Ordering number : EN1188F

SANYO Semiconductors
DATA SHEET

Monolithic Digital IC

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

Overview

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_C max = 500mA) drive

LB1231
- Drivable by TTL, MOS output.

LB1232
- Contains base current limiting resistors, Zener diodes for level shift.
- Direct drivable by 24V PMOS.

LB1233
- Contains base current limiting resistors.
- Direct drivable by TTL, CMOS output.

LB1234
- Contains base current limiting resistors.
- Direct drivable by CMOS, PMOS output.

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	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	Pd max		1.5	W
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-40 to +150	°C

Allowable Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions		Ratings	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	$I_{OUT} \leq$ 100µA	-0.3 to +0.3	V
		LB1232	$I_{OUT} \leq$ 100µA	-0.3 to +6.0	V
		LB1234	$I_{OUT} \leq$ 100µA	-0.3 to +0.7	V

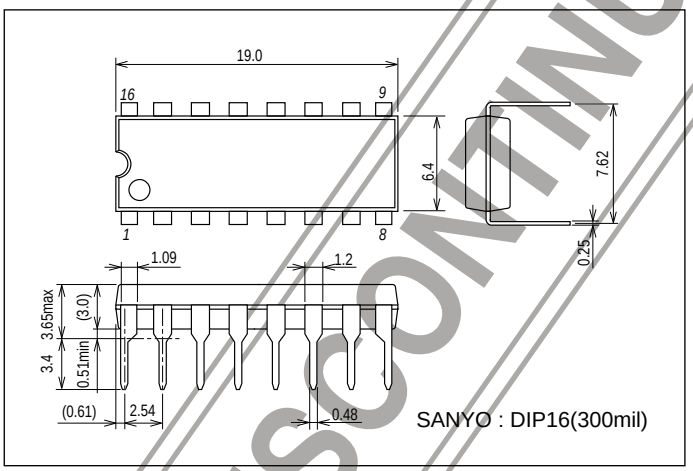
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output leakage current	I_{OFF}	V_{OUT} = 50V			100	µA
Output voltage	$V_{OH}1$	I_{IN} = 0.25mA, I_{OUT} = 100mA		0.9	1.1	V
	$V_{OH}2$	I_{IN} = 0.35mA, I_{OUT} = 200mA		1.1	1.3	V
	$V_{OH}3$	I_{IN} = 0.5mA, I_{OUT} = 350mA		1.3	1.6	V
	$V_{OH}4$	I_{IN} = 1mA, I_{OUT} = 400mA			2.4	V
Input voltage	V_{IN}	LB1231 I_{IN} = 1mA		1.35	1.7	V
Input voltage	I_{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 currnet	$I_{R\ (S)}$	$V_{R\ (S)}$ = 50V			100	µA
Spark killer diode forward voltage	$V_{F\ (S)}$ 1	$I_{F\ (S)}$ = 350mA			2.0	V
	$V_{F\ (S)}$ 2	$I_{F\ (S)}$ = 400mA			2.4	V

Package Dimensions

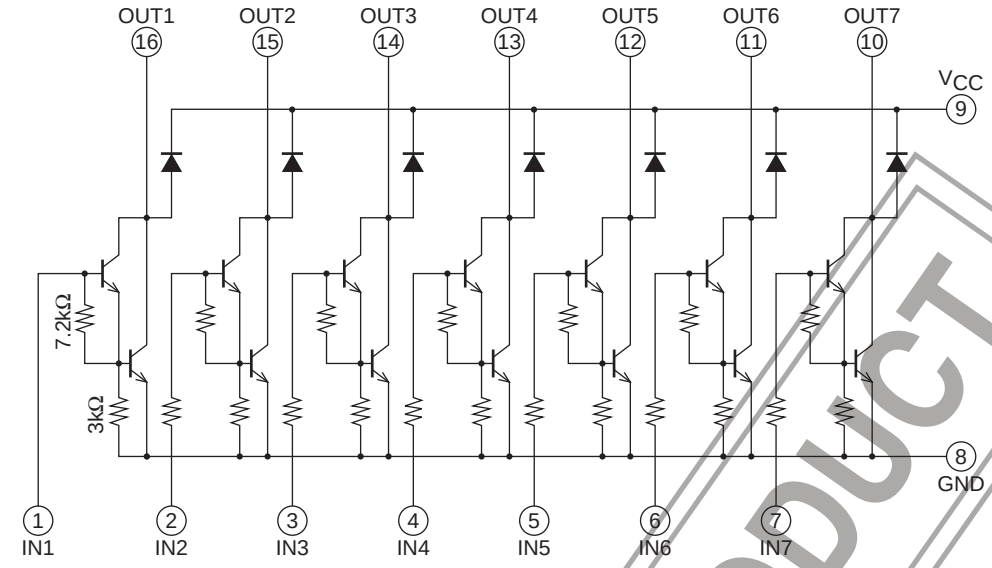
unit : mm (typ)

3006C

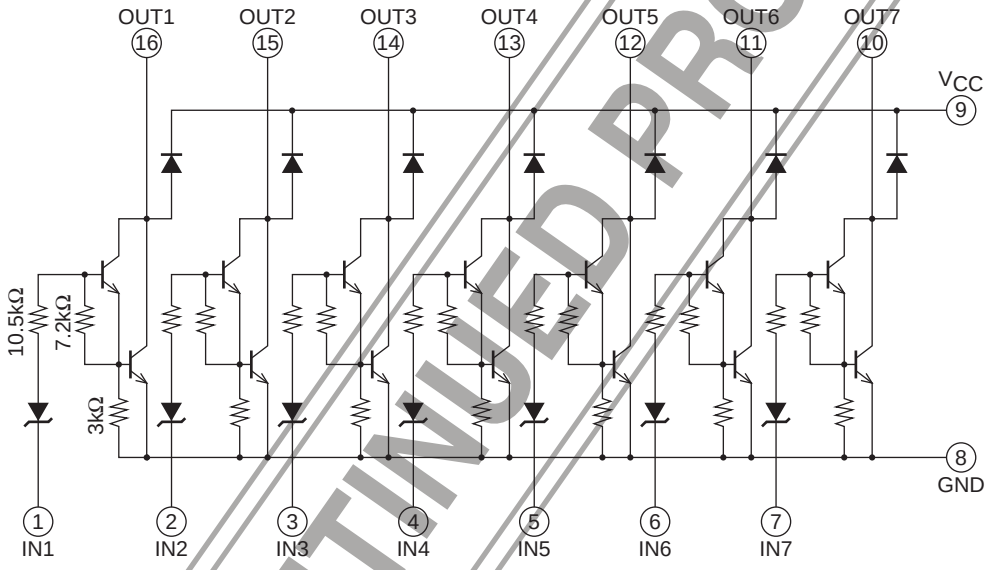


Equivalent Circuit

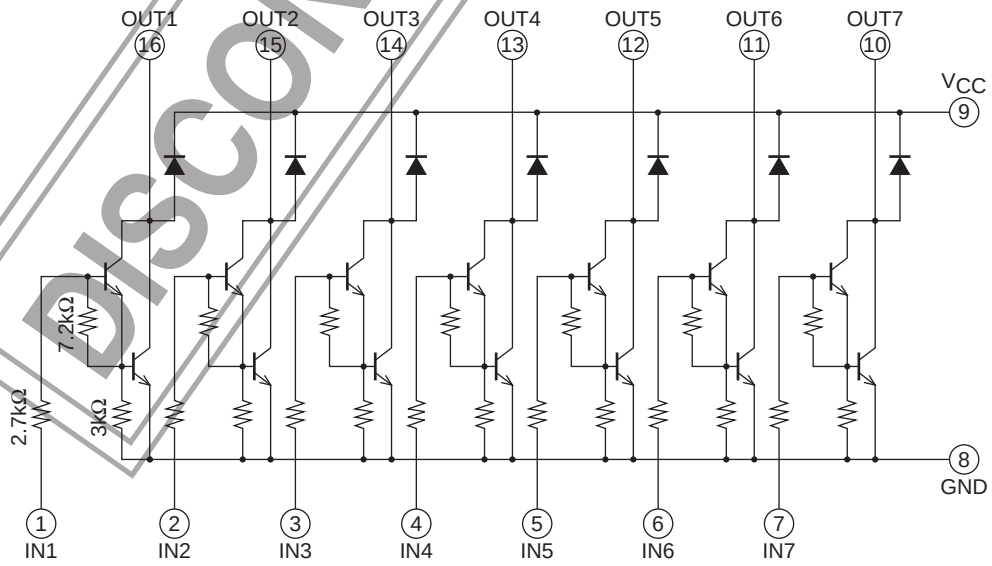
LB1231



LB1232



LB1233



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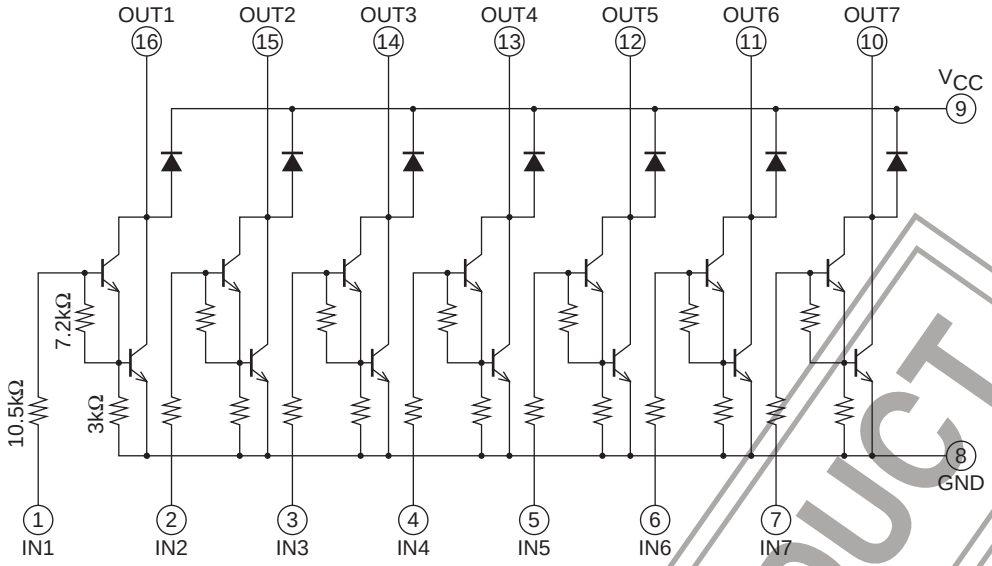

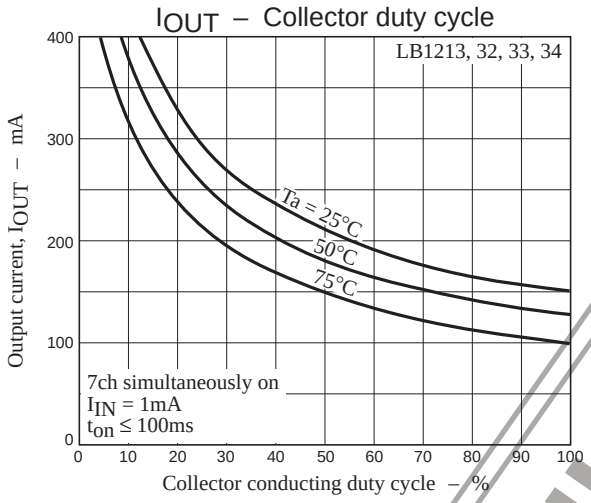

This catalog provides information as of October, 2008. Specifications and information herein are subject to change without notice.