power dissipation*2	Pd	400	mW	—

*1 $V_{DD2} > V_{DD1}$
*2 Power dissipation is reduced by – 4.0mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Limits	Unit	Pin
Power supply voltage (1)	V_{DD1}	5.0 ± 0.5	V	V_{DD1}
Power supply voltage (2)	V_{DD2}	16 ± 0.5	V	V_{DD2}
Ambient temperature	Ta	$0 \sim 70$	°C	—

●Block diagram
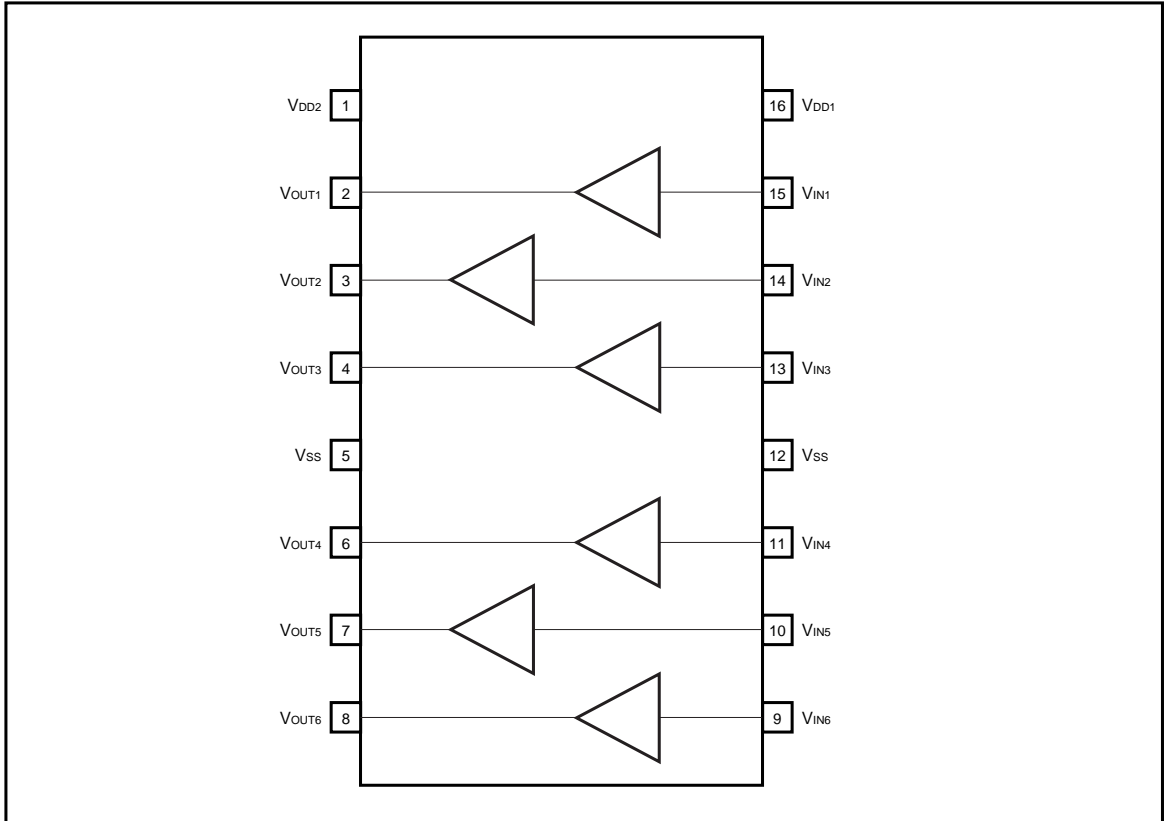
●Pin descriptions

Pin No.	Pin name	I / O	Function	Processing when not used
16	V_{DD1}	—	Power supply pin for input buffer	—
1	V_{DD2}	—	Power supply pin for output buffer	—
9, 10, 11 13, 14, 15	$V_{IN1} \sim V_{IN6}$	I	Pulse input pin	short V_{SS}
2, 3, 4 6, 7, 8	$V_{OUT1} \sim V_{OUT6}$	O	Pulse output pin	Open
5, 12	V_{SS}	—	Ground pin*3	—

*3 When using the IC, ground both pins 5 and 12.
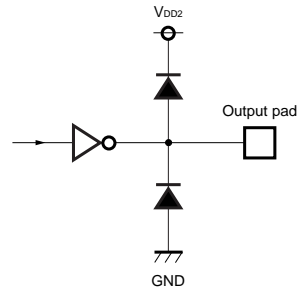
●Input / output circuits

(1) Input circuit
    Pin nos. 9, 10, 11, 13, 14, 15
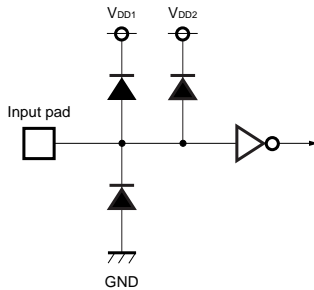
(2) Output circuit
    Pin nos. 2, 3, 4, 6, 7, 8

●Electrical characteristics (unless otherwise noted, Ta = 25°C, V_{DD1} = 5V, V_{DD2} = 16V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input high level voltage	V_{IH}	2.0	—	—	V	—
Input low level voltage	V_{IL}	—	—	0.8	V	—
Input current	I_{IN}	− 1.0	—	1.0	μA	—
Output high level voltage	V_{OH}	15.9	16.0	—	V	I_{OH} = − 20μA
Output low level voltage	V_{OL}	—	0.0	0.1	V	I_{OH} = 20μA
Output high level current	I_{OH}	—	—	− 1.0	mA	V_{OH} = 15.5V
Output low level current	I_{OL}	1.0	—	—	mA	V_{OL} = 0.5V
Standby current	I_{DD}	—	—	20	μA	V_{IN} = 0V, or V_{DD1}

●AC characteristics (unless otherwise noted, Ta = 25°C, V_{DD1} = 5V, V_{DD2} = 16V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Output transition time[*4]	t_{TLH}	—	20	40	ns	Load: 5pF
	t_{THL}	—	20	40	ns	
	t_{TLH}	—	30	60	ns	Load: 35pF
	t_{THL}	—	30	60	ns	
Propagation delay time	t_{PLH}	—	20	40	ns	Load: 5pF
	t_{PHL}	—	20	40	ns	
	t_{PLH}	—	30	60	ns	Load: 35pF
	t_{PHL}	—	30	60	ns	
Propagation delay time differential between channels[*4]	ΔT	—	—	10	ns	Load: 5pF
	ΔT	—	—	10	ns	Load: 35pF

*4 NOT 100% TESTED

●External dimensions (Units: mm)

5.0 ± 0.2

6.4 ± 0.3

4.4 ± 0.2

16   9

1   8

1.15 ± 0.1

0.1

0.65

0.22 ± 0.1

0.3Min.

0.15 ± 0.1

0.1

SSOP-B16

ROHM