



SANYO Semiconductors

# DATA SHEET

## LB1731J — Monolithic Digital IC High-Voltage, Current-Sink Output Driver

### Overview

The LB1731J is a 4-channel high-voltage current sink output driver. Inputs are active-low CMOS/TTL logic-level, and outputs are high-voltage open-collector NPN Darlington pairs.

Each driver in the LB1731J sinks up to 1.5A and withstands collector voltages of up to 85V.

The LB1731J is available in a 16-pin DIP package.

### Features

- For independent high-voltage high-current drivers.
- Output clamp diodes.
- Input protection diodes.
- 5V CMOS- and TTL-compatible logic-level inputs.

### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{DD\ max}$		7.0	V
	$V_{CC\ max}$		82	V
Applied output voltage	$V_O\ max$		85	V
Applied input voltage	$V_{IN\ max}$	$V_{IN} \geq \text{GND}$	$V_{DD}-7.0$ to $V_{DD}+10.0$	V
Output current	$I_O\ max$		1.5	A
Clamp diode forward current	$I_{FS}$		1.5	A
Allowable power dissipation	$P_d\ max$	Independent IC	1.9	W
Operating temperature	$T_{opr}$		-40 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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# LB1731J

## Allowable Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Power supply voltage range	V <sub>DD</sub>		3.5 to 7.0	V
Input ON-level voltage	V <sub>IN on</sub>	V <sub>IN</sub> ≥ GND, I <sub>O</sub> = 1.0A	V <sub>DD</sub> -7.0 to V <sub>DD</sub> -2.6	V
Input OFF-level voltage	V <sub>IN off</sub>	I <sub>O</sub> ≤ 30μA	V <sub>DD</sub> -0.3 to V <sub>DD</sub> +10.0	V

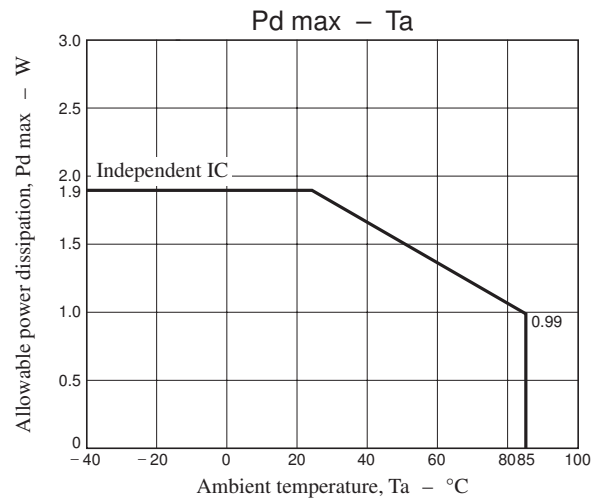
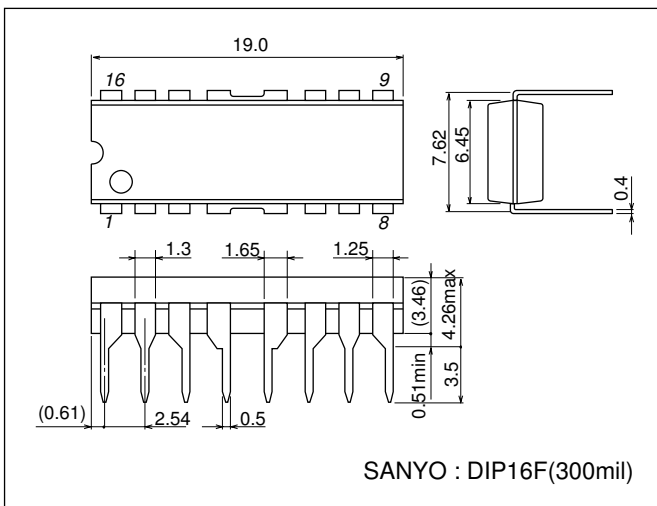
## Electrical Characteristics at Ta = 25°C, V<sub>DD</sub> = 5.0V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output saturation voltage	V <sub>O sat1</sub>	V <sub>IN</sub> = V <sub>DD</sub> -5.0V, I <sub>O</sub> = 0.5A			1.2	V
	V <sub>O sat2</sub>	V <sub>IN</sub> = V <sub>DD</sub> -5.0V, I <sub>O</sub> = 1.0A			1.5	V
	V <sub>O sat3</sub>	V <sub>IN</sub> = V <sub>DD</sub> -5.0V, I <sub>O</sub> = 1.5A			2.0	V
Output sustain voltage	V <sub>O (sus)</sub>	I <sub>O</sub> = 100mA	85			V
Input current	I <sub>IN</sub>	V <sub>DD</sub> = 7.0V, V <sub>IN</sub> = V <sub>DD</sub> -7.0V			0.5	mA
Clamp diode forward voltage	V <sub>FS</sub>	I <sub>FS</sub> = 1.5A			3.0	V
Clamp diode reverse current	I <sub>RS</sub>	V <sub>CC</sub> = 62V, V <sub>O</sub> = 0V			30	μA

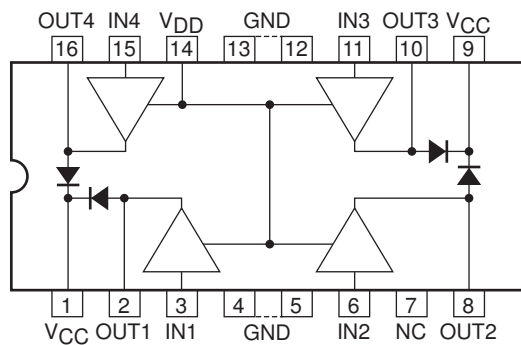
## Package Dimensions

unit : mm (typ)

3054B



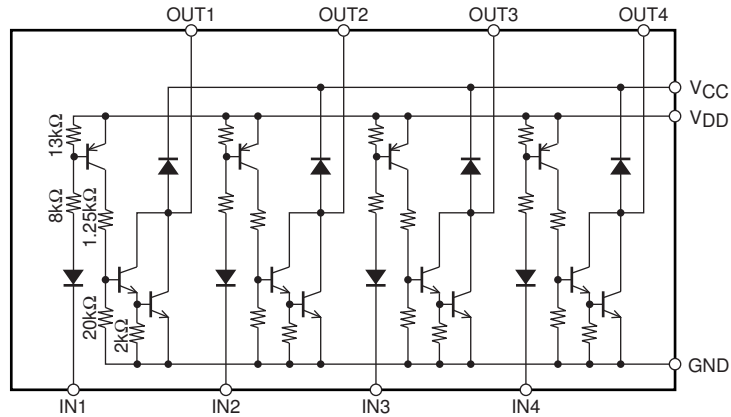
## Pin Assignment and Block Diagram



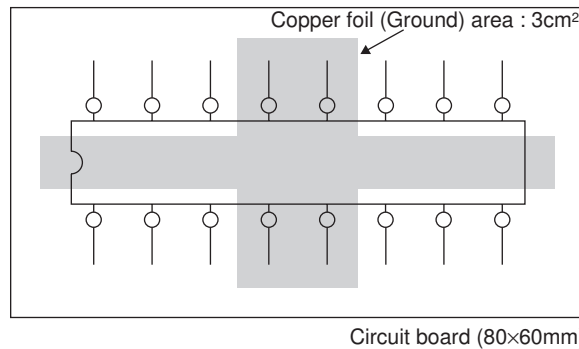
Top view

Pins 1 and 9 are shorted internally.

Equivalent Circuit



Recommended Circuit Board Layout



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