

Ordering number: EN1188D

Monolithic Digital IC

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.

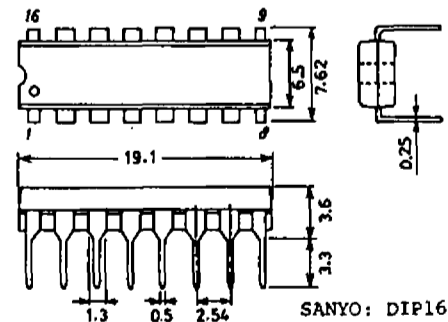
Absolute Maximum Ratings at $T_a = 25^\circ C$

			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

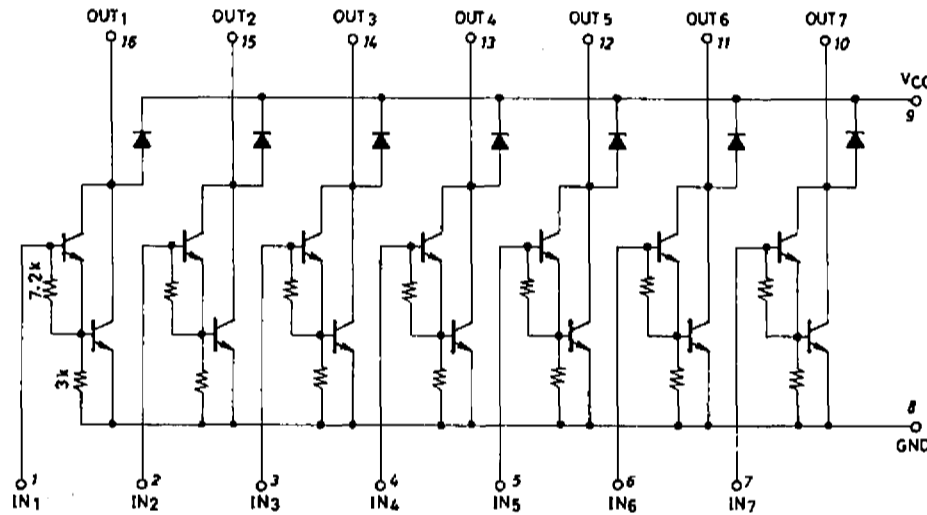
Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Output Leak Current	I_{OFF}	$V_{OUT}=50\text{V}$			100	μA
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	I_{IN}	LB1232 $V_{IN}=17\text{V}$	0.82	1.25		mA
		LB1233 $V_{IN}=3.85\text{V}$	0.93	1.35		mA
		LB1234 $V_{IN}=5\text{V}$	0.35	0.5		mA
		LB1234 $V_{IN}=12\text{V}$	1.00	1.45		mA
Spark Killer Diode Leak Current	$I_{R(S)}$	$V_{R(S)}=50\text{V}$			100	μA
Spark Killer Diode Forward Voltage	$V_F(S)1$	$I_F(S)=350\text{mA}$			2.0	V
	$V_F(S)2$	$I_F(S)=400\text{mA}$			2.4	V

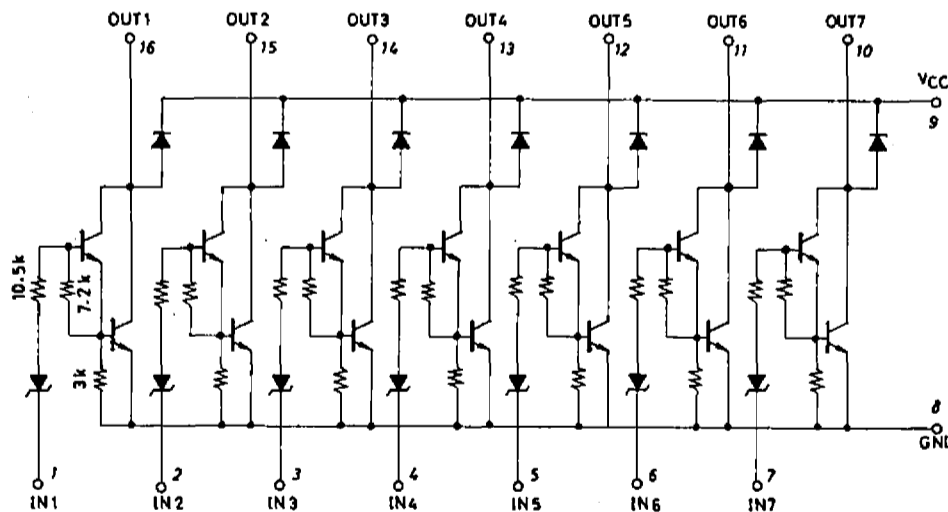
Equivalent Circuits

Unit (resistance: Ω)

LB1231



LB1232



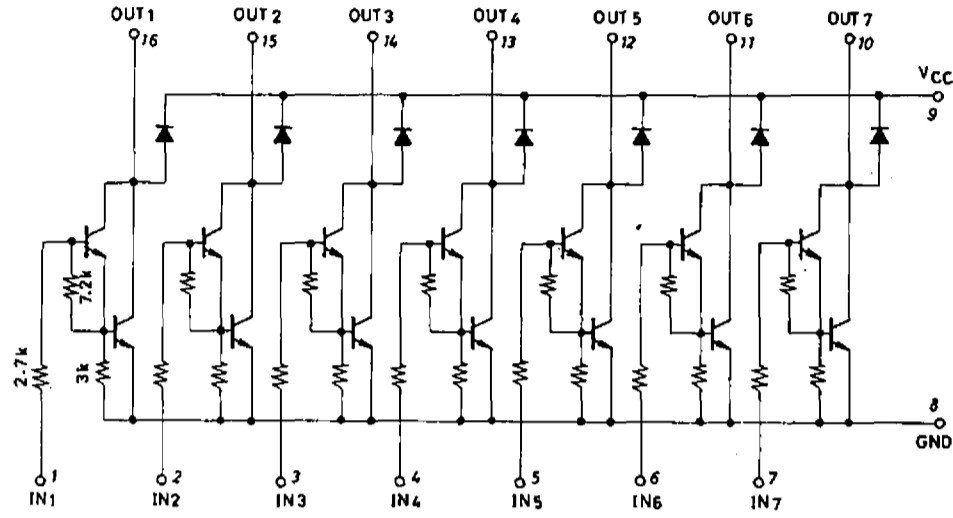
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LB1231, 1232, 1233, 1234

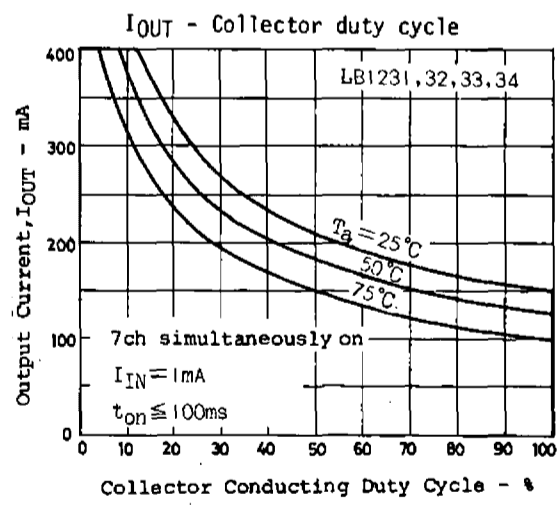
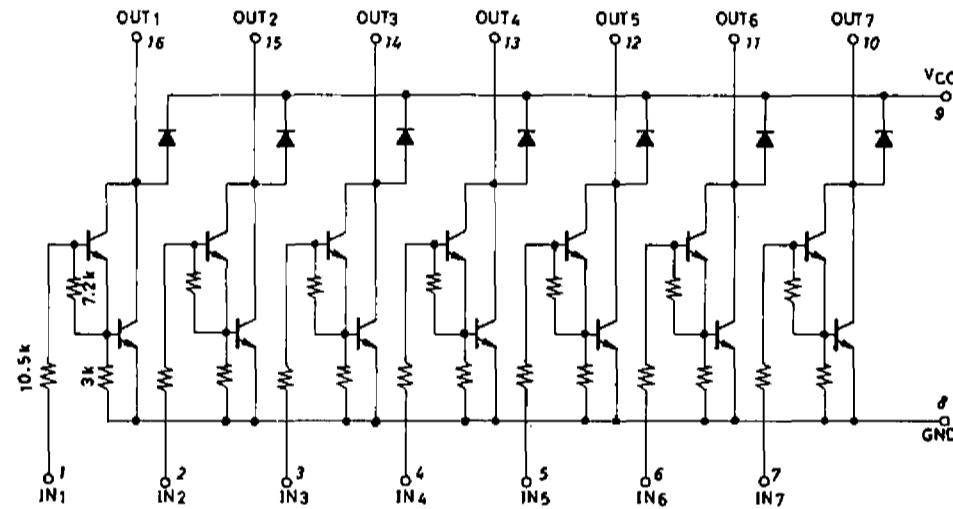
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Unit (resistance: Ω)

LB1233



LB1234



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