

**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 ( $V_{CEO} \geq 50V$ ), 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.

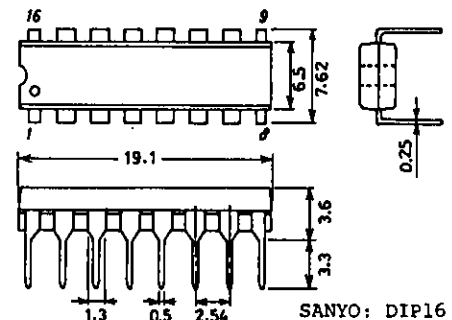
. Direct drivable by C MOS, P MOS output.

**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

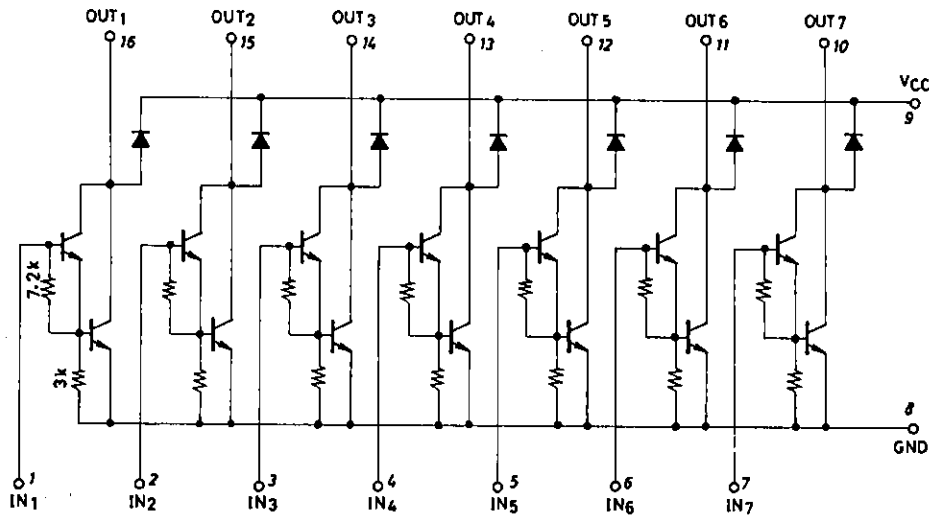
## Electrical Characteristics at $T_a=25^{\circ}\text{C}$

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

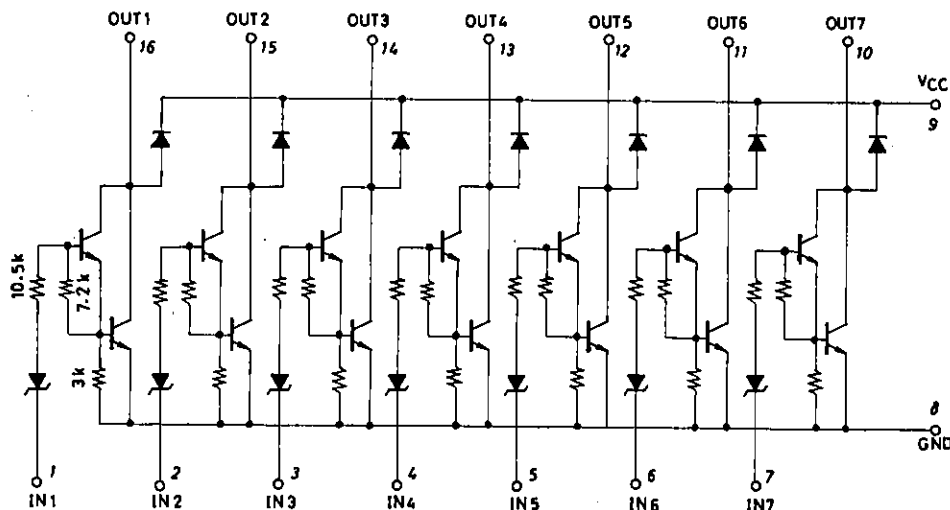
## Equivalent Circuits

Unit (resistance:  $\Omega$ )

### LB1231



### LB1232



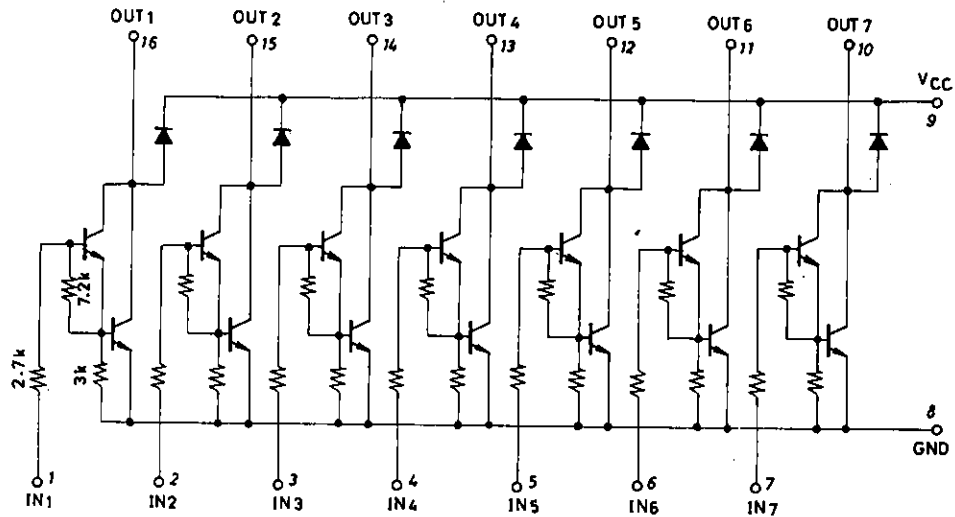
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# LB1231,1232,1233,1234

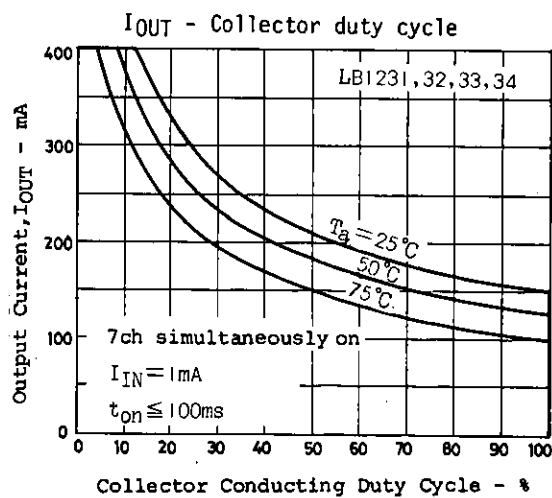
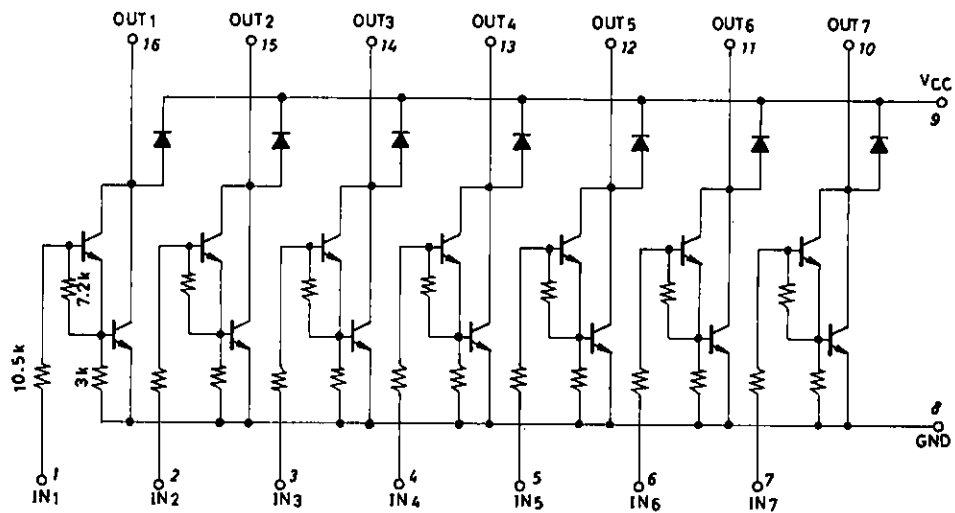
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Unit (resistance:  $\Omega$ )

LB1233



LB1234



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