

**SANYO**

NO.1188D

**LB1231 Series****High-Voltage, Large Current  
Darlington Transistor Array**

The circuit configuration of this IC is of 7-channel Darlington transistor array consisting of NPN transistors. It is especially suited for use in hammer drivers and lamp, relay drivers. It contains spark killer diodes against L load.

Features High-voltage ( $V_{CE0} \geq 50V$ ), large-current ( $I_{Cmax} = 500mA$ ) drive

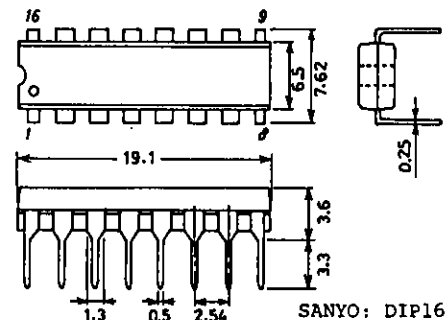
- LB1231 . Drivable by TTL, MOS output
- LB1232 . Contains base current limiting resistors, Zener diodes for level shift.
  - . Direct drivable by 24V P MOS.
- LB1233 . Contains base current limiting resistors.
  - . Direct drivable by TTL, C MOS output.
- LB1234 . Contains base current limiting resistors.
  - . Direct drivable by C MOS, P MOS output.

**Absolute Maximum Ratings at  $T_a = 25^\circ C$** 

				unit
Output Supply Voltage	$V_{OUT}$		50	V
Output Current	$I_{OUT}$	Per unit	500	mA
Input Supply Voltage	$V_{IN}$	LB1232/33/34	30	V
Input Current	$I_{IN}$	LB1231 only	25	mA
GND Pin Current	$I_{GND}$	7ch simultaneously on, $f=10Hz, duty, =23\%$	2.8	A
Allowable Power Dissipation	$P_{dmax}$		1.5	W
Operating Temperature	$T_{opr}$		-20 to +75	$^\circ C$
Storage Temperature	$T_{stg}$		-40 to +150	$^\circ C$

**Allowable Operating Conditions at  $T_a = 25^\circ C$** 

				unit
Output Supply Voltage	$V_{OUT}$		50	V
Input "H" Level Voltage	$V_{IH}$	LB1232 $I_{OUT}=350mA$	11 to 30	V
		LB1233 $I_{OUT}=350mA$	3 to 30	V
		LB1234 $I_{OUT}=350mA$	5 to 30	V
Input "L" Level Voltage	$V_{IL}$	LB1231/33 $I_{OUT} \leq 100\mu A$	-0.3 to +0.3	V
		LB1232 $I_{OUT} \leq 100\mu A$	-0.3 to +6.0	V
		LB1234 $I_{OUT} \leq 100\mu A$	-0.3 to +0.7	V

**Package Dimensions 3064-D16TR  
(unit : mm)**

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LB1231, 1232, 1233, 1234

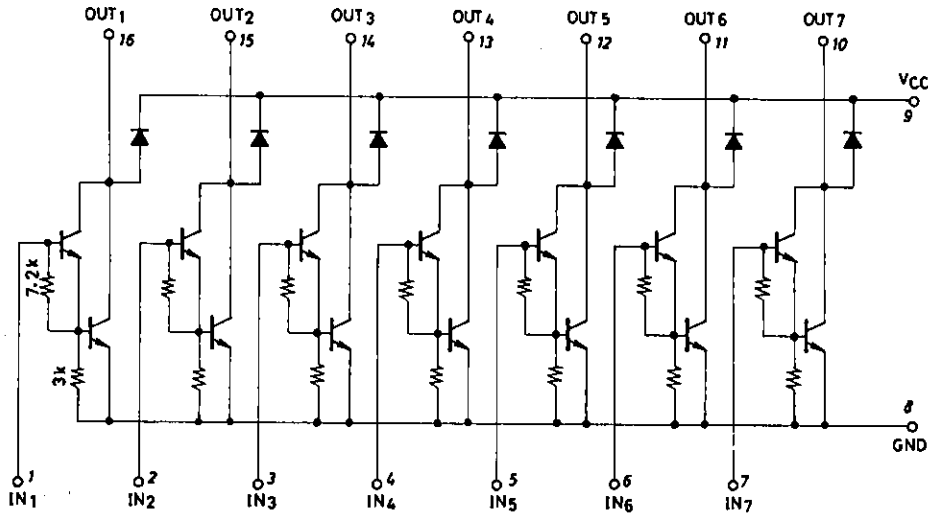
Electrical Characteristics at  $T_a=25^\circ\text{C}$

			min	typ	max	unit
Output Leak Current	$I_{OFF}$	$V_{OUT}=50V$			100	$\mu\text{A}$
Output Voltage	$V_{OH1}$	$I_{IN}=0.25\text{mA}, I_{OUT}=100\text{mA}$	0.9	1.1		V
	$V_{OH2}$	$I_{IN}=0.35\text{mA}, I_{OUT}=200\text{mA}$	1.1	1.3		V
	$V_{OH3}$	$I_{IN}=0.5\text{mA}, I_{OUT}=350\text{mA}$	1.3	1.6		V
	$V_{OH4}$	$I_{IN}=1\text{mA}, I_{OUT}=400\text{mA}$		2.4		V
Input Voltage	$V_{IN}$	LB1231 $I_{IN}=1\text{mA}$	1.35	1.7		V
Input Current	$V_{IN}$	LB1232 $V_{IN}=17V$	0.82	1.25		mA
		LB1233 $V_{IN}=3.85V$	0.93	1.35		mA
		LB1234 $V_{IN}=5V$	0.35	0.5		mA
		LB1234 $V_{IN}=12V$	1.00	1.45		mA
Spark Killer Diode Leak Current	$I_{R(S)}$	$V_{R(S)}=50V$			100	$\mu\text{A}$
Spark Killer Diode Forward Voltage	$V_{F(S)1}$	$I_{F(S)}=350\text{mA}$		2.0		V
Forward Voltage	$V_{F(S)2}$	$I_{F(S)}=400\text{mA}$		2.4		V

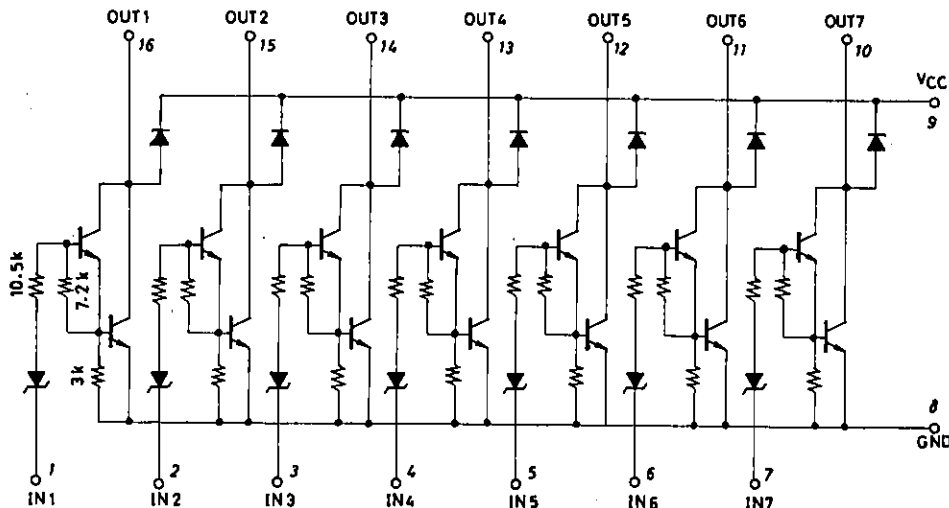
Equivalent Circuits

Unit (resistance:  $\Omega$ )

LB1231



LB1232

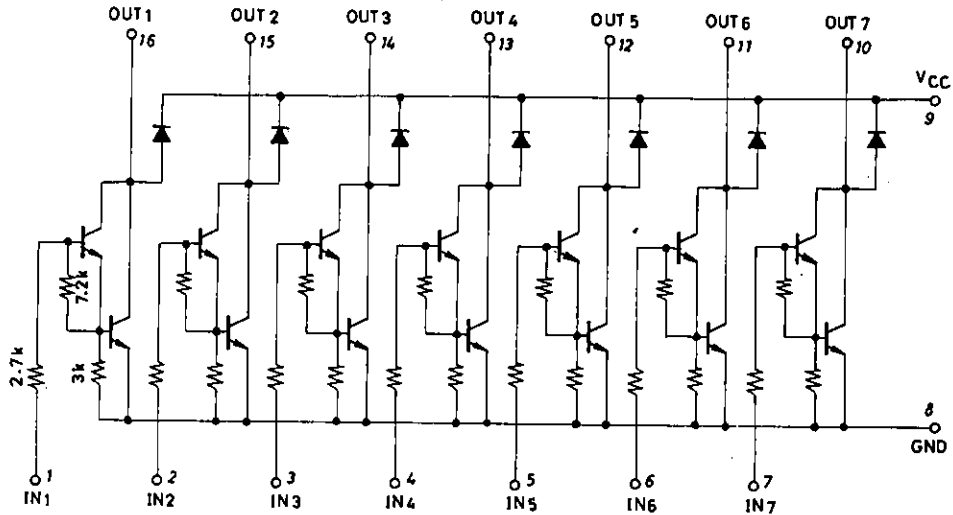


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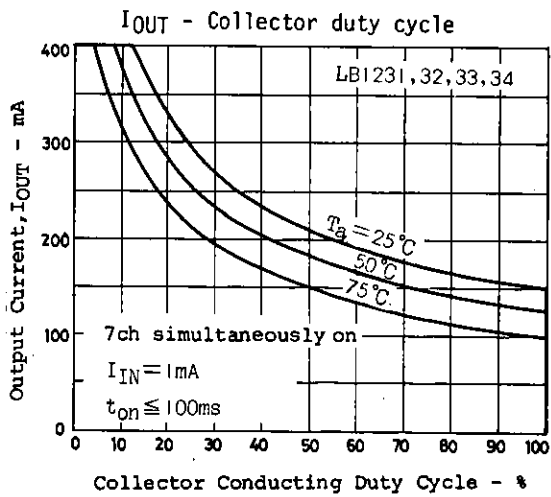
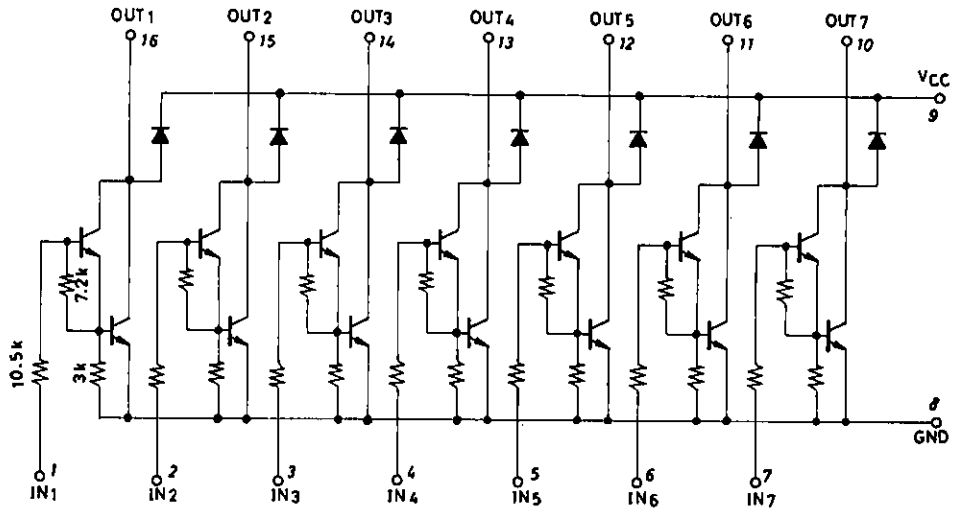
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Unit (resistance:  $\Omega$ )

LB1233



LB1234



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