

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 ~ V _{SS} + 7.0	V	V _{DD1}
Power supply voltage (2)*1	V _{DD2}	− 0.5 ~ V _{SS} + 20.0	V	V _{DD2}
Input voltage	V _{IN}	− 0.5 ~ V _{DD1} + 0.5	V	V _{IN1} ~ V _{IN6}
Output voltage	V _{OUT}	− 0.5 ~ V _{DD2} + 0.5	V	V _{OUT1} ~ V _{OUT6}
Output current	I _{OUT}	± 10	mA	V _{OUT1} ~ V _{OUT6}
Operating temperature range	T _{opr}	− 25 ~ + 85	°C	—
Storage temperature range	T _{stg}	− 65 ~ + 150	°C	—
Power dissipation*2	P _d	400	mW	—

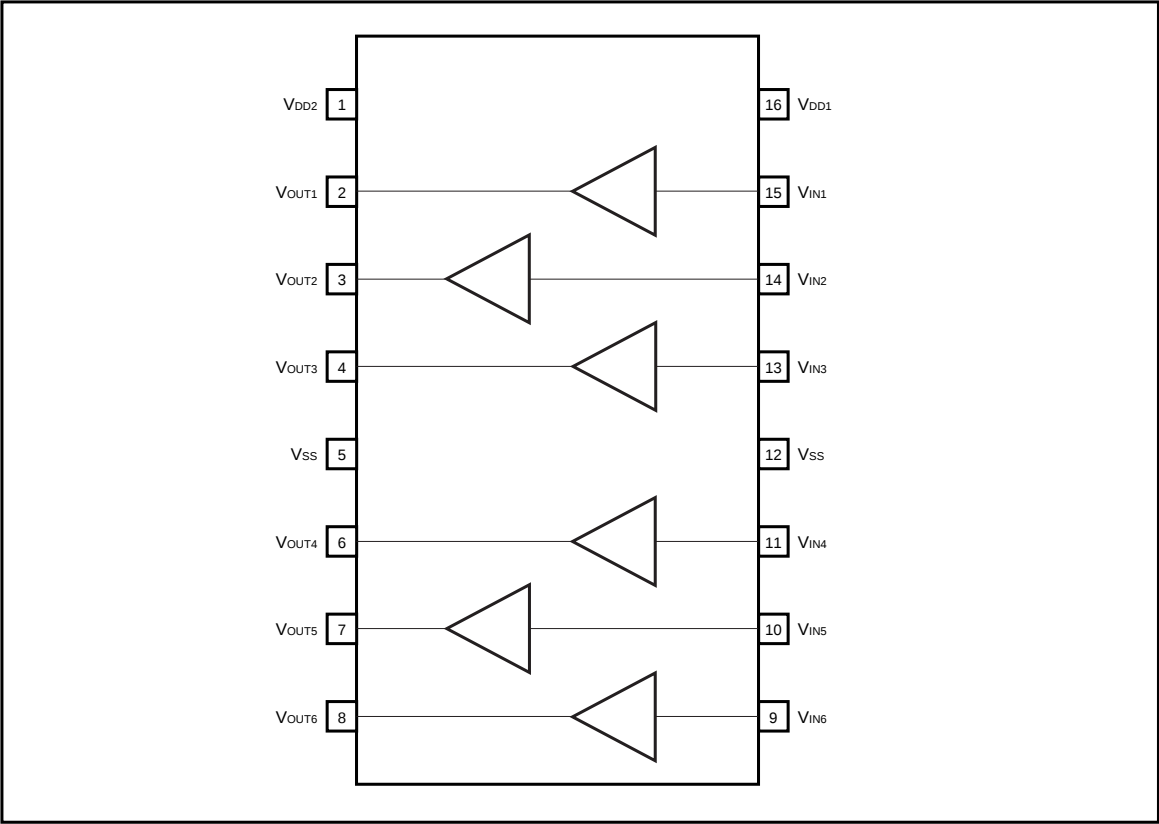
*1 V_{DD2} > V_{DD1}

*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	T _a	0 ~ 70	°C	—

●Block diagram



●Pin descriptions

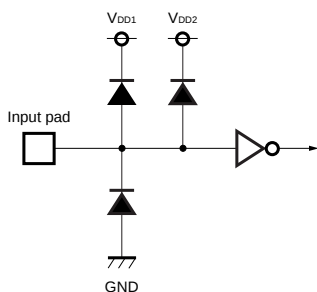
Pin No.	Pin name	I / O	Function	Processing when not used
16	VDD1	—	Power supply pin for input buffer	—
1	VDD2	—	Power supply pin for output buffer	—
9, 10, 11 13, 14, 15	VIN1 ~ VIN6	I	Pulse input pin	short VSS
2, 3, 4 6, 7, 8	VOUT1 ~ VOUT6	O	Pulse output pin	Open
5, 12	VSS	—	Ground pin*3	—

*3 When using the IC, ground both pins 5 and 12.

● Input / output circuits

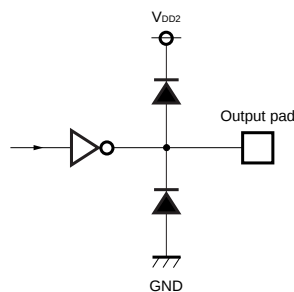
(1) Input circuit

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)

