

**LB1651D****Dual Bidirectional Motor Driver****Overview**

The LB1651D is a dual bidirectional motor driver that is designed to drive motors directly by TTL outputs. It provides the functions of bidirectional motor drive, brake that are determined by two inputs and the inhibit function that brings the output to a high impedance state.

**Applications**

- Multi DC motor driver
- Bidirectional motor driver
- Bipolar stepping motor driver

**Features**

- High output current (1 A/ch)
- Wide operating voltage range (4.5 to 36 V)
- Inhibit function
- Direct drive made possible by TTL, CMOS IC
- High noise margin

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC1</sub>		36	V
Logic supply voltage	V <sub>CC2</sub>		36	V
Input voltage	V <sub>IN</sub>		7	V
Inhibit voltage	V <sub>inh</sub>		7	V
Peak output current	I <sub>OUT</sub>	1 ms non-repetitive	2	A
Allowable power dissipation	P <sub>d max</sub>	* With specified board	2.5	W
Operating temperature	T <sub>opr</sub>		-20 to +80	°C
Storage temperature	T <sub>stg</sub>		-40 to +150	°C

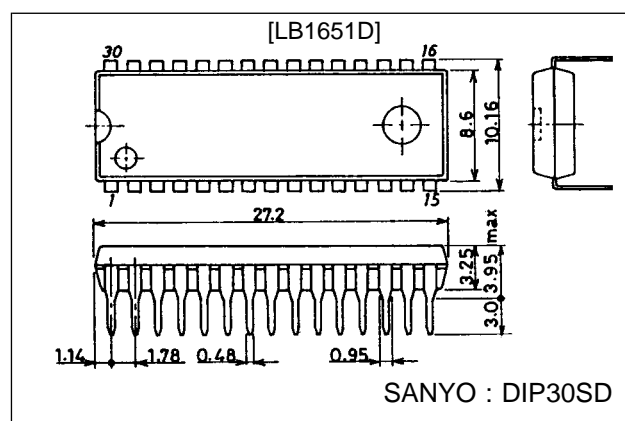
\* Specified board: 114 × 76 × 1.6 mm<sup>3</sup>

**Allowable Operating Conditions at Ta = 25°C**

Parameter	Symbol	Conditions	Rating	Unit
Supply voltage	V <sub>CC1</sub>		4.5 to 36	V
Logic supply voltage	V <sub>CC2</sub>		4.5 to 36	V

**Package Dimensions**

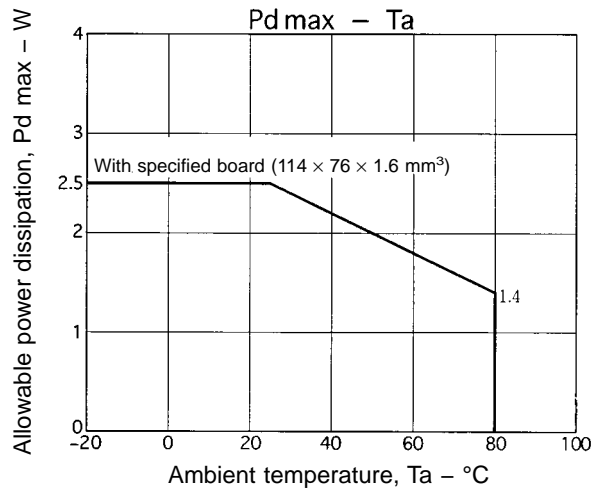
unit : mm

**3196-DIP30SD**

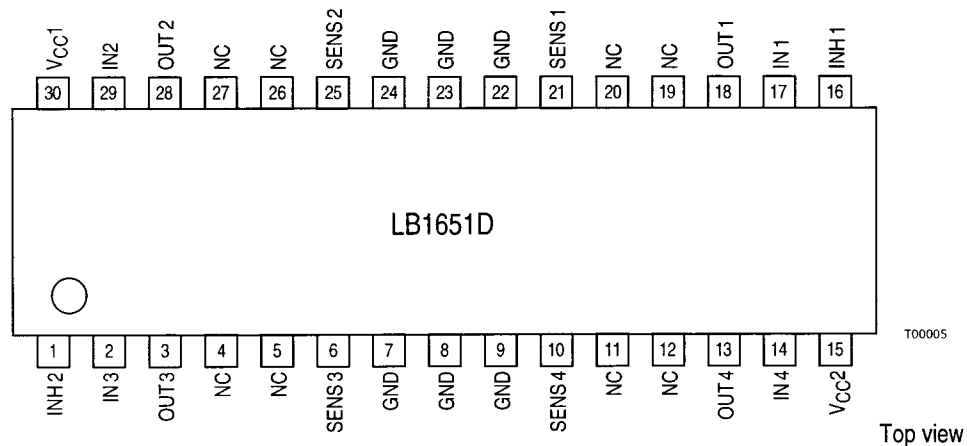
# LB1651D

## Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC1} = 24\text{ V}$ , $V_{CC2} = 5\text{ V}$

Parameter	Symbol	Conditions	min	typ	max	Unit
Supply current (Per channel)	$I_{CC1}$	$V_{IN} = L, I_O = 0, V_{inh} = H$			1.5	mA
		$V_{IN} = H, I_O = 0, V_{inh} = H$			6	mA
		$V_{inh} = L$			1	mA
Logic supply current	$I_{CC2}$	$V_{IN} = L, I_O = 0, V_{inh} = H$		44	60	mA
		$V_{IN} = H, I_O = 0, V_{inh} = H$			22	mA
		$V_{inh} = L$			24	mA
Low-level input voltage	$V_{IL}$		-0.3		+1.5	V
High-Level Input Voltage	$V_{IH}$	$V_{CC2} \leq 7\text{ V}$	2.3		$V_{CC2}$	V
		$V_{CC2} > 7\text{ V}$	2.3		7	V
Low-level input current	$I_{IL}$	$V_{IN} = L$			$\pm 10$	$\mu\text{A}$
High-level input current	$I_{IH}$	$V_{IN} = H - 0.3\text{ V}$		30	100	$\mu\text{A}$
Low-level inhibit voltage	$V_{inhL}$		-0.3		+1.5	V
High-level inhibit voltage	$V_{inhH}$	$V_{CC2} \leq 7\text{ V}$	2.3		$V_{CC2}$	V
		$V_{CC2} > 7\text{ V}$	2.3		7	V
Low-level inhibit current	$I_{inhL}$		-100	-30		$\mu\text{A}$
High-level inhibit current	$I_{inhH}$				$\pm 10$	$\mu\text{A}$
Saturation voltage	$V_{CE(sat)H}$	$I_O = -1\text{ A}$		1.4	1.8	V
	$V_{CE(sat)L}$	$I_O = 1\text{ A}$		1.2	1.8	V
Sensing voltage	$V_{SENS}$				2	V



## Pin Assignment



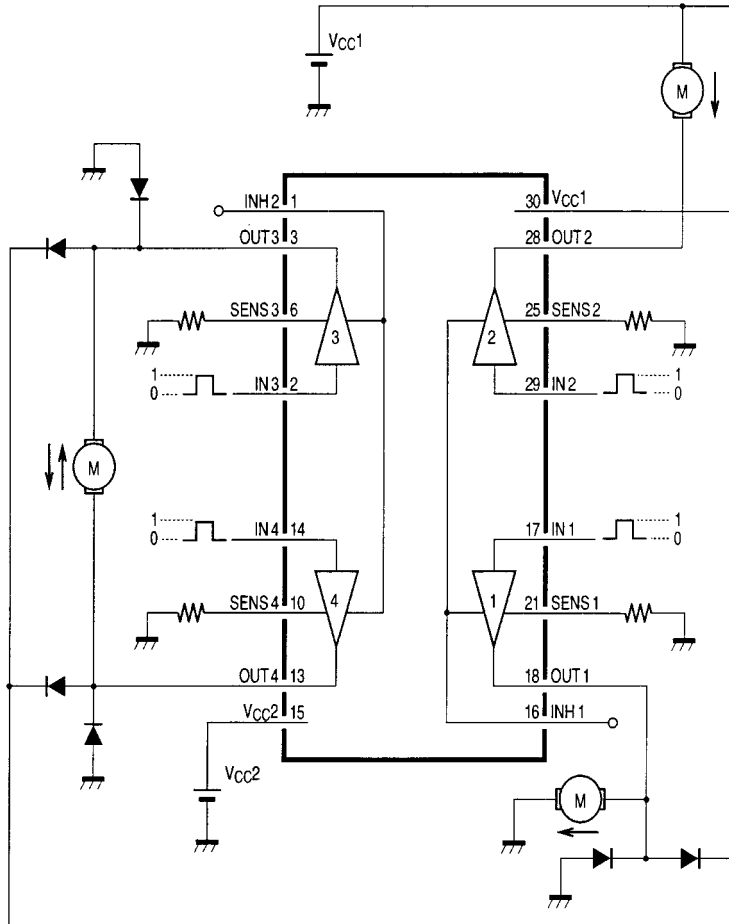
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## Truth Table

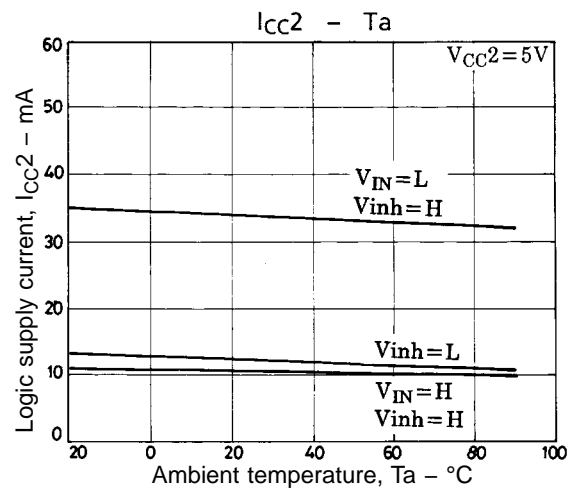
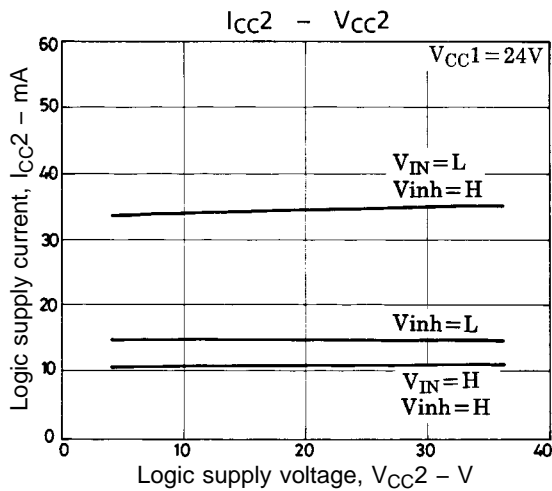
$V_{IN}$ (per CH)	$V_{inh}$	$V_O$
H	H	H
L	H	L
H	L	Open*
L	L	Open*

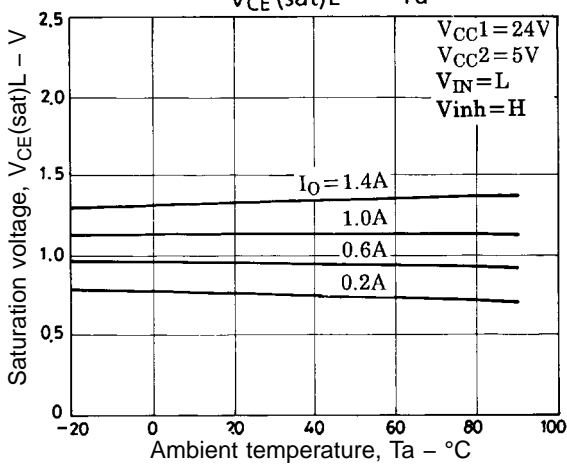
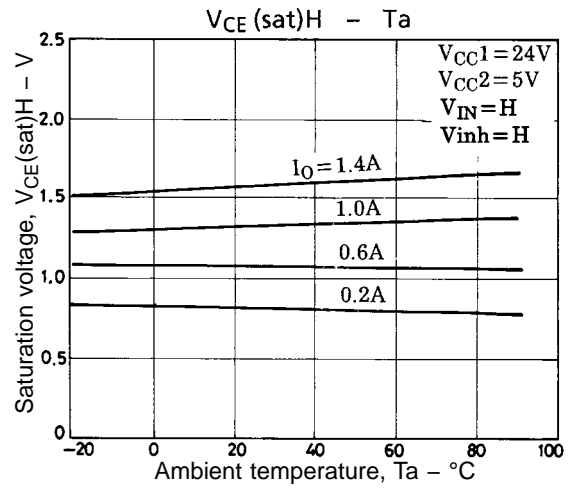
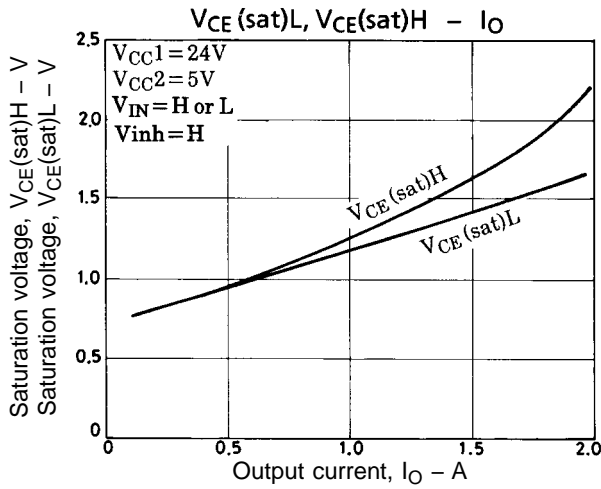
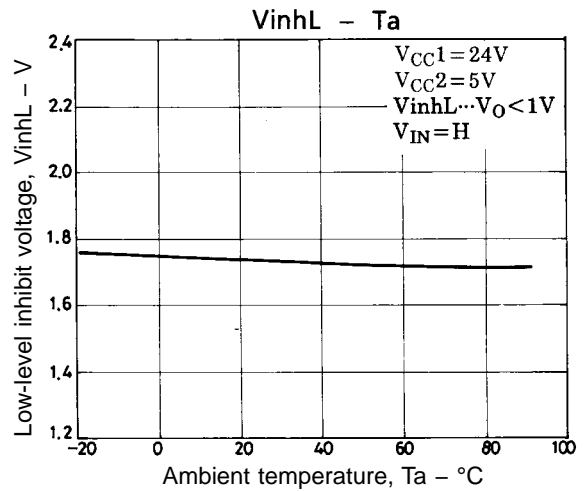
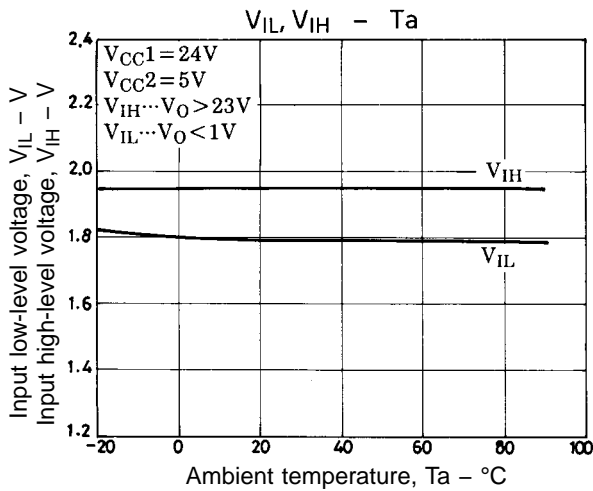
\*: High impedance

## Sample Application Circuit



T00006





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