Ordering number: EN5437

Monolithic Digital IC

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

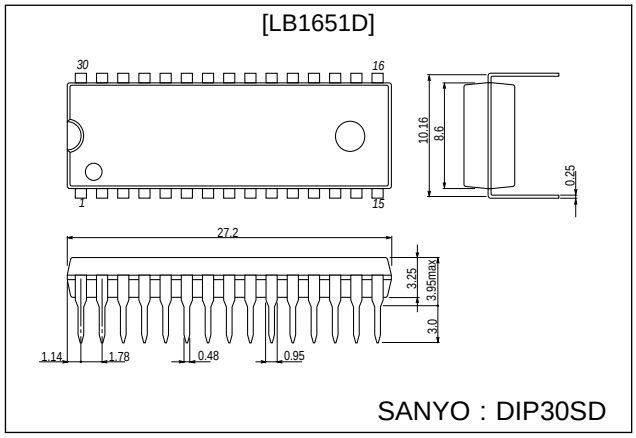
Features

- 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

Package Dimensions

unit : mm

3196-DIP30SD



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}1$		36	V
Logic supply voltage	$V_{CC}2$		36	V
Input voltage	V_{IN}		7	V
Inhibit voltage	V_{inh}		7	V
Peak output current	I_{OUT}	1 ms non-repetitive	2	A
Allowable power dissipation	Pd max	* With specified board	2.5	W
Operating temperature	Topr		–20 to +80	°C
Storage temperature	Tstg		–40 to +150	°C

* Specified board: 114 × 76 × 1.6 mm^3

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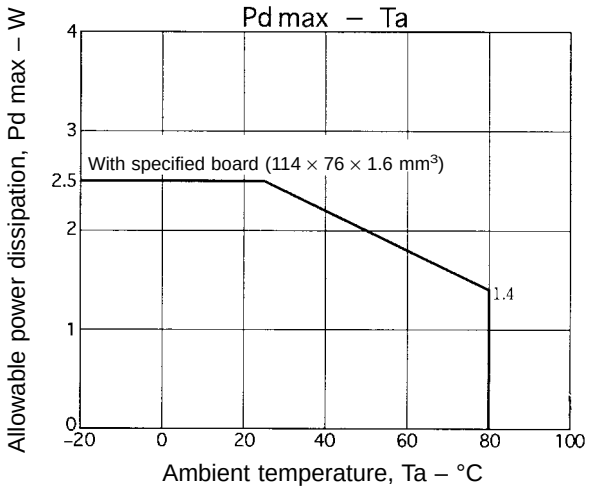
Allowable Operating Conditions at Ta = 25°C

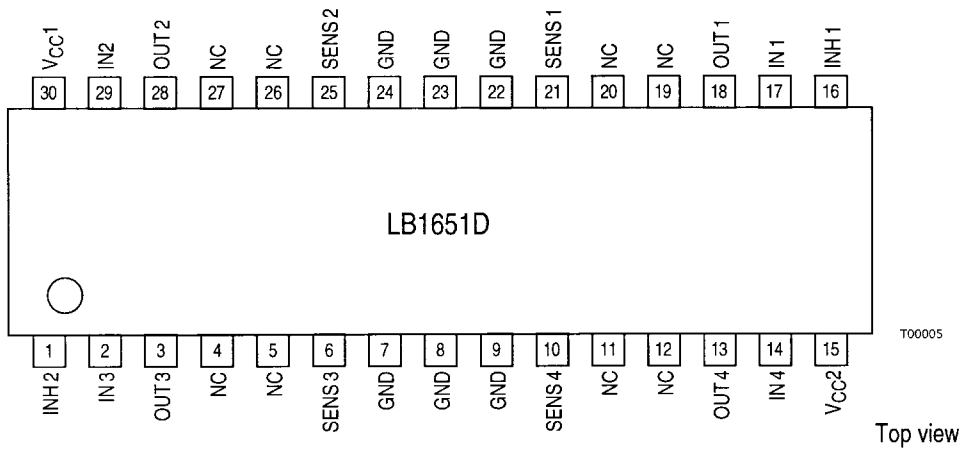
Parameter	Symbol	Conditions	Rating	Unit
Supply voltage	$V_{CC}1$		4.5 to 36	V
Logic supply voltage	$V_{CC}2$		4.5 to 36	V

Electrical Characteristics at Ta = 25°C, $V_{CC}1$ = 24 V, $V_{CC}2$ = 5 V

Parameter	Symbol	Conditions	min	typ	max	Unit
Supply current (Per channel)	$I_{CC}1$	V_{IN} = L, I_O = 0, Vinh = H			1.5	mA
		V_{IN} = H, I_O = 0, Vinh = H			6	mA
		Vinh = L			1	mA
Logic supply current	$I_{CC}2$	V_{IN} = L, I_O = 0, Vinh = H		44	60	mA
		V_{IN} = H, I_O = 0, Vinh = H			22	mA
		Vinh = L			24	mA
Low-level input voltage	V_{IL}		–0.3		+1.5	V
High-Level Input Voltage	V_{IH}	$V_{CC}2 \leqq 7$ V	2.3		$V_{CC}2$	V
		$V_{CC}2 > 7$ V	2.3		7	V
Low-level input current	I_{IL}	V_{IN} = L			±10	μA
High-level input current	I_{IH}	V_{IN} = H – 0.3 V		30	100	μA
Low-level inhibit voltage	VinhL		–0.3		+1.5	V
High-level inhibit voltage	VinhH	$V_{CC}2 \leqq 7$ V	2.3		$V_{CC}2$	V
		$V_{CC}2 > 7$ V	2.3		7	V
Low-level inhibit current	IinhL		–100	–30		μA
High-level inhibit current	IinhH				±10	μA
Saturation voltage	V_{CE}(sat)H	I_O = –1 A		1.4	1.8	V
	V_{CE}(sat)L	I_O = 1 A		1.2	1.8	V
Sensing voltage	V_{SENS}				2	V



Pin Assignment

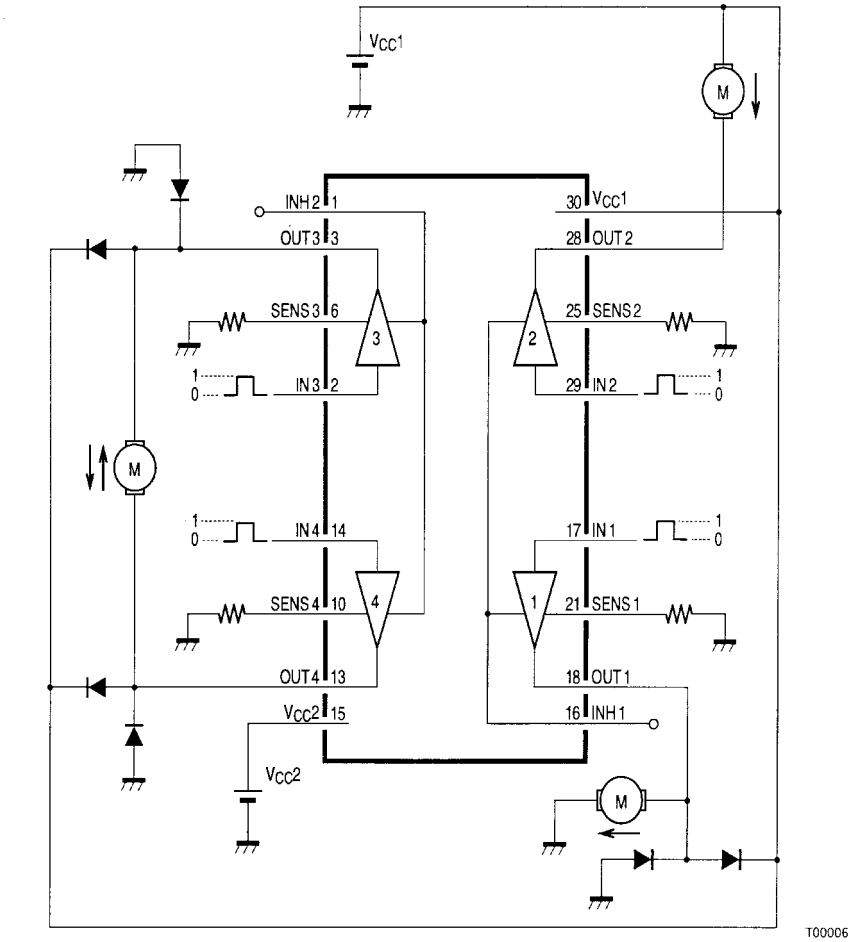


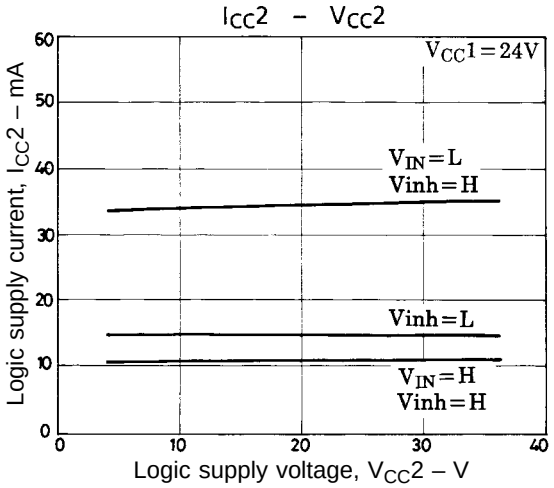
Truth Table

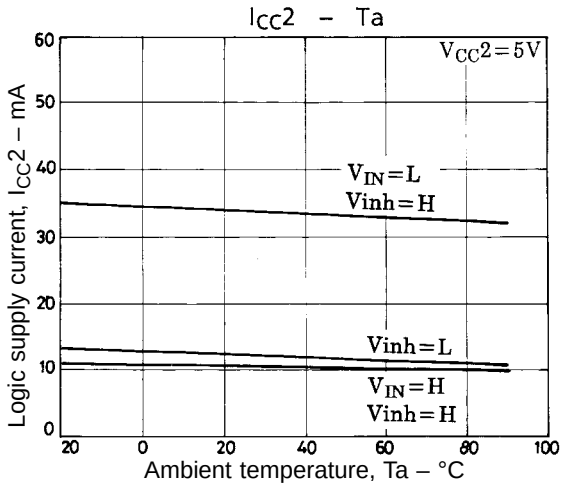
V_{IN} (per CH)	Vinh	V_O
H	H	H
L	H	L
H	L	Open*
L	L	Open*

*: High impedance

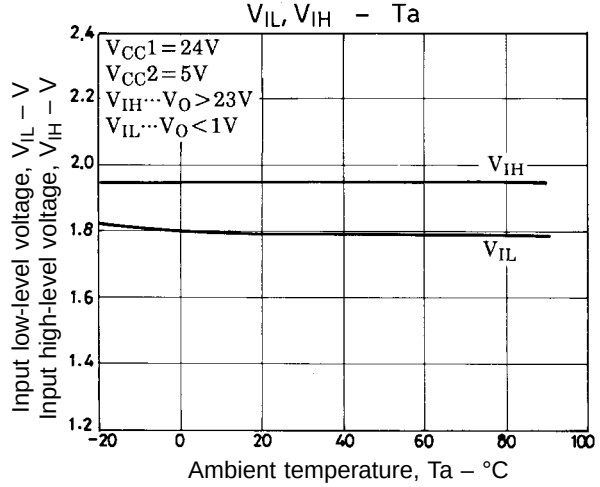
Sample Application Circuit



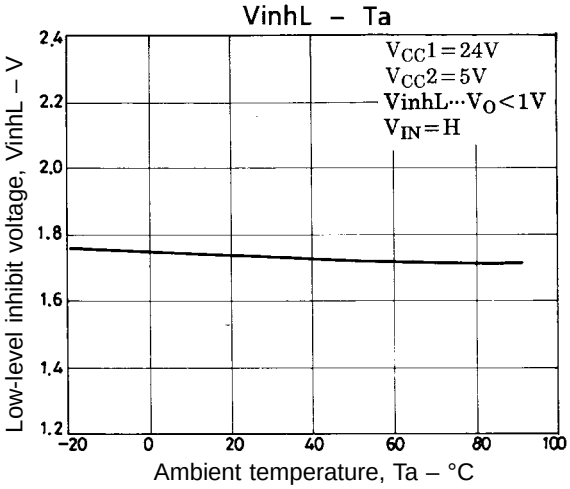




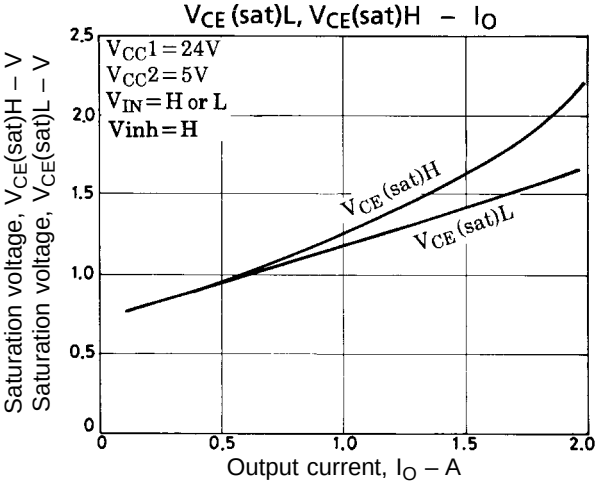
V_{IL}, V_{IH} – Ta



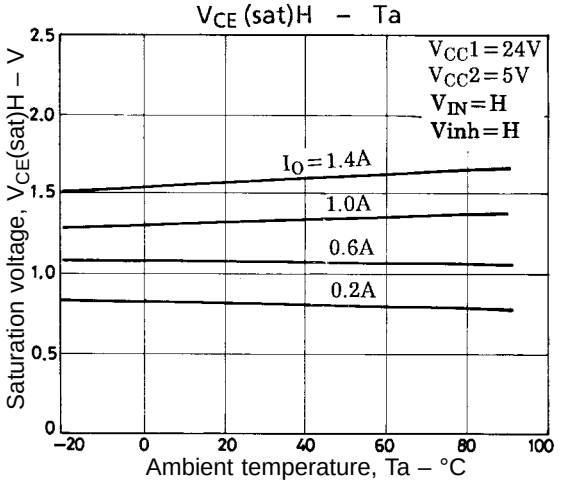
VinhL – Ta



V_{CE} (sat)L, V_{CE}(sat)H – I_O



V_{CE} (sat)H – Ta



V_{CE} (sat)L – Ta