



SANYO Semiconductors
DATA SHEET

Monolithic Digital IC

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.

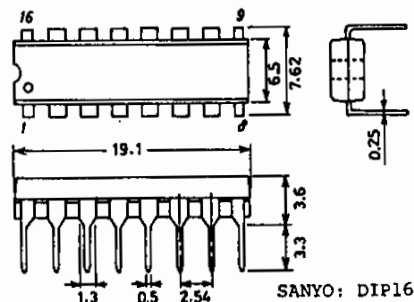
Absolute Maximum Ratings at $T_a = 25^\circ C$

				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)



LB1231,1232,1233,1234

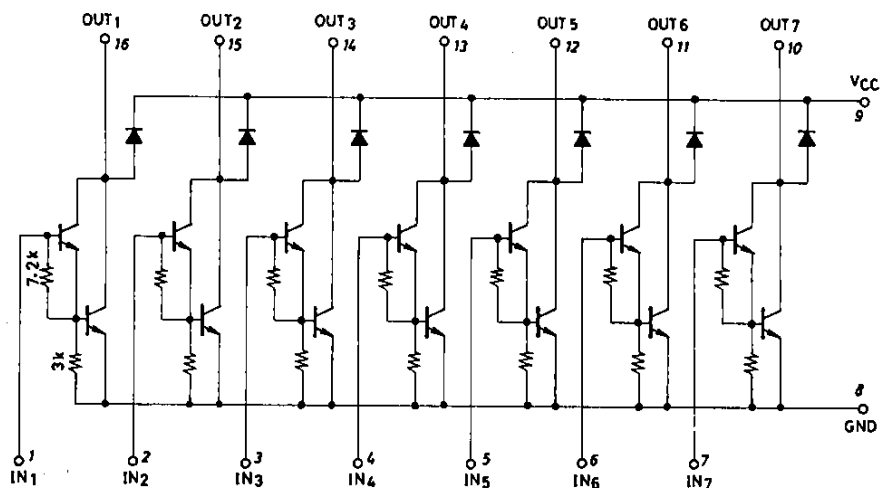
Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Output Leak Current	I_{OFF}	$V_{OUT}=50V$			100	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	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	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

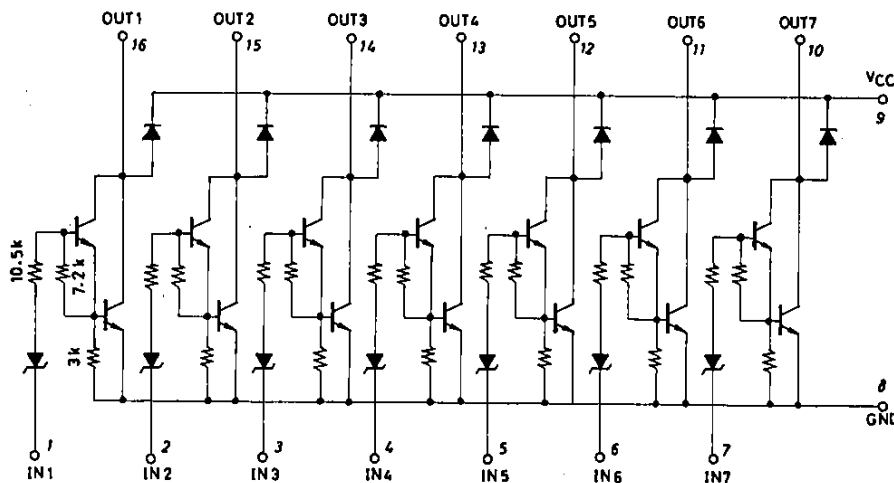
Equivalent Circuits

Unit (resistance: Ω)

LB1231



LB1232

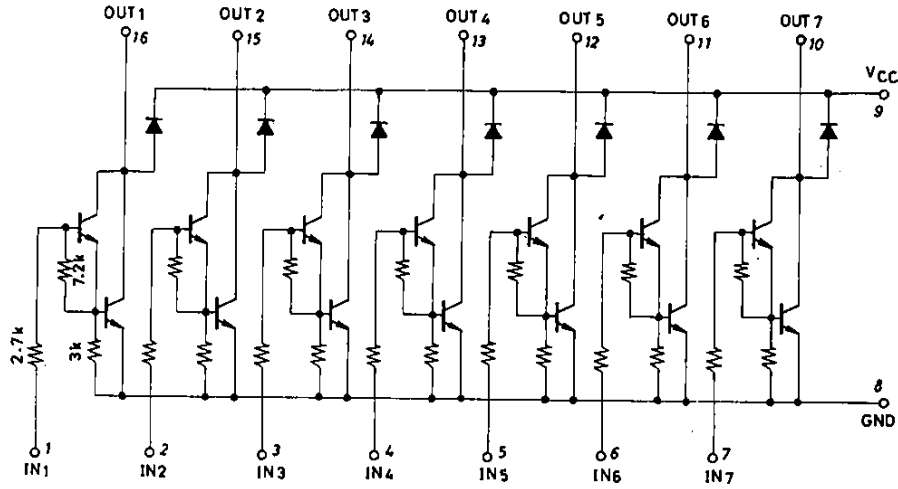


Continued on next page.

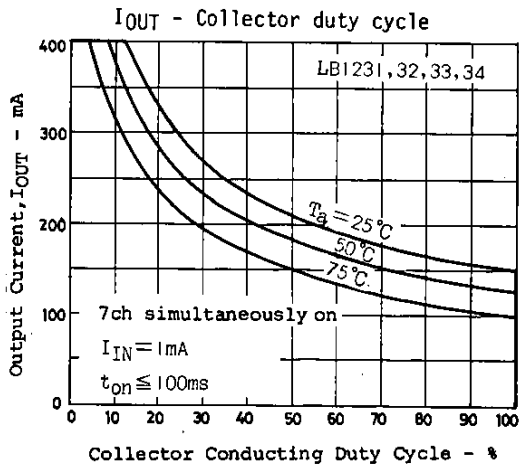
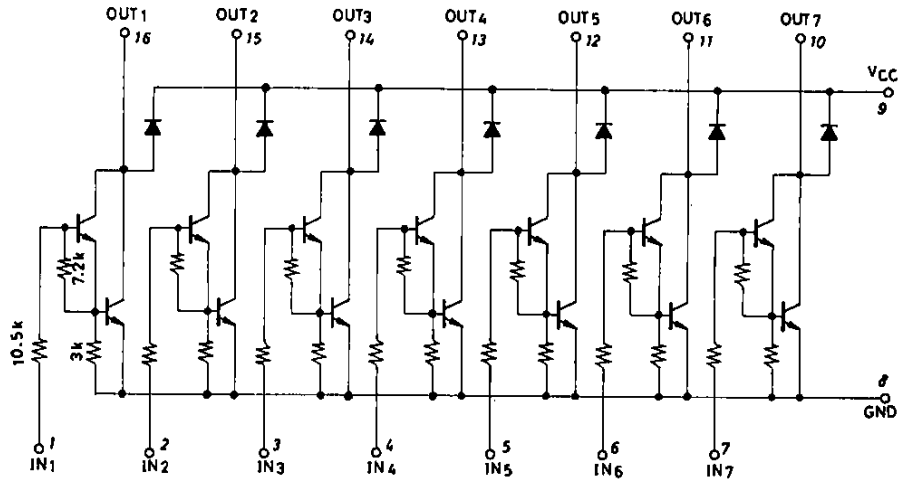
Continued from preceding page.

Unit (resistance: Ω)

LB1233



LB1234



- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.