

SANYO**LB1650****Dual Bidirectional Motor Driver****Overview**

The LB1650 is a dual bidirectional motor driver that is designed to accept standard TTL input logic levels and drive motors. 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 (1A/ch).
- Wide operating voltage range (4.5 to 36V).
- Inhibit facility.
- Input connectable to TTL, CMOS IC.
- High noise margin.

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

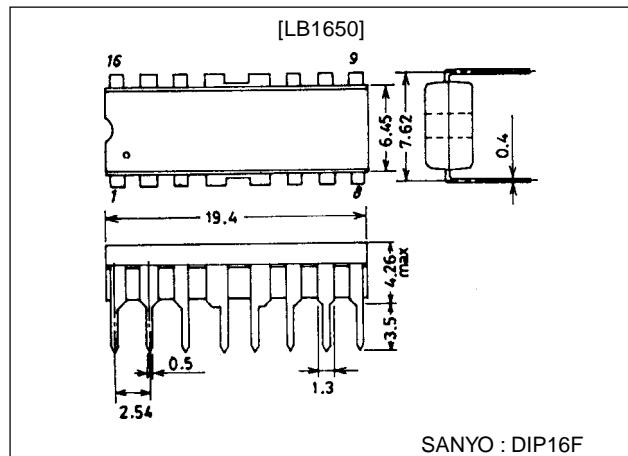
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\ 1}$		36	V
Logic supply voltage	$V_{CC\ 2}$		36	V
Input voltage	V_{IN}		7	V
Inhibit voltage	V_{inh}		7	V
Peak output current	I_{OUT}	1ms non-repetitive	2	A
Allowable power dissipation	$P_d\ max$	IC only	1.9	W
Operating temperature	T_{opr}		-20 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

Allowable Operating Conditions at $T_a = 25^\circ\text{C}$

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

Package Dimensions

unit:mm

3054A-DIP16F

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SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

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82098HA (KT)/N3093TS/7067TA/D065MW/9074KI, TS No.1530-1/5

LB1650

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

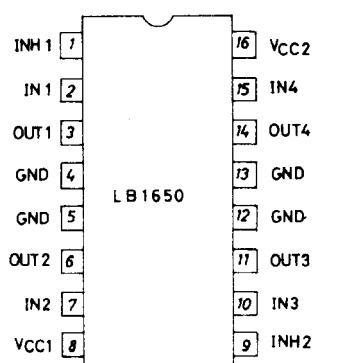
Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Supply current (per CH)	I _{CC} 1	$V_{IN}=L$, $I_O=0$, $V_{inh}=H$			1.5	mA	
		$V_{IN}=H$, $I_O=0$, $V_{inh}=H$			6	mA	
		$V_{inh}=L$			1	mA	
Logic supply current	I _{CC} 2	$V_{IN}=L$, $I_O=0$, $V_{inh}=H$		44	60	mA	
		$V_{IN}=H$, $I_O=0$, $V_{inh}=H$			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	
		$V_{CC2} \leq 7\text{V}$	2.3		7	V	
Low-level input current	I _{IL}	$V_{IN}=L$			± 10	μA	
High-level input current	I _{IH}	$V_{IN}=H-0.3\text{V}$		30	100	μA	
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	
		$V_{CC2} \leq 7\text{V}$	2.3		7	V	
Low-level inhibit current	I _{inhL}		-100	-30		μA	
High-level inhibit current	I _{inhH}				± 10	μA	
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

Truth Table

V _{IN} (per CH)	V _{inh}	V _O
H	H	H
L	H	L
H	L	Open*
L	L	Open*

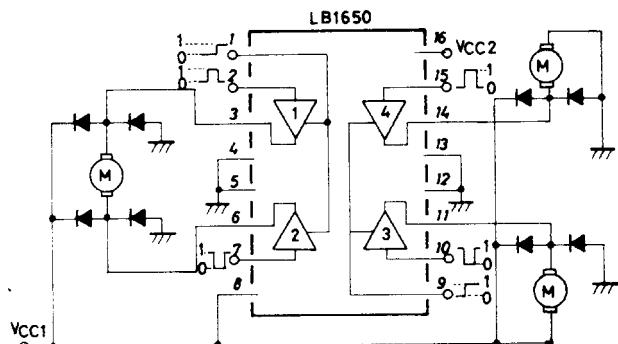
* : High impedance

Pin Assignment



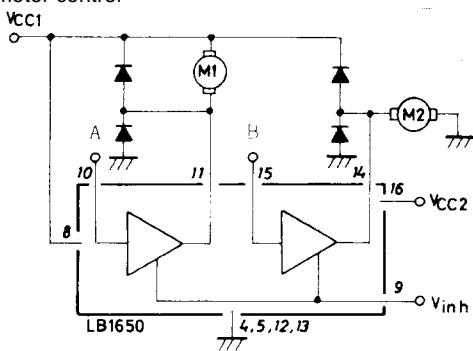
Top view

Equivalent Circuit Block Diagram and Peripheral Circuit

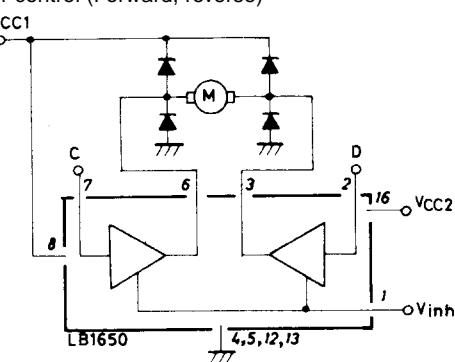


Sample Application Circuits

(1) DC motor control



(2) DC motor control (Forward, reverse)



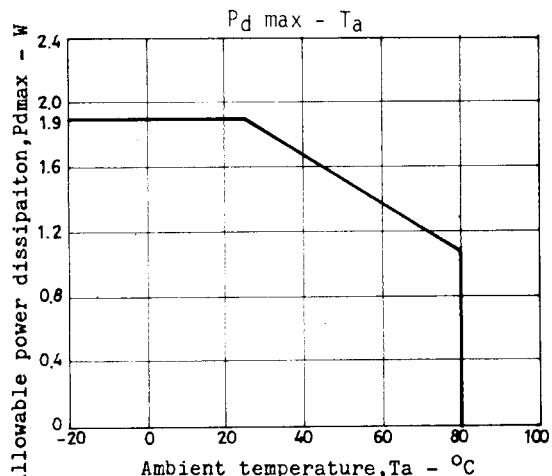
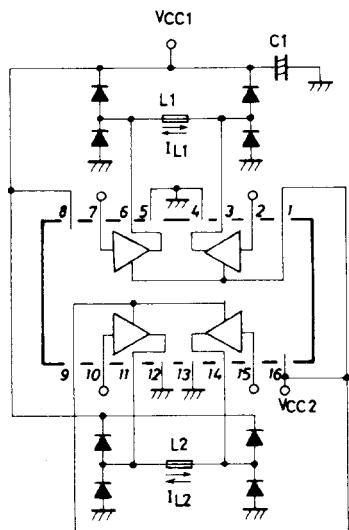
Vinh	A	M1	B	M2
H	H	Brake	H	Forward
H	L	Forward	L	Brake
L	X	Open*	X	Open*

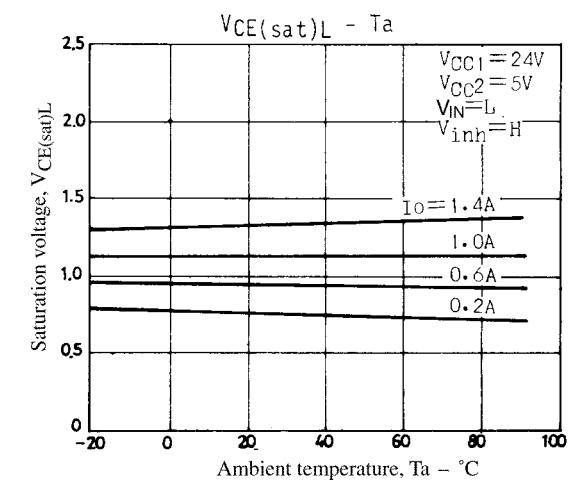
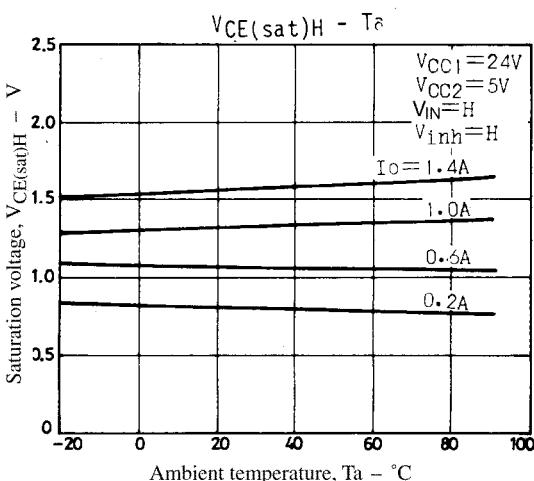
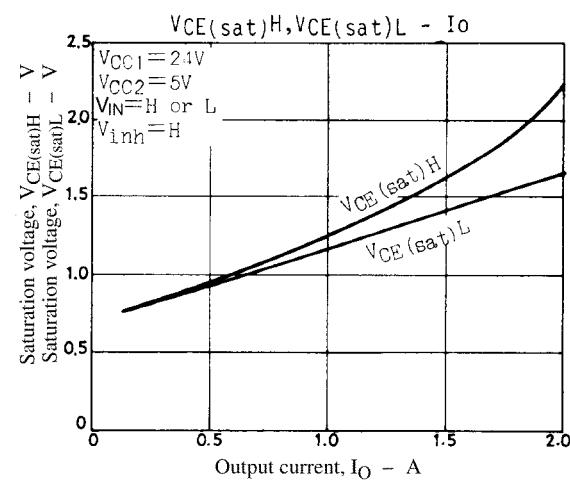
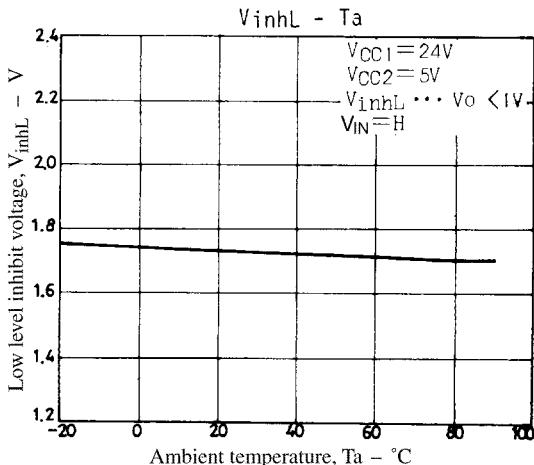
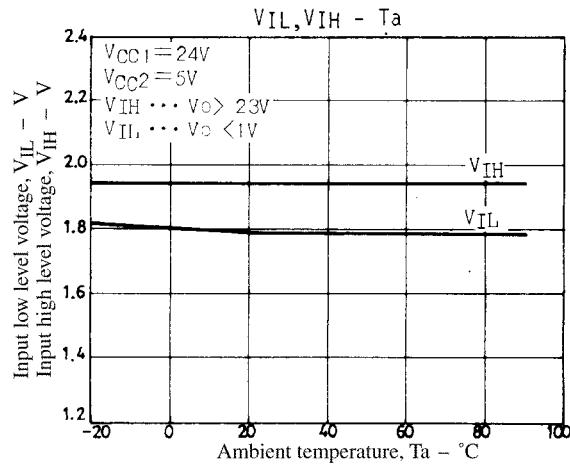
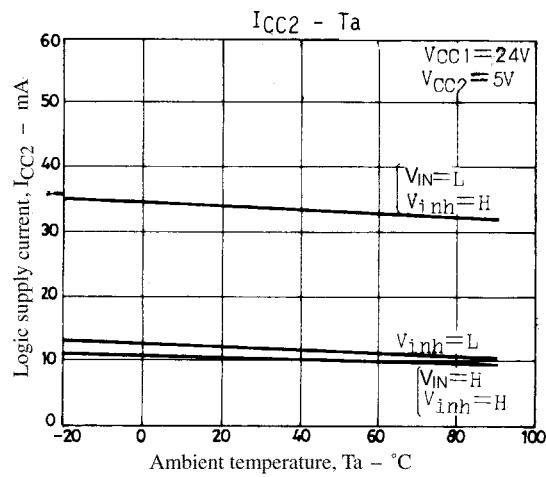
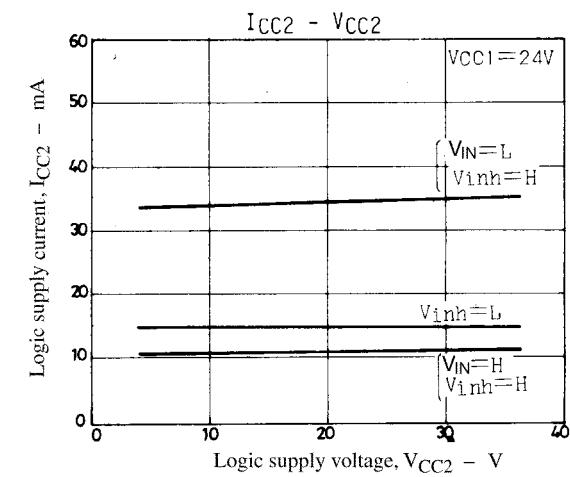
X : don't care

Input		Function
Vinh	C=H D=L C=L D=H C=D	Forward (right) Reverse (left) Brake
Vinh=L	C=X D=X	Open*

* : High impedance

(3) Stepping motor control (Bipolar drive)





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