

SANYO

No. 1530C

LB1650**Dual Bidirectional Motor Driver**

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

Absolute Maximum Ratings at Ta=25°C

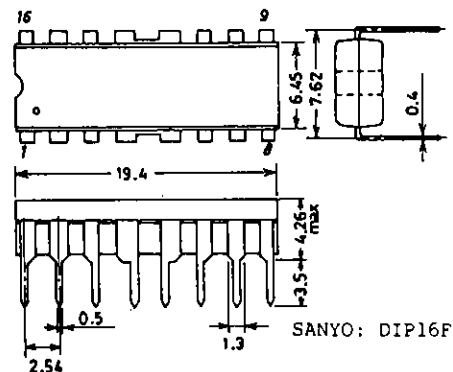
			unit
Maximum Supply Voltage	V _{CC1}	36	V
Logic Supply Voltage	V _{CC2}	36	V
Input Voltage	V _i	7	V
Inhibit Voltage	V _{inh}	7	V
Peak Output Current	I _{OUT}	2	A
Allowable Power Dissipation	P _{d max}	1.9	W
Operating Temperature	T _{opr}	-20 to +80	°C
Storage Temperature	T _{stg}	-40 to +150	°C

Allowable Operating Conditions at Ta=25°C

			unit
Supply Voltage	V _{CC1}	4.5 to 36	V
Logic Supply Voltage	V _{CC2}	4.5 to 36	V

Package Dimensions 3054A

(unit: mm)

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LB1650

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

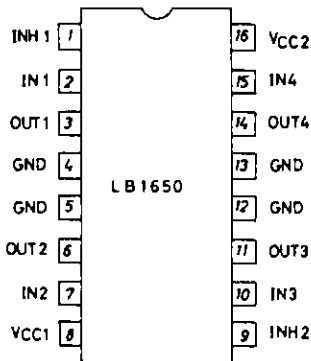
			min	typ	max	unit
Supply Current (Per CH)	I_{CC1}	$V_i=L, I_0=0, V_{inh}=H$			1.5	mA
		$V_i=H, I_0=0, V_{inh}=H$			6	mA
		$V_{inh}=L$			1	mA
Logic Supply Current	I_{CC2}	$V_i=L, I_0=0, V_{inh}=H$		44	60	mA
		$V_i=H, I_0=0, V_{inh}=H$			22	mA
		$V_{inh}=L$			24	mA
"L"-Level Input Voltage	V_{IL}		-0.3		1.5	V
"H"-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
"L"-Level Input Current	I_{IL}	$V_i=L$			± 10	μA
"H"-Level Input Current	I_{IH}	$V_i=H-0.3\text{V}$		30	100	μA
"L"-Level Inhibit Voltage	V_{inhL}		-0.3		1.5	V
"H"-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
"L"-Level Inhibit Current	I_{inhL}		-100	-30		μA
"H"-Level Inhibit Current	I_{inhH}				± 10	μA
Saturation Voltage	$V_{CE(sat)}$	H $I_0=-1\text{A}$	1.4		1.8	V
		L $I_0=1\text{A}$	1.2		1.8	V

Truth Table

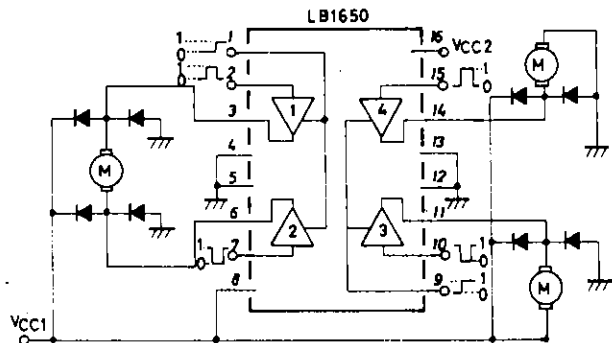
V_i (per CH)	V_{inh}	V_O
H	H	H
L	H	L
H	L	Open*
L	L	Open*

*: High impedance

Pin Assignment

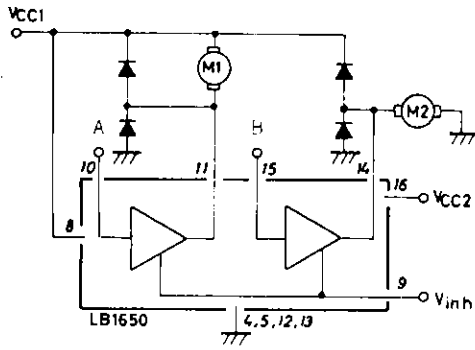


Equivalent Circuit Block Diagram and Peripheral Circuit

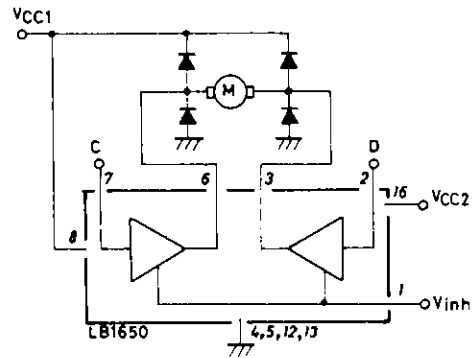


Sample Application Circuits

(1) DC motor control



(2) DC motor control (Forward, reverse)



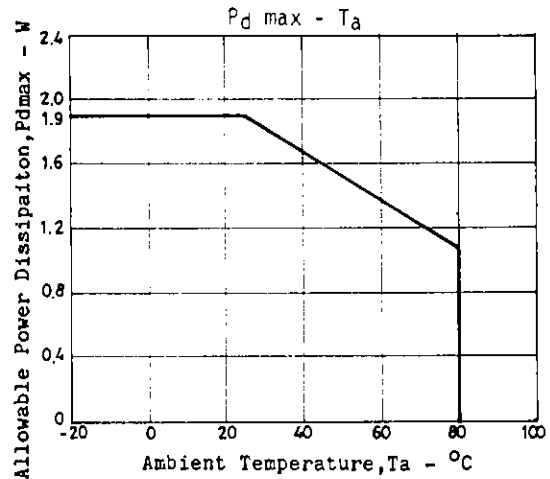
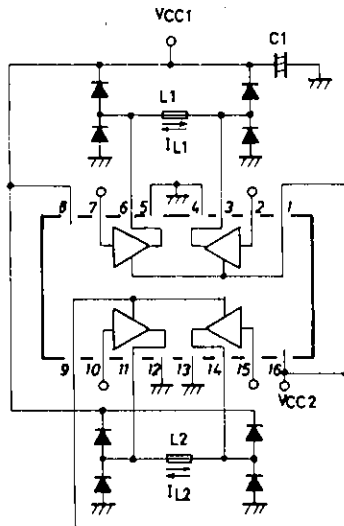
V _{inh}	A	M1	B	M2
H	H	Brake	H	Forward
H	L	Forward	L	Brake
L	X	Open*	X	Open*

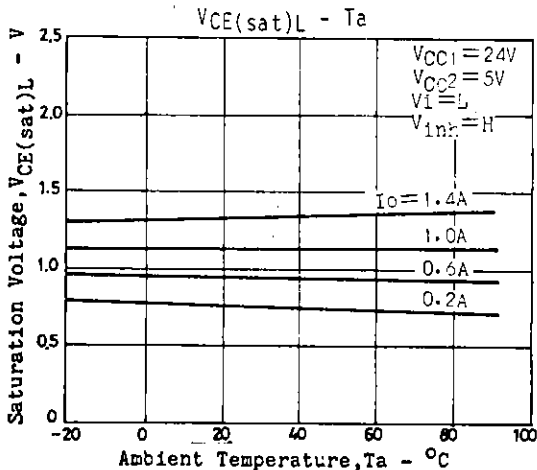
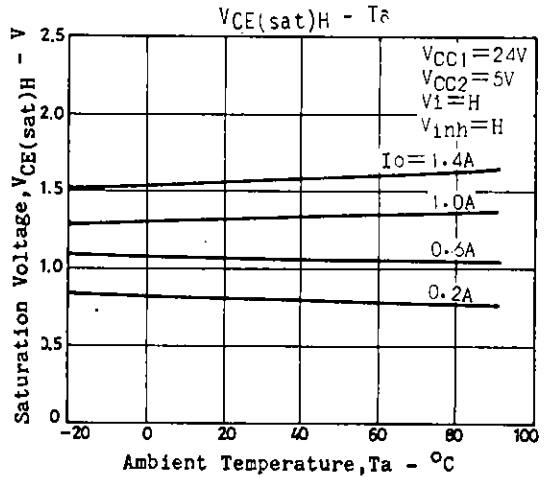
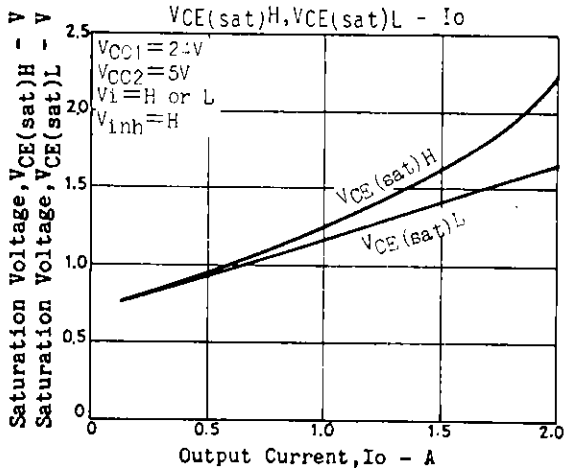
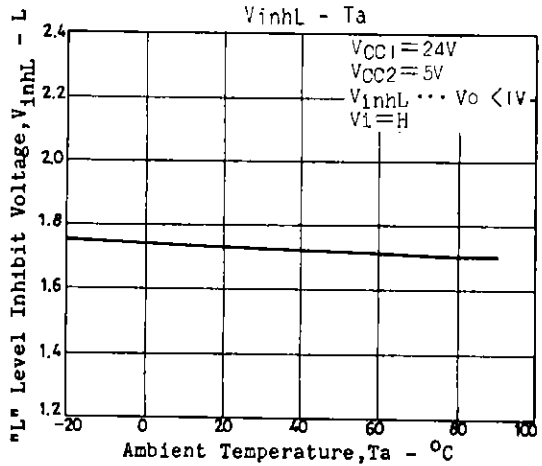
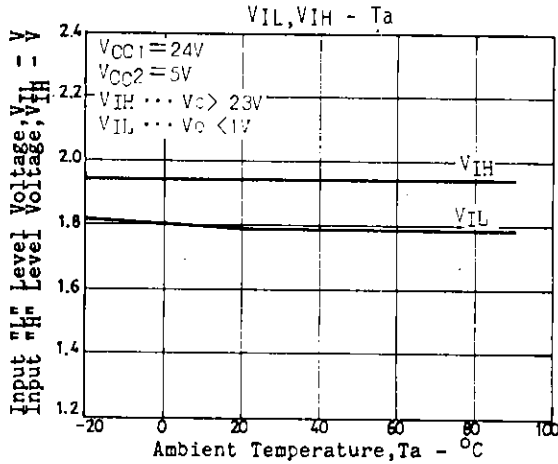
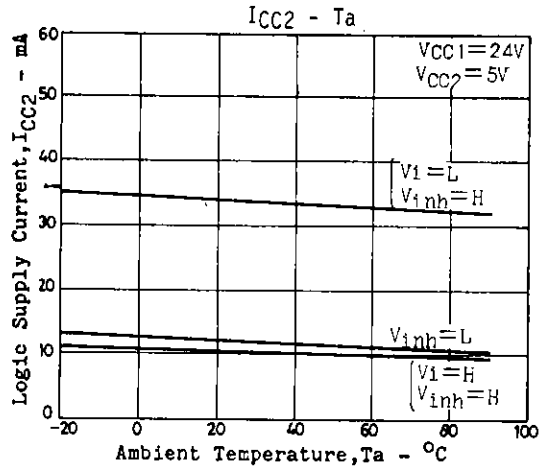
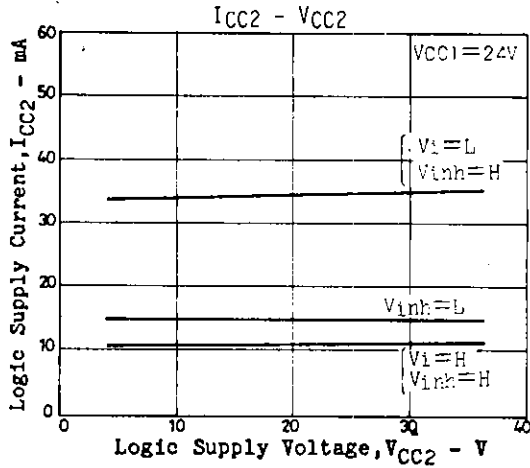
X: don't care

Input		Function
V _{inh} =H	C=H D=L	Forward(right)
	C=L D=H	Reverse(left)
	C=D	Brake
V _{inh} =L	C=X D=X	Open*

*: High impedance

(3) Stepping motor control (Bipolar drive)





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