

Product Specification

XBLW ULN2001B

Three way Darlington transistor array circuit

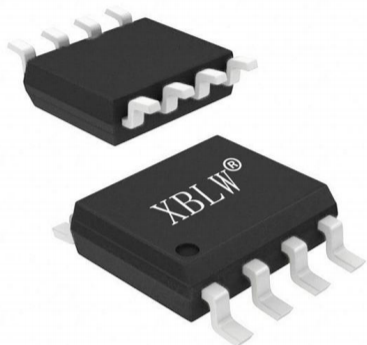
WEB | www.xinboleic.com



Descriptions

ULN2001B is a high-voltage, high current Darlington transistor Array. Each device consists of three NPN Darlington pairs, These Darlington pairs have high voltage outputs and are equipped with switches for use Common cathode clamp diode for inductive loads.

It adopts SOP-8 packaging form.



SOP-8

Feature

- Withstanding High Voltage
- Internal Overvoltage Protection Circuit(prevent overvoltage damage introduced by inductive load)
- The Peak Influx Current reaches 500mA, which can drive the incandescent lamp.
- The input impedance is 2.7k Ω , which can be used in conjunction with TTL or CMOS logic circuits that use 5V voltage.

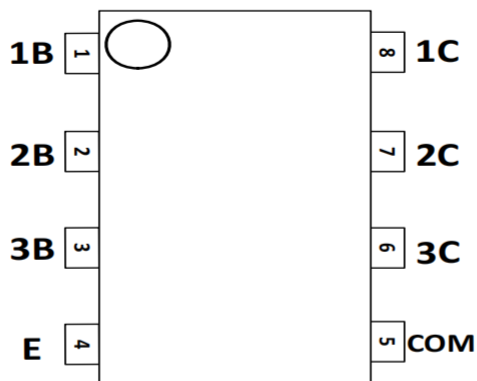
Applications

- Relay drive
- Indicator light drive
- Display screen driver

Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW ULN2001BDTR	SOP-8	ULN2001B	Tape	2500Pcs/Reel

Pins Configuration



Pin Descriptions

Pin Number	Pin Name	Function
1	1B	Input pair1
2	2B	Input pair2
3	3B	Input pair3
4	E	Common Emitter (ground)
5	COM	Common Clamp Diodes
6	3C	Output pair3
7	2C	Output pair2
8	1C	Output pair1

Extreme Ratings

($T_{amb} = 25^{\circ}\text{C}$, unless otherwise noted)

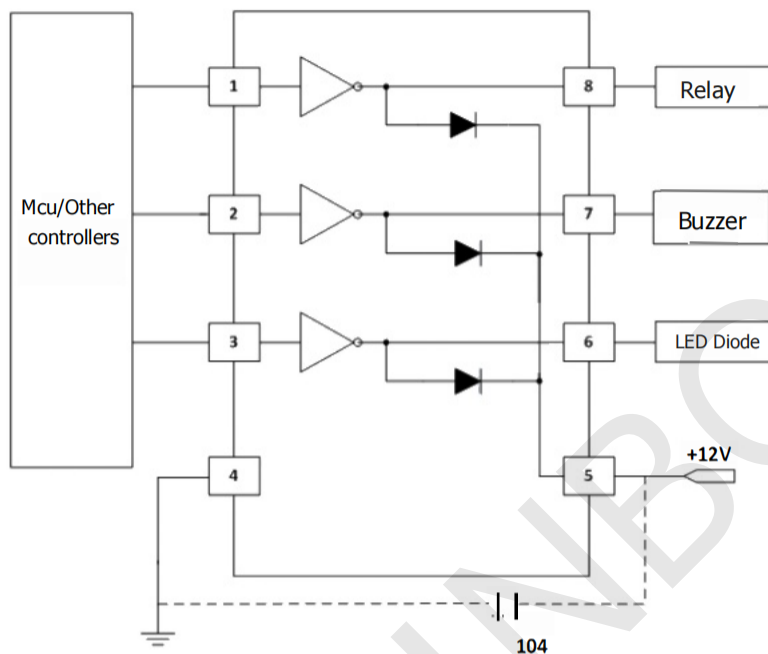
Parameter	Symbol	Value		Unit
		Min.	Max.	
Output Voltage	V_o	-	50	V
Input Voltage	V_i		30	V
Continuous Collector Current	I_c	-	500	mA
Continuous Base Current	I_B		25	mA
Junction Temperature	T_j		125	$^{\circ}\text{C}$
Operating Ambient Temperature Range	T_{amb}	-40	85	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55	150	$^{\circ}\text{C}$

Electrical Characteristics

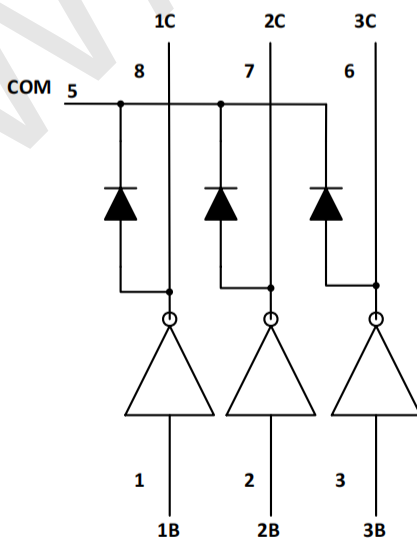
($T_{amb} = 25^{\circ}\text{C}$, unless otherwise noted)

Characteristics	Test Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Output Leakage Current	$V_o = 50\text{V}$, $T_{amb} = +85^{\circ}\text{C}$	I_{CEX}			100	μA
	$V_o = 50\text{V}$, $T_{amb} = +25^{\circ}\text{C}$				50	μA
Collector-Emitter Voltage	$I_c = 350\text{mA}$, $I_B = 500\mu\text{A}$	V_{CES}		1.1	1.7	V
	$I_c = 200\text{mA}$, $I_B = 350\mu\text{A}$			0.95	1.3	V
	$I_c = 100\text{mA}$, $I_B = 250\mu\text{A}$			0.85	1.1	V
Input Current (On)	$V_i = 3.85\text{V}$	$I_i (\text{ON})$		0.93	1.35	mA
Input Voltage	$V_{CE} = 2.0\text{V}$, $I_c = 200\text{mA}$	$V_i (\text{ON})$			2.4	V
	$V_{CE} = 2.0\text{V}$, $I_c = 250\text{mA}$				2.7	
	$V_{CE} = 2.0\text{V}$, $I_c = 300\text{mA}$				3.0	
Input Current (Off)	$V_{CE} = 2.0\text{V}$, $I_c = 300\text{mA}$	$I_i (\text{OFF})$	50	100		μA
Input Capacitance		C_i		15	30	pF
Turn-On Delay Time	50% E_i to 50% E_o	t_{ON}		0.25	1	μs
Turn-Off Delay Time	50% E_i to 50% E_o	t_{OFF}		0.25	1	μs
Clamp Diode Leakage Current	$V_R = 50\text{V}$	$T_{amb} = +25^{\circ}\text{C}$			50	μA
		$T_{amb} = +85^{\circ}\text{C}$			100	
Clamp Diode Forward Voltage	$I_F = 350\text{mA}$	V_F		1.5	2	V

Typical Application Diagram



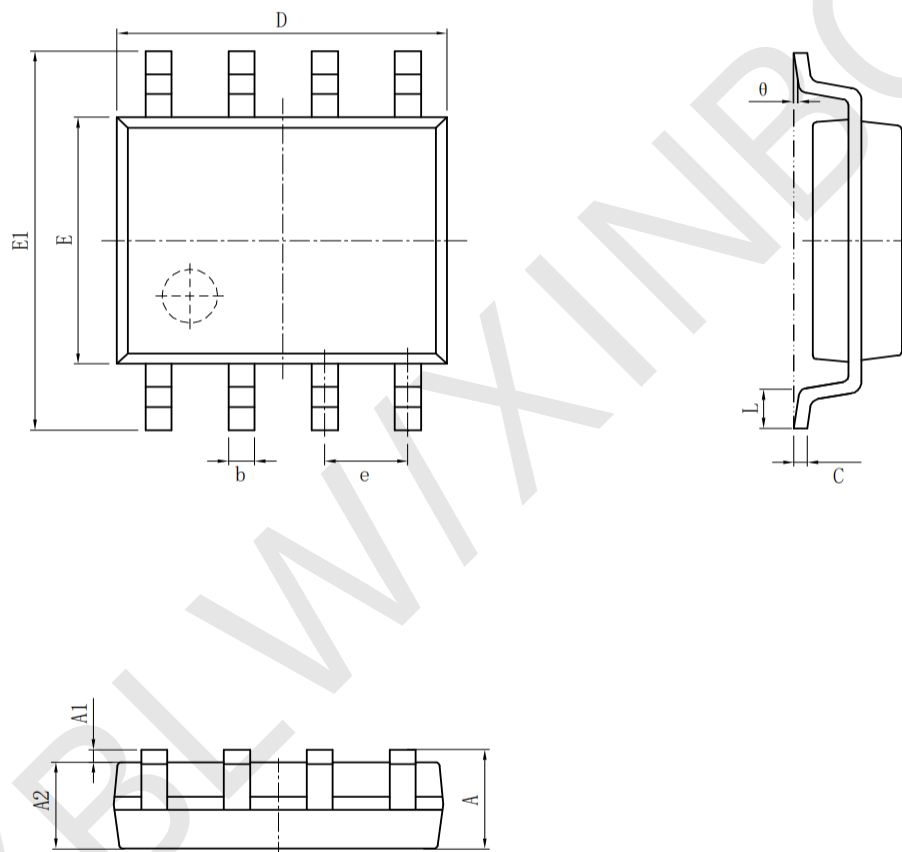
Logic Diagram



Package Information

- SOP-8

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Inches	
	Min (mm)	Max (mm)		Min (in)	Max (in)
A	1.350	1.750	A	0.053	0.069
A1	0.100	0.250	A1	0.004	0.010
A2	1.350	1.550	A2	0.053	0.061
b	0.330	0.510	b	0.013	0.020
c	0.170	0.250	c	0.006	0.010
D	4.700	5.100	D	0.185	0.200
E	3.800	4.000	E	0.150	0.157
E1	5.800	6.200	E1	0.228	0.224
e	1.270 (BSC)		e	0.050 (BSC)	
L	0.400	1.270	L	0.016	0.050
θ	0°	8°	θ	0°	8°



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