

SANYO Semiconductors DATA SHEET

An ON Semiconductor Company

LB1641 — Bidirectional Motor Driver

Overview

The LB1641 is a bidirectional motor driver IC. Since it has a 2-input logic circuit and performs the functions of bidirectional driving and braking, it is capable of direct driving 6V, 9V, 12V motors. The output voltage can be varied by using an external zener diode.

Features

- 2-input logic can be used to exercise control of bidirectional driving and braking.
- On-chip elements to absorb dash current of motor.
- Input interfaceable to MOS LSI.
- Output voltage variable by use of external zener diode.

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		18	V
Input voltage	V _{IN}		-0.3 to V _{CC}	V
Output circuit	lout		±1.6	Α
Allowable power dissipation	Pd max		1.2	W
Operating temperature	Topr		-25 to +75	°C
Storage temperature	Tstg		-55 to +125	°C

Recommended Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V _{CC} 1		7 to 18	V
	V _{CC} 2		5 to 18	V

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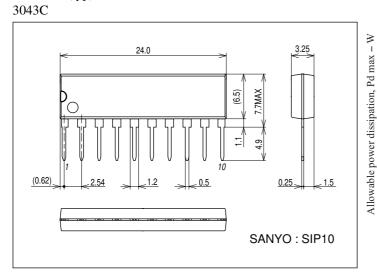
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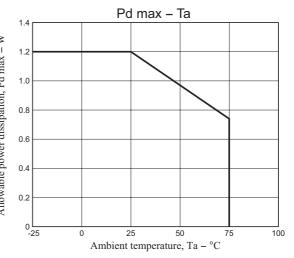
Electrical Characteristics at Ta = 25°C, $V_{CC} = 12V$

Davarantas	0	Q I'll	Ratings			11.0	
Parameter	Symbol Conditions		min	typ	max	Unit	
Input threshold voltage	Vth	$R_L = \infty$	1.1	1.3	1.5	V	
Minimum input on-state current	I _{IN}	$R_L = \infty$		10	15	μА	
Output voltage	V _O	$R_L = 60\Omega, V_Z = 7.4V$	6.6	7.2	7.4	V	
Output leakage current	loL	Pins 5,6 GND, R _L = ∞		0.01	1.0	mA	
Current drain	^I CC	Pins 5,6 GND, $R_L = \infty$	3	6	10	mA	
Saturation voltage (upper)	Vsat1	I _{OUT} = 300mA		1.9	2.2	V	
	Vsat1'	I _{OUT} = 500mA		1.9	2.3	V	
Saturation voltage (lower)	Vsat2	I _{OUT} = 300mA		0.25	0.5	V	
	Vsat2'	I _{OUT} = 500mA		0.4	0.65	V	

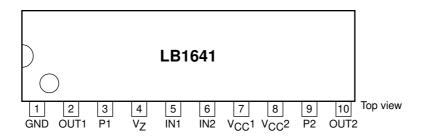
Package Dimensions

unit: mm (typ)





Pin Assignment

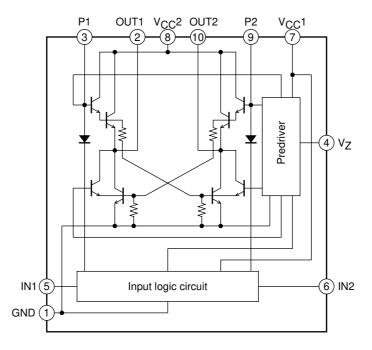


Truth Table

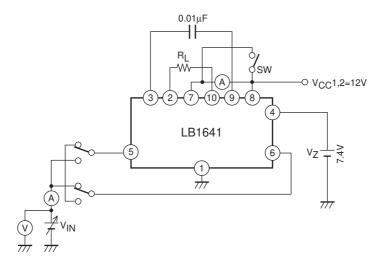
In	Input		tput	Operation
IN1	IN2	IN3	IN4	Operation
0	0	0	0	Braking
1	0	1	0	Forward (reverse) drive
0	1	0	1	Reverse (forward) drive
1	1	0	0	Braking

Input level 1 : 2.0V or greater 0 : 0.7V or less

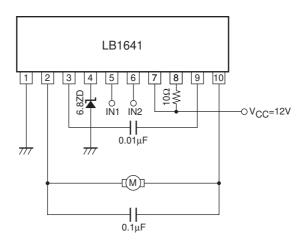
Block Diagram

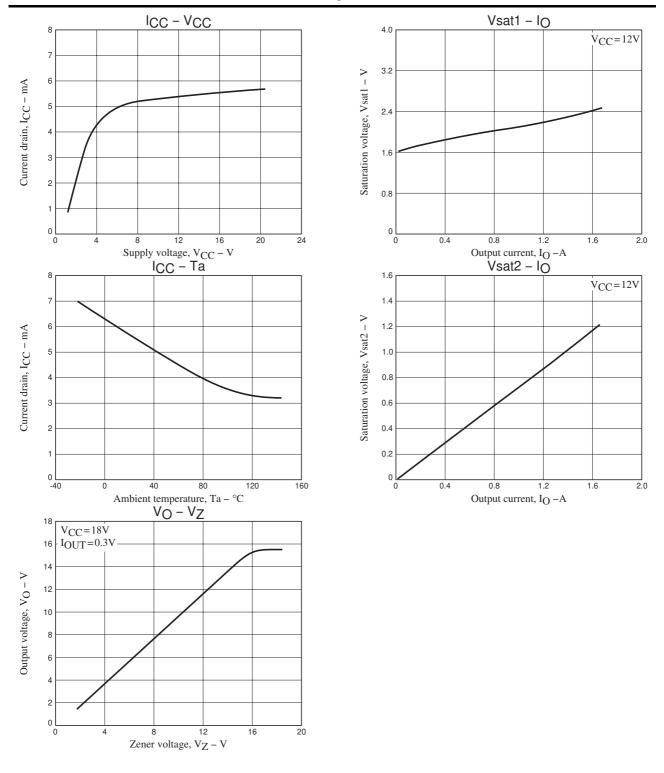


Test Circuit



Sample Application Circuit : 6V motor circuit





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