

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.

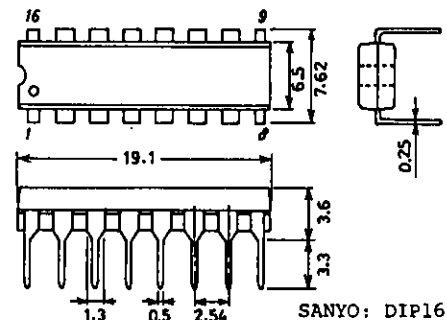
. Direct drivable by C MOS, P MOS output.

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

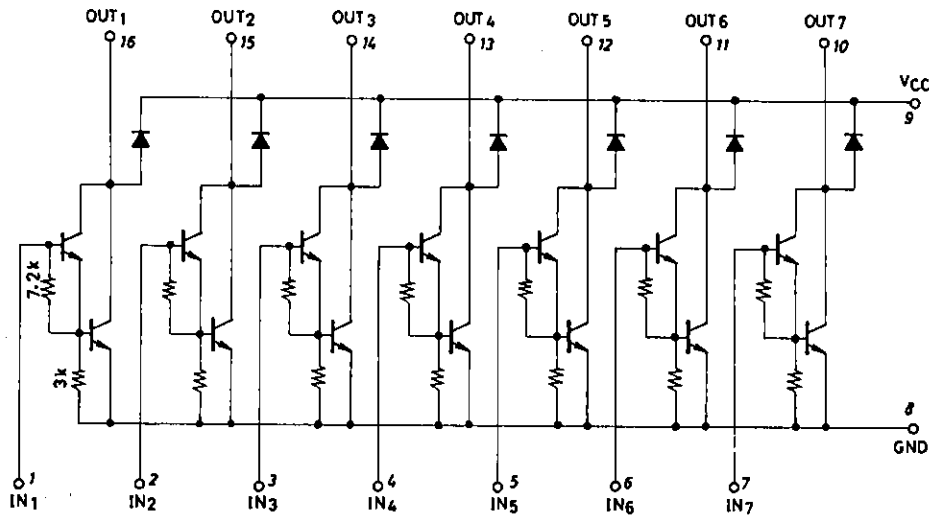
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

| | | | min | typ | max | unit |
|------------------------------------|---------------------------|--|------|------|-----|---------------|
| Output Leak Current | I_{OFF} | $V_{\text{OUT}}=50\text{V}$ | | | 100 | μA |
| Output Voltage | V_{OH1} | $I_{\text{IN}}=0.25\text{mA}, I_{\text{OUT}}=100\text{mA}$ | 0.9 | 1.1 | | V |
| | V_{OH2} | $I_{\text{IN}}=0.35\text{mA}, I_{\text{OUT}}=200\text{mA}$ | 1.1 | 1.3 | | V |
| | V_{OH3} | $I_{\text{IN}}=0.5\text{mA}, I_{\text{OUT}}=350\text{mA}$ | 1.3 | 1.6 | | V |
| | V_{OH4} | $I_{\text{IN}}=1\text{mA}, I_{\text{OUT}}=400\text{mA}$ | | 2.4 | | V |
| Input Voltage | V_{IN} | LB1231 $I_{\text{IN}}=1\text{mA}$ | 1.35 | 1.7 | | V |
| Input Current | V_{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 | μA |
| 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 |

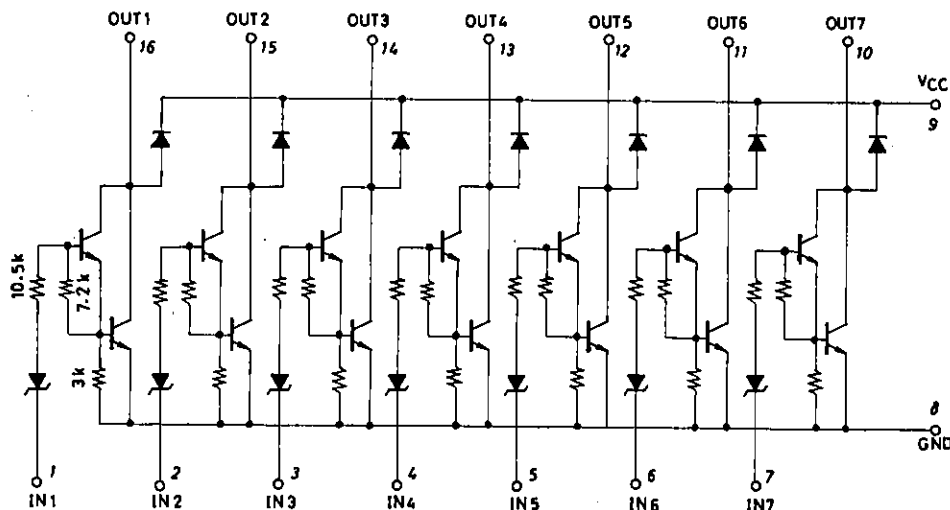
Equivalent Circuits

Unit (resistance: Ω)

LB1231



LB1232



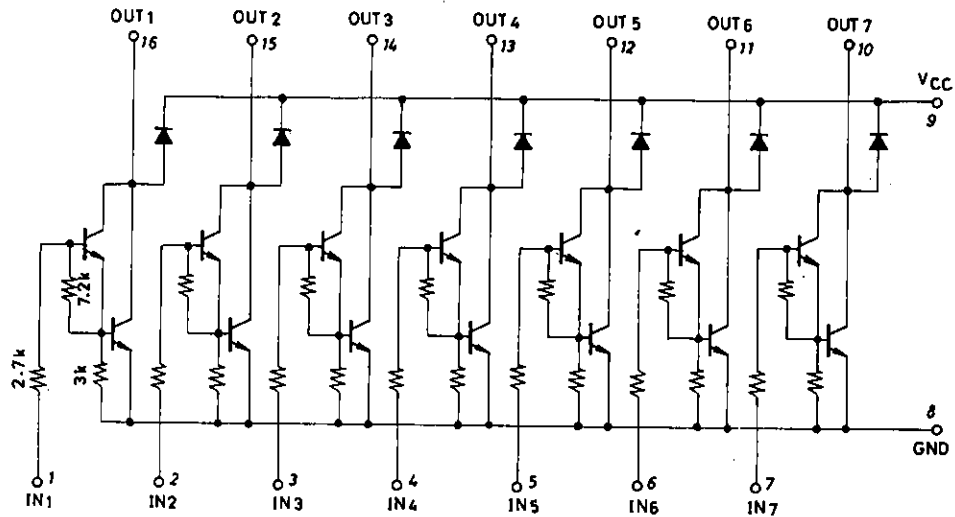
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LB1231,1232,1233,1234

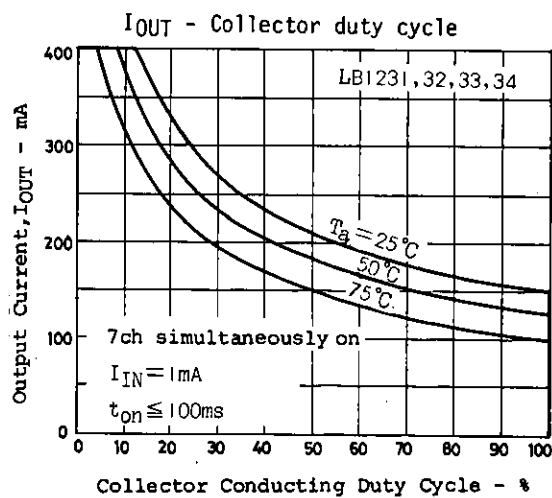
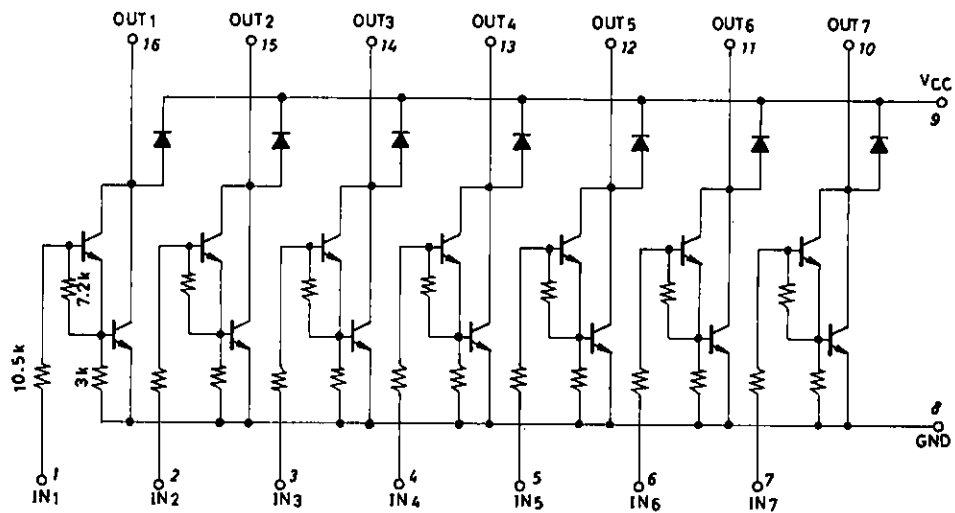
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Unit (resistance: Ω)

LB1233



LB1234



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