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SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

LB1641 — Monolithic Digital IC 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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		18	V
Input voltage	V_{IN}		-0.3 to V_{CC}	V
Output circuit	I_{OUT}		± 1.6	A
Allowable power dissipation	$P_d\text{ max}$		1.2	W
Operating temperature	T_{opr}		-25 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

Recommended Operating Ranges at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC1}		7 to 18	V
	V_{CC2}		5 to 18	V

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LB1641

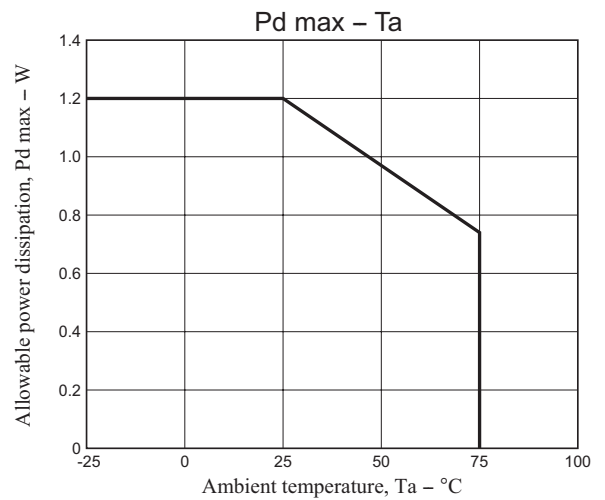
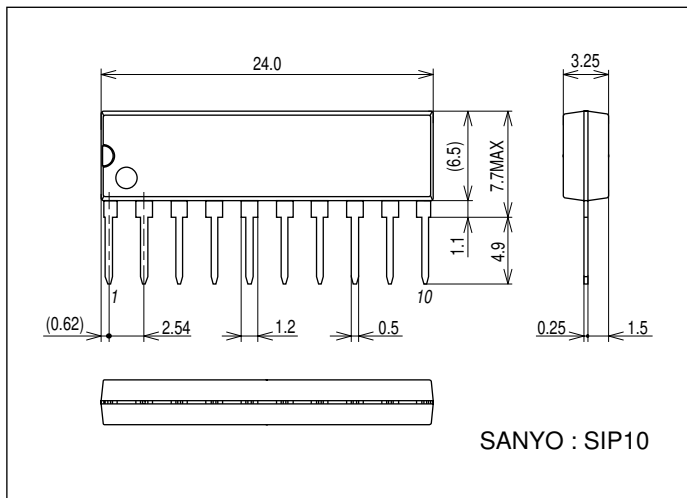
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input threshold voltage	V_{th}	$R_L = \infty$	1.1	1.3	1.5	V
Minimum input on-state current	I_{IN}	$R_L = \infty$		10	15	μA
Output voltage	V_O	$R_L = 60\Omega$, $V_Z = 7.4\text{V}$	6.6	7.2	7.4	V
Output leakage current	I_{OL}	Pins 5,6 GND, $R_L = \infty$		0.01	1.0	mA
Current drain	I_{CC}	Pins 5,6 GND, $R_L = \infty$	3	6	10	mA
Saturation voltage (upper)	V_{sat1}	$I_{OUT} = 300\text{mA}$		1.9	2.2	V
	V_{sat1}'	$I_{OUT} = 500\text{mA}$		1.9	2.3	V
Saturation voltage (lower)	V_{sat2}	$I_{OUT} = 300\text{mA}$		0.25	0.5	V
	V_{sat2}'	$I_{OUT} = 500\text{mA}$		0.4	0.65	V

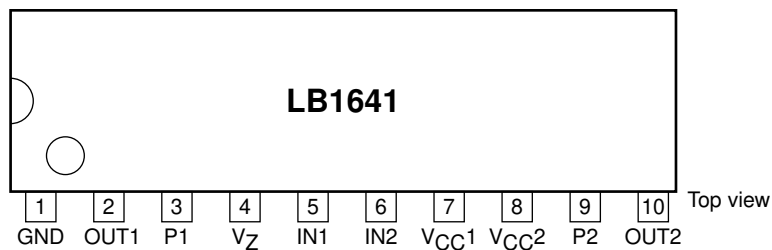
Package Dimensions

unit : mm (typ)

3043C



Pin Assignment



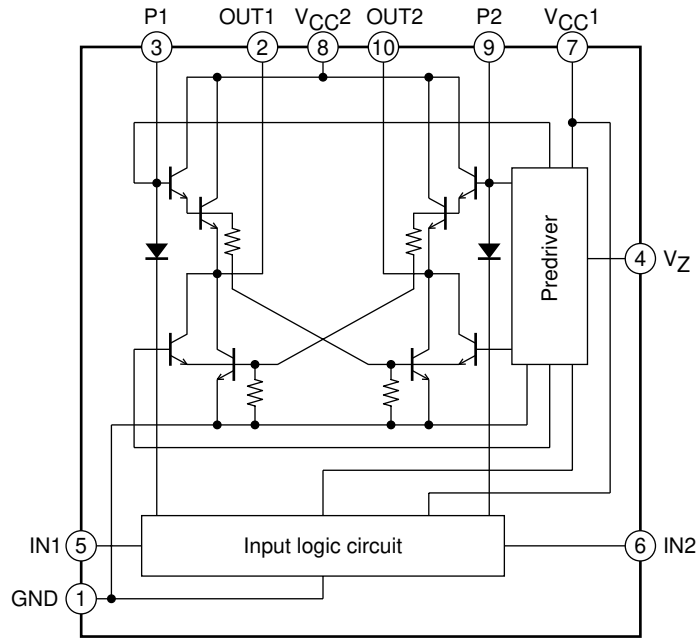
Truth Table

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

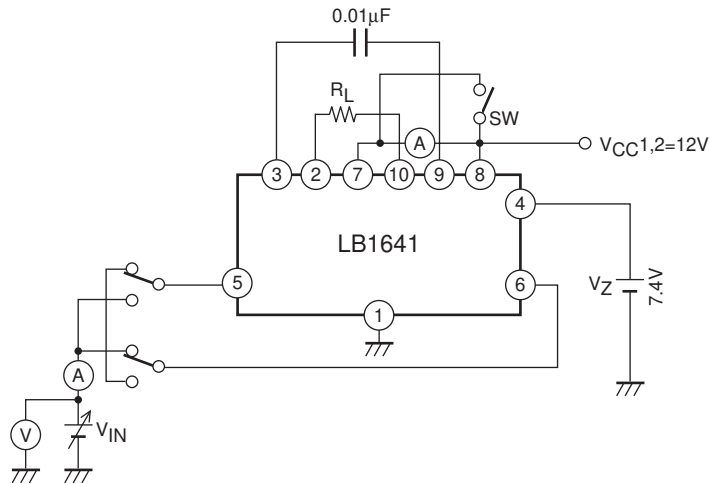
Input level 1 : 2.0V or greater
0 : 0.7V or less

LB1641

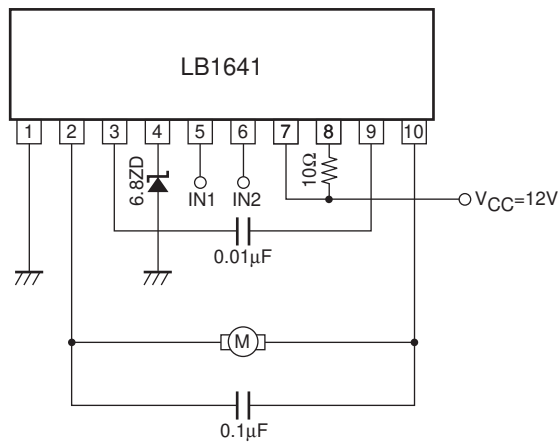
Block Diagram

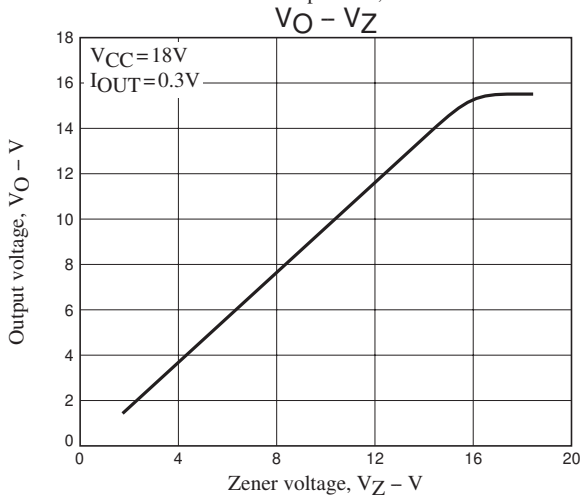
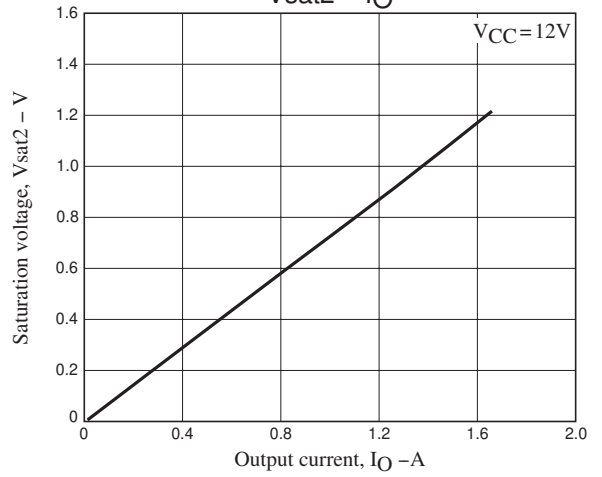
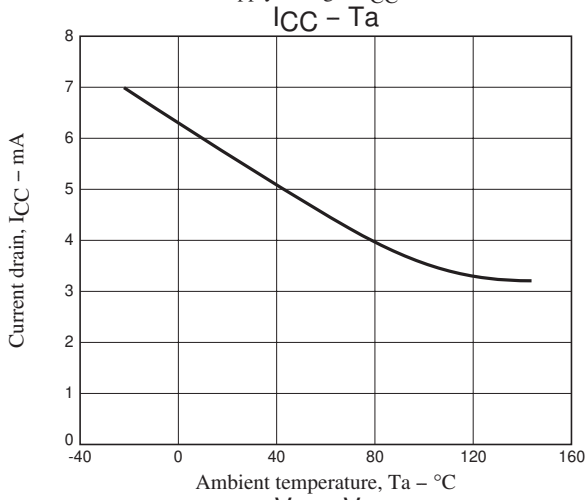
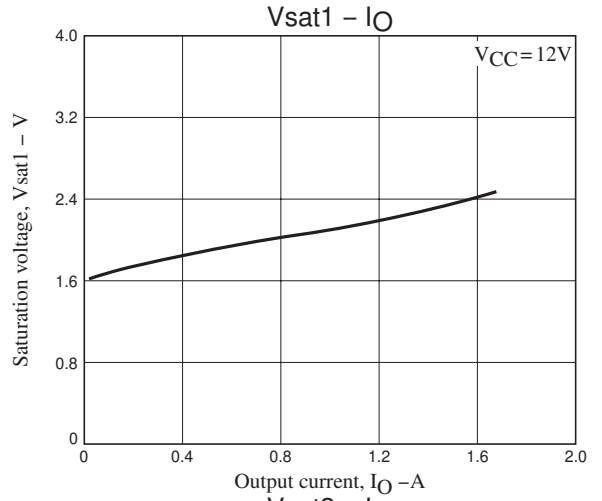
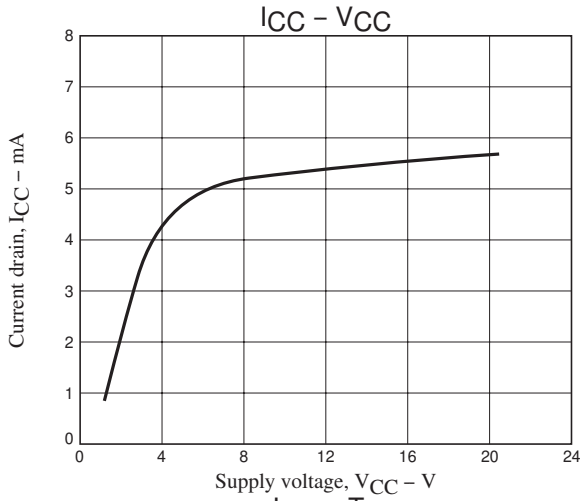


Test Circuit



Sample Application Circuit : 6V motor circuit





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