



LB1630

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

Overview

The LB1630 is a low-saturation bidirectional motor driver IC for use in low-voltage applications. It is especially suited for use in small-sized low-voltage motors for printers, cassette tape recorders, and consumer equipment.

Features

- Capable of operating from a low voltage (2.5V min).
Low current drain at the standby mode ($I_{CC} \leq 30\mu A$).
- Low-saturation voltage (upper transistor + lower transistor residual voltage 1.2V max at 400mA).
- On-chip spark killer diodes.

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$		-0.3 to +7.0	V
Output supply voltage	V_{OUT}		-0.3 to $V_{CC} + V_F$	V
Input supply voltage	V_{IN}		-0.3 to +7.0	V
Allowable load resistance	$R_M \text{ min}$	Pulse width < 50ms, duty 10%	3	Ω
GND pin flow-out current	I_{GND}	Pulse width < 50ms, duty 10%	2	A
Allowable power dissipation	$P_d \text{ max}$		785	mW
Operating temperature	T_{opr}		-20 to +75	$^\circ C$
Storage temperature	T_{stg}		-40 to +125	$^\circ C$

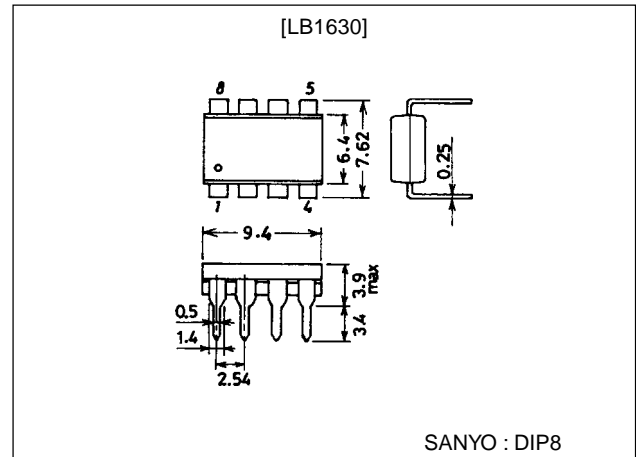
Allowable Operating Conditions at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		2.5 to 6.0	V
Input high-level voltage	V_{IH}		2.0 to 6.0	V
Input low-level voltage	V_{IL}		-0.3 to +0.7	V

Package Dimensions

unit:mm

3001B-DIP8



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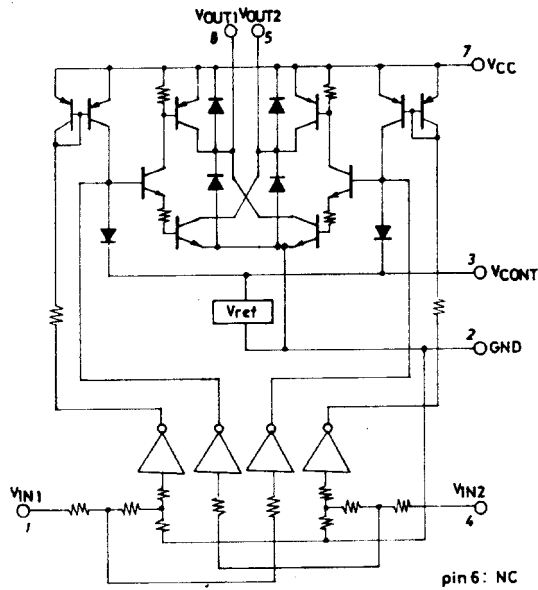
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LB1630

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output saturation voltage (upper side+lower side)	V _{OUT(1)}	V _{CC} =3V, V _{IN} =3V, I _O UT=200mA			0.6	V
	V _{OUT(2)}	V _{CC} =3.5V, V _{IN} =3V, I _O UT=400mA			1.2	V
Output sustain voltage	V _{O(sus)}	I _O UT=400mA	9			V
Output leakage current	I _{O(leak)}	V _{CC} =6V			30	μA
Input current	I _{IN}	V _{IN} =6V			1.0	mA
[Spark killer diode]						
Reverse current	I _{S(leak)}	V _{CC} =6V, V _{IN} =0V			30	μA
Forward voltage	V _{SF}	I _O UT=500mA			1.7	V
Current drain	I _{CC}	I _{CC} =3.5V, V _{IN} =3V, I _O UT=400mA			430	mA

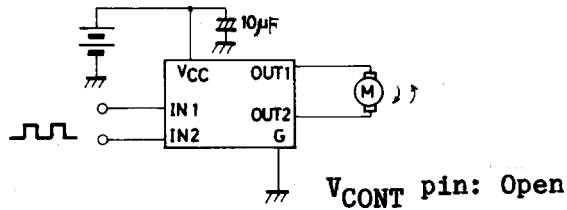
Equivalent Circuit



Truth Table

IN1	IN2	OUT1	OUT2	MOTOR
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	off	off	Standby
L	L	off	off	Standby

Sample Application Circuit



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