Ordering number:EN2576B

Monolithic Digital IC

LB1644

Dual Bidirectional Motor Driver

Overview

The LB1644 is a dual bidirectional motor driver. Since each channel has a 2-input logic circuit and performs bidirectional driving and braking functions, it is capable of direct driving 2pcs. of motor of various types rated at 6 to 24V. The output voltage can be varied by using external zener diodes.
It is especially suited for dual motor drive (reel motor, loading motor, cassette motor in VCR) and for stepping motor drive.

Features

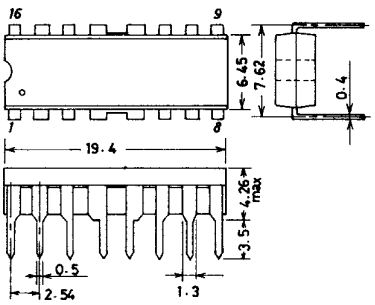
- With power transistors for motor drive contained, capable of withstanding dash current of 1A max.
- Performs braking function at the motor stop mode.
- Contains elements to absorb motor dash current.
- Input interfaceable to MOS LSI.
- Minimum number of external parts required.
- Wide operating voltage range.
- Contains thermal shutdown protector.

Package Dimensions

unit:mm

3054A-DIP16F

[LB1644]



SANYO : DIP16F

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		25	V
Input voltage	V_{IN}		25	V
Output current	I_{OUT}		±1	A
Allowable power dissipation	Pd max		1.44	W
Operating temperature	Topr		–25 to +65	˚C
Storage temperature	Tstg		–55 to +125	˚C

Allowable Operating Conditions at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		7 to +25	V

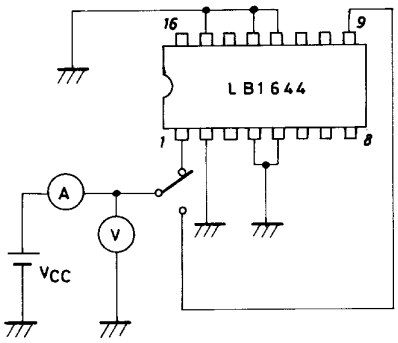
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Electrical Characteristics at Ta = 25°C

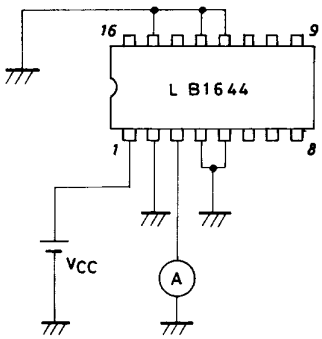
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CC}1$	Pin1, Braking mode, R_L=∞		8.0	11.5	mA
	$I_{CC}2$	Pin9, Braking mode, R_L=∞		7.0	10.0	mA
Output leakage current	I_{OL}	Braking mode, R_L=∞ per output pin		40	120	μA
Input threshold voltage	V_{th}	R_L=∞	0.9	1.05	1.20	V
Output voltage	V_O	R_L=60Ω, V_Z=7.4V	6.5	7.2	7.5	V
Output tr saturation voltage (upper)	$V_{sat}1$	I_{OUT}=300mA		1.9	2.3	V
		I_{OUT}=500mA		2.0	2.4	V
Output tr saturation voltage (lower)	$V_{sat}2$	I_{OUT}=300mA		0.3	0.55	V
		I_{OUT}=500mA		0.5	0.7	V

Test Circuits (per channel)

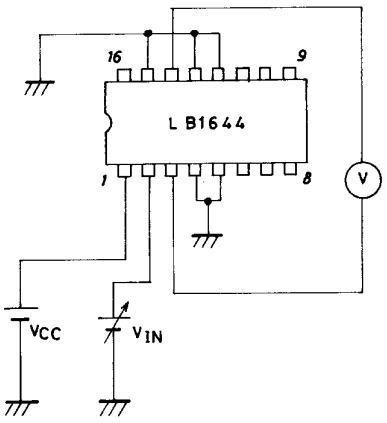
(1) ICC1 (1pin)
ICC2 (9pin)



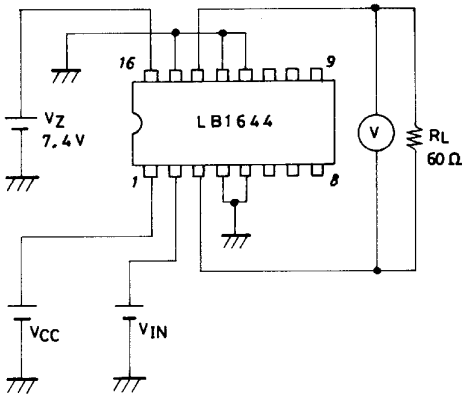
(2) IOL



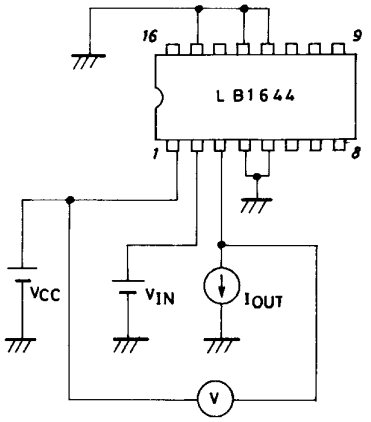
(3) Vth



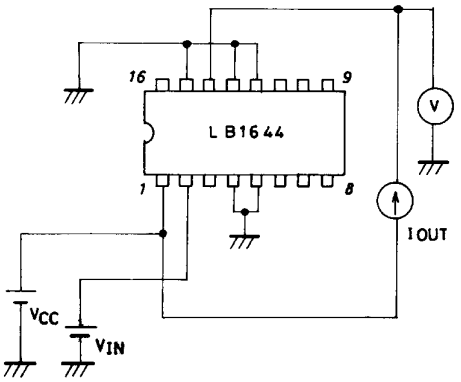
(4) Vo



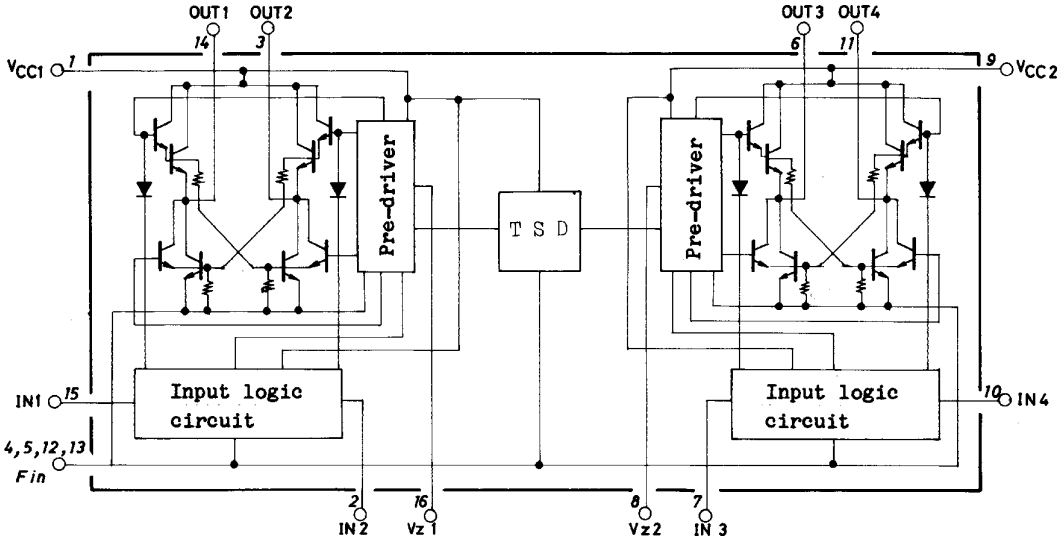
(5) Vsat1



(6) Vsat2



Equivalent Circuit Block Diagram



Truth Table of Logic Circuit

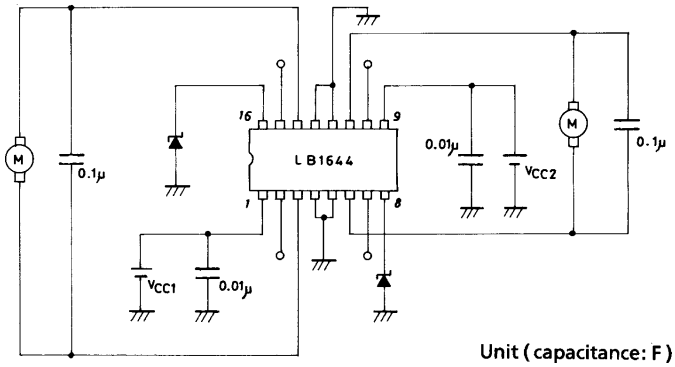
IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	L	L	0	0	L	L
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

Note : A capacitor of 0.01μF or greater must be connected across V_{CC}1, 2 and GND.

INPUT			OUTPUT				MODE	
IN1	IN2, 3	IN4	OUT1	OUT2	OUT3	OUT4	M1	M2
0	0	0	L	L	L	L	Braking	Braking
1	0	0	H	L	L	L	Forward/reverse	Braking
0	1	1	L	H	L	L	Reverse/forward	Braking
1	1	0	L	L	H	L	Braking	Forward/reverse
0	0	1	L	L	L	H	Braking	Reverse/forward
1	1	1	L	L	L	L	Braking	Braking

The remaining input states 1, 0, 1 and 0, 1, 0 are not inhibited.

Sample Application Circuit



Unit (capacitance: F)