

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

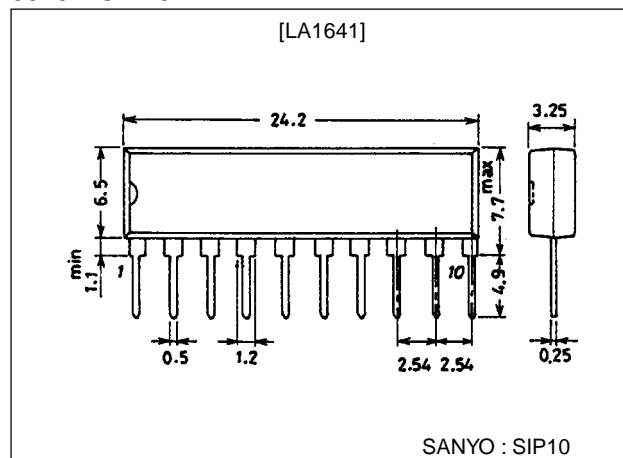
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		18	V
Input voltage	V_{IN}		-0.3 to V_{CC}	V
Output current	I_{OUT}		± 1.6	A
Allowable power dissipation	$P_d\text{ max}$		1.2	W
Operating temperature	T_{opr}		-25 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}	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

Operating Conditions 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

Package Dimensions

unit:mm

3043A-SIP10

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LB1641

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

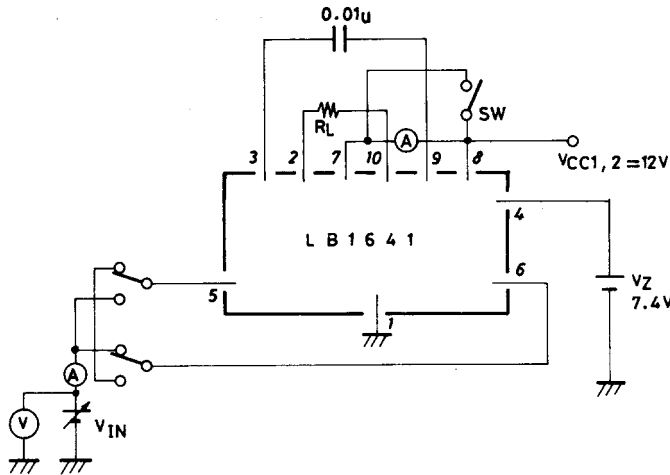
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input threshold voltage	V_{th}	$R_L = \infty$	1.1	1.3	1.5	V
Minimum input on-state current	I_{IN}	$R_L = \infty$		10	15	μA
Output voltage	V_O	$R_L = 60\Omega, V_Z = 7.4\text{V}$	6.6	7.2	7.4	V
Output leakage current	I_{OL}	Pins 5, 6 GND, $R_L = \infty$		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}	$V_{CC} = 12\text{V}, I_{OUT} = 300\text{mA}$		1.9	2.2	V
	V_{sat1}	$V_{CC} = 12\text{V}, I_{OUT} = 500\text{mA}$		1.9	2.3	V
Saturation voltage (lower)	V_{sat2}	$V_{CC} = 12\text{V}, I_{OUT} = 300\text{mA}$		0.25	0.5	V
	V_{sat2}	$V_{CC} = 12\text{V}, I_{OUT} = 500\text{mA}$		0.4	0.65	V

Truth Table

Input		Output		Operation
IN1	IN2	OUT1	OUT2	
0	0	0	0	Braking
1	0	1	0	Forward (reverse) drive
0	1	0	1	Reverse (forward) drive
1	1	0	0	Braking

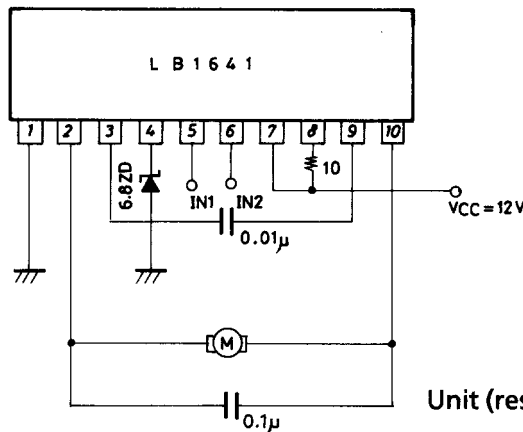
Input level 1 : 2.0V or greater
 0 : 0.7V or less

Test Circuit



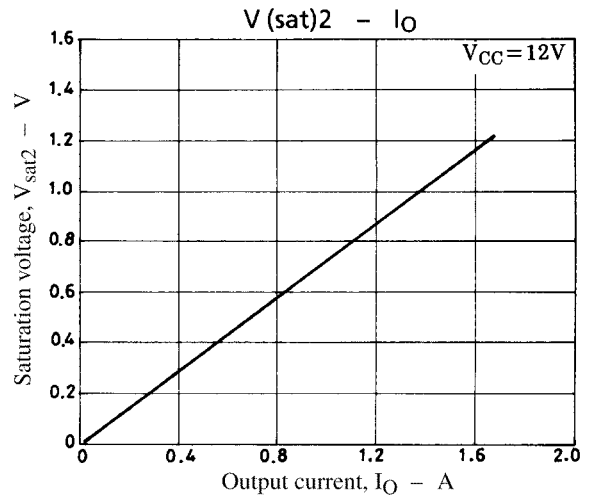
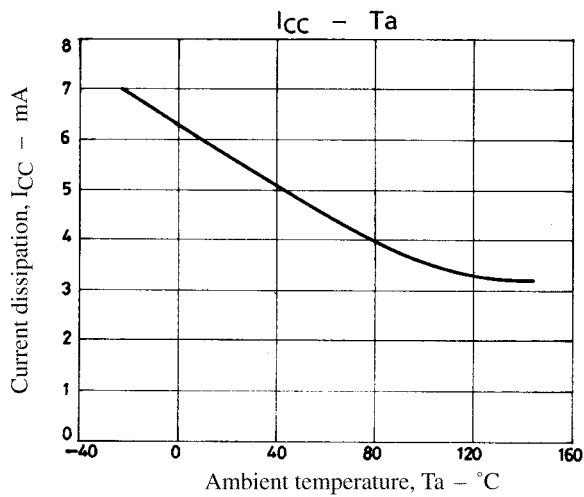
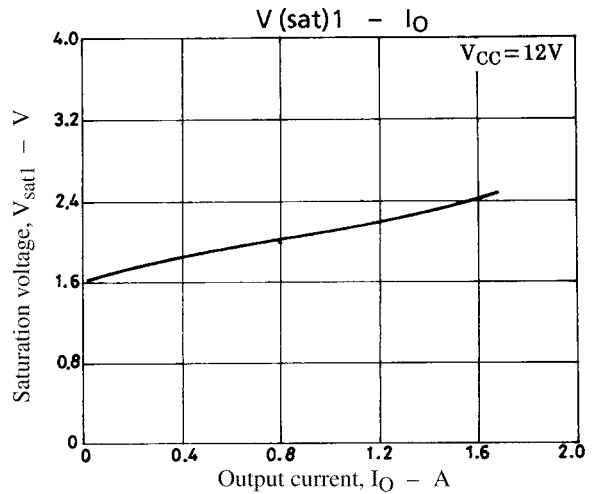
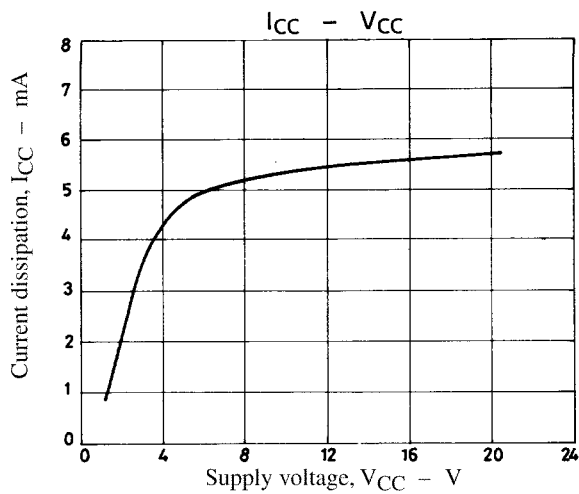
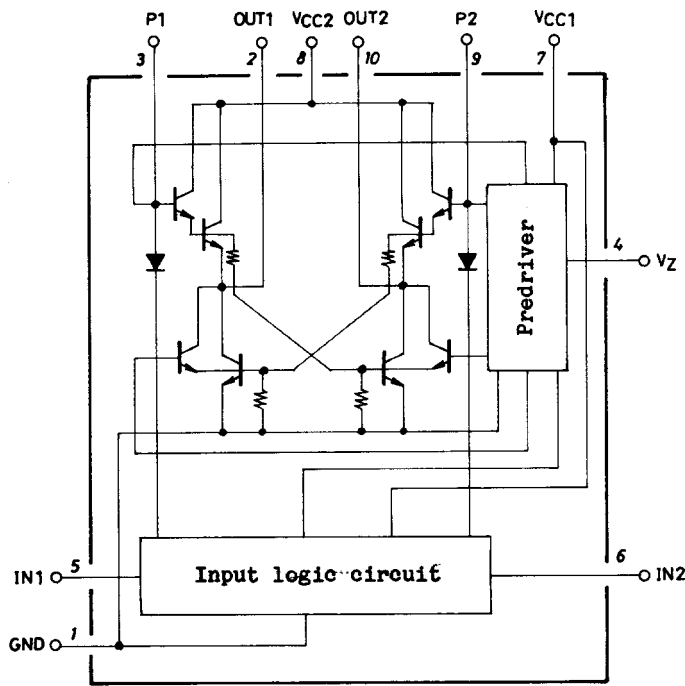
Unit (capacitance: F)

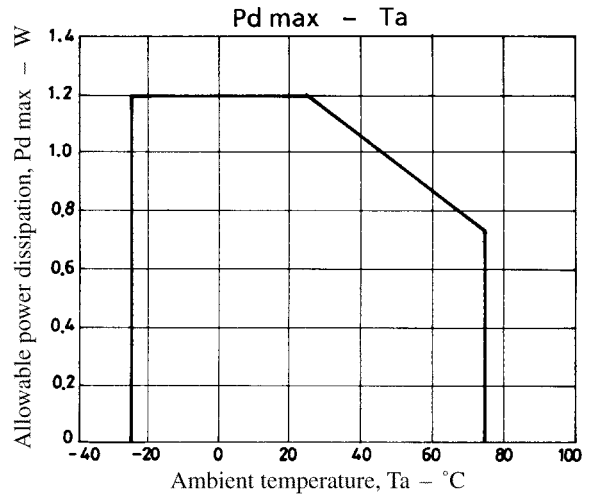
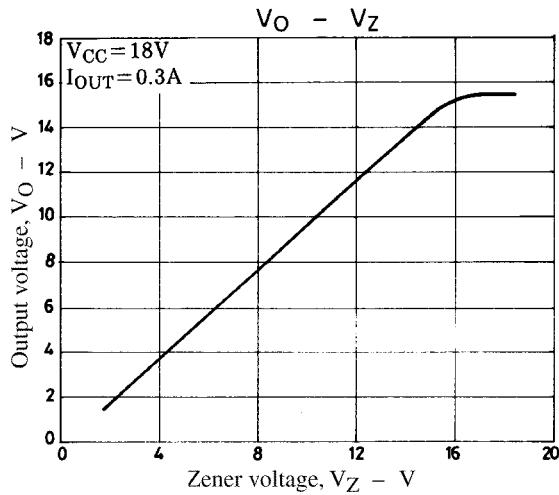
Sample Application Circuit : 6V motor circuit



Unit (resistance: Ω , capacitance: F)

Equivalent Circuit Block Diagram





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