

NO.1045C

**LB1293** 

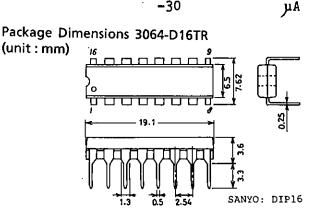
## 6-Channel Driver Array

The LB1293 has been designed for interfacing between low level digital devices and fluorescent display tubes. Its 6-channel independent Darlington output stage is used for digit or segment drivers. Also, with pull-down equivalent resistors, no externally connected resistors are required for ghost prevention. When the input voltage is at a high level, the output gets activated.

## **Features**

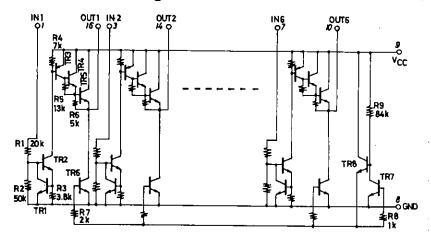
- . 6-channel independent Darlington driver
- . Capable of driving digits or segments
- . On-chip sink current circuit for pull-down
- . 55V/30mA rating

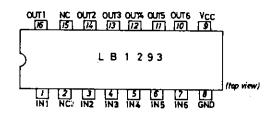
Maximum Supply Voltage         VCC max         -0.3 to +55.0         V           Output Supply Voltage         VOUT         -0.3 to VCC         V           Input Supply Voltage         VIN         -0.3 to +20.0         V           Maximum Output Current         IOUT         30 mA           Allowable Power Dissipation         Pdmax         960 W           Operating Temperature         Topr         -20 to +75 °C           Storage Temperature         Tstg         -40 to +150 °C           Allowable Operating Conditions at Ta=25°C         unit           Supply Voltage         VCC         4.75 to 55.0         V           Input "H" Level Voltage         VIH         IOUT=-30mA         4.0 to 20.0         V           Input "L" Level Voltage         VIH         IOUT=-30mA         4.0 to 20.0         V           Input "L" Level Voltage         VIL         IOUT=-30mA         4.0 to 20.0         V           Current Dissipation         ICCH         All inputs, VIN=10V         5.0 8.0         mA           Output Voltage         VOH         VIN=10V, IOUT=-30mA         VCC-2.0 VCC-1.6         V           VOH         VIN=0.3V, IOUT=0mA         VCC-2.0 VCC-1.6         V	Absolute Maximum Ratings at Ta=25°C unit						
Output Supply Voltage  Input Supply Voltage  VIN  Maximum Output Current  Allowable Power Dissipation Operating Temperature  Topr  Storage Temperature  Topr  Total  Total  Total  Allowable Operating Conditions  Total  Supply Voltage  Input "H" Level Voltage  Input "L" Level Voltage  VIL  VIL  VIL  VIL  VIL  VIL  VIL  VI	Maximum Supply Voltage	Vccmax					
Maximum Output Current Allowable Power Dissipation Operating Temperature Storage Temperature  Topr Topr Topr Topr Topr Topr Top -20 to +75 °C  Storage Temperature  Topr Topr Topr Topr Topr Topr Topr Top	Output Supply Voltage	VOLUE				-	
Allowable Power Dissipation Operating Temperature Storage Temperature  Allowable Operating Conditions at Ta=25°C  Supply Voltage Input "H" Level Voltage Input "L" Level Voltage VIL  Current Dissipation  ICCH All inputs open  30 mA 960 W 700  -20 to +75 °C  -40 to +150 °C  unit  4.75 to 55.0 V  4.75 to 55.0 V  4.75 to 55.0 V  4.0 to 20.0 V  -0.3 to +0.3 V  min typ max unit 5.0 8.0 mA  5.0 8.0 mA  1 ccr All inputs open  0.3 1.0 1.6 mA	Input Supply Voltage	VTN		-0.3 to +20.0 V			
Operating Temperature Storage Temperature  Topr Tot  Tot  Tot  Tot  Tot  Tot  Tot  Tot	Maximum Output Current	I				_	
Operating Temperature Storage Temperature Topr Tstg  -20 to +75 °C  -40 to +150 °C  wnit  Supply Voltage Input "H" Level Voltage Input "L" Level Voltage VIL  Current Dissipation  ICCH All inputs open  -20 to +75 °C  -40 to +150 °C  unit  4.75 to 55.0 V  4.75 to 55.0 V  4.0 to 20.0 V  -0.3 to +0.3 V  min typ max unit  5.0 8.0 mA	Allowable Power Dissipa	tion Pdmax		=			
Storage Temperature  Tstg  -40 to +150 °C   Allowable Operating Conditions at Ta=25°C  Supply Voltage  Input "H" Level Voltage  Input "L" Level Voltage  VIH  IOUT=-30mA  IOUT=-30mA  VOL  VIL  IOUT=-30mA  VOL  VIL  VIL  IOUT=-30mA  VOL  VIL  VIL  VIL  VIL  VIL  VIL  VIL	Operating Temperature	Topr					
Allowable Operating Conditions at $Ta=25^{\circ}C$ unit Supply Voltage $V_{CC}$ 4.75 to 55.0 V Input "H" Level Voltage $V_{IH}$ $I_{OUT}=-30\text{mA}$ 4.0 to 20.0 V Input "L" Level Voltage $V_{IL}$ $I_{OUT}=-30\text{pA}$ 4.0 to 20.0 V $-0.3$ to $+0.3$ V Electrical Characteristics at $Ta=25^{\circ}C$ , $V_{CC}=55V$ min typ max unit Current Dissipation $I_{CCH}$ All inputs, $V_{IN}=10V$ 5.0 8.0 mA $I_{CCI}$ All inputs open 0.3 1.0 1.6 mA	Storage Temperature						
Supply Voltage $V_{CC}$ 4.75 to 55.0 V Input "H" Level Voltage $V_{IH}$ $I_{OUT} = 30 \text{mA}$ 4.0 to 20.0 V Input "L" Level Voltage $V_{IL}$ $I_{OUT} = 30 \text{pA}$ $-0.3$ to $+0.3$ V Electrical Characteristics at $Ta=25^{\circ}C$ , $V_{CC} = 55V$ min typ max unit Current Dissipation $I_{CCH}$ All inputs, $V_{IN} = 10V$ 5.0 8.0 mA $I_{CCH}$ All inputs open 0.3 1.0 1.6 mA			_				
Input "H" Level Voltage VIH IOUT=-30mA 4.0 to 20.0 V Input "L" Level Voltage VIL IOUT=-30mA -0.3 to +0.3 V  Electrical Characteristics at Ta=25°C, VCC=55V min typ max unit Current Dissipation ICCH All inputs, VIN=10V 5.0 8.0 mA ICCH All inputs open 0.3 1.0 1.6 mA				unit			
Input "H" Level Voltage VIH IOUT=-30mA 4.0 to 20.0 V Input "L" Level Voltage VIL IOUT=-30mA -0.3 to +0.3 V  Electrical Characteristics at Ta=25°C, VCC=55V min typ max unit Current Dissipation ICCH All inputs, VIN=10V 5.0 8.0 mA ICCI All inputs open 0.3 1.0 1.6 mA		V <sub>CC</sub>		4.75 to 55.0 V			
Electrical Characteristics at Ta=25°C, V <sub>CC</sub> =55V min typ max unit Current Dissipation I <sub>CCH</sub> All inputs, V <sub>IN</sub> =10V 5.0 8.0 mA I <sub>CCI</sub> All inputs open 0.3 1.0 1.6 mA		$v_{TH}$	IOUT=-30mA	4.0 to 20	.0	V	
Current Dissipation I <sub>CCH</sub> All inputs, V <sub>IN</sub> =10V 5.0 8.0 mA I <sub>CCI</sub> All inputs open 0.3 1.0 1.6 mA	Input "L" Level Voltage	$v_{IL}^{-1}$	Au <sub>00</sub> E-Z <sub>TUO</sub> I	-0.3 to $+0$	•3	V	
Current Dissipation I <sub>CCH</sub> All inputs, V <sub>IN</sub> =10V 5.0 8.0 mA I <sub>CCI</sub> All inputs open 0.3 1.0 1.6 mA	Electrical Characteristics at Ta=25°C.Vac=55V min					may	unit
Icci All inputs open 0.3 1.0 1.6 mA	Current Dissipation		nputs.V=10V		- 9 2		
Output Voltage VOH VIN=10V, IOUT=-30mA VCC-2.0 VCC-1.6 V VIN=0.3V, IOUT=0mA 200 mA	-	ICCT All i	nputs open		-		
$v_{OL}^{IN} = 0.3v, I_{OUT} = 0mA$ 200 mA	Output Voltage	VOU VINE 1	0V.Iovm=-30mA	Vaa=2.0			
OL IN - / (/II)		VOI VIN=0	3V. Iour=OmA	-00 -00	· CC ·		
Output Leakage Current IOL VIN=0.3V, VOUT=0.5V -30 µA	Output Leakage Current	$I_{OI}^{OL}$ $V_{IN}^{IN}=0$	.3V, V <sub>OUT</sub> =0.5V	-30			
Pull-down Current IOPL VOUT=VCC 0.2 0.4 1.0 mA	Pull-down Current	IODI VOITE	VCC	0.2		1.0	
Input Current IN(1) VIN=20V 0.6 1.0 1.4 mA	Input Current	I <sub>TN(1)</sub> V <sub>TN</sub> =2	20 <b>V</b> ~				
$I_{IN(2)}^{IN} V_{IN}^{IN} = 10V$ 0.3 0.5 0.7 mA		I <sub>TN(2)</sub> V <sub>TN</sub> =1	OV				
IINL VIN=OV -30 µA		IINI. VIN=0	V	_	_	•	

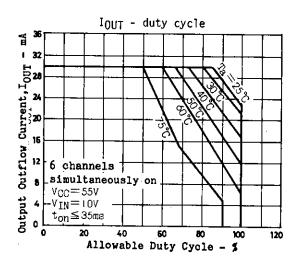


## Equivalent Circuit and Pin Assignment

Unit (resistance:  $\Omega$ )







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