T-52-13-25

LB1631M

3097

Monolithic Digital IC

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

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The LB1631M is a dual low-saturation bidirectional motor driver IC for use in low-voltage applications. It is especially suited for use in small-sized low-voltage motors in portable equipment such as printer, FDD, camera.

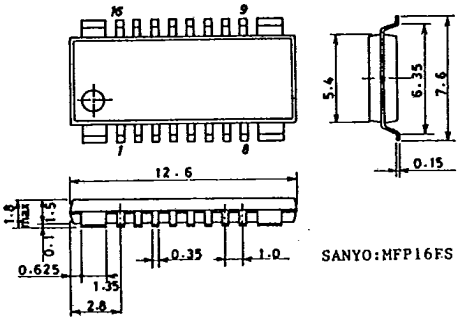
Features

- Capable of being operated from a low voltage (2.5V min)
- Low saturation voltage
  (upper Tr + lower Tr residual voltage 1.2V max at 400mA)
- Parallel connection available
  (upper Tr + lower Tr residual voltage 0.7V max at 400mA)
  (upper Tr + lower Tr residual voltage 1.3V max at 800mA)
- Logic power supply and motor power supply are separate.
- On-chip braking function
- On-chip spark killer diodes
- Possible to increase the internal allowable power dissipation because the package is small-sized (MFP-16FS) and heat can be radiated easily to the outside.

Absolute Maximum Ratings at Ta=25°C				unit
Maximum Supply Voltage	V_{CC} max/V_S max		-0.3 to +7.0	V
Output Supply Voltage	V_{OUT}		$V_{CC}+V_F$	V
Input Supply Voltage	V_{IN}		-0.3 to +7.0	V
GND Pin Flow-out Current	I_{GND}	Per ch	1.0	A
Allowable Power Dissipation	Pd 1	IC only	900	mW
	Pd 2	*With board	1200	mW
Operating Temperature	Topg		-20 to +75	°C
Storage Temperature	Tstg		-40 to +125	°C

Allowable Operating Conditions at Ta=25°C			unit
Supply Voltage	V_{CC}	2.5 to 6.0	V
	V_S	1.8 to 6.0	V
Input "H"-Level Voltage	V_{IH}	1.8 to 6.0	V
Input "L"-Level Voltage	V_{IL}	-0.3 to +0.7	V

Case Outline 3097-M16FSIC
(unit:mm)



SANYO:MFP16FS

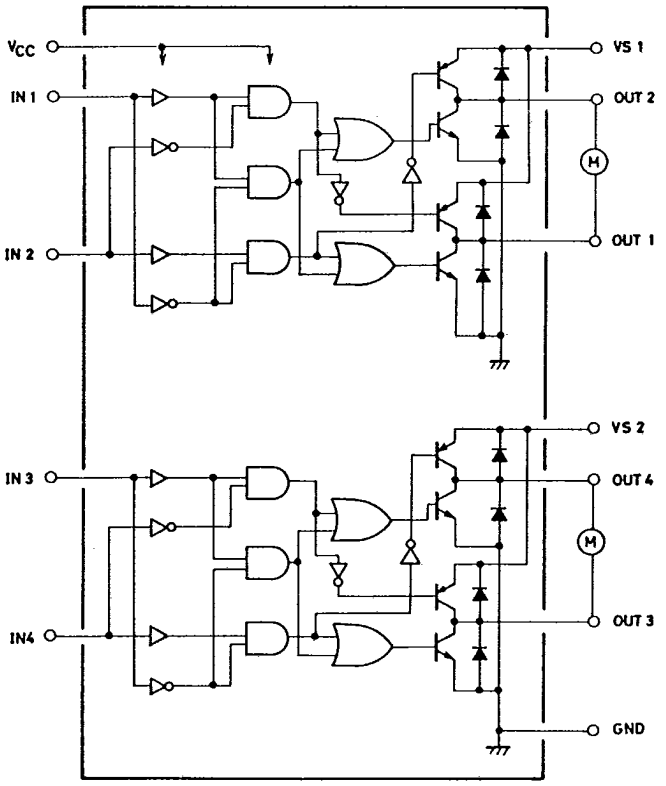
Electrical Characteristics at Ta=25°C, V_{CC}=3V

			min	typ	max	unit
Supply Current	I_{CC0}	V_{IN}1,2,3,4=0V, I_{CC}+Is			30	uA
	I_{CC1}	V_{IN}1=3V, V_{IN}2,3,4=0V, I_{CC}+Is			30	mA
	I_{CC2}	V_{IN}1,2=3V, V_{IN}3,4=0V, I_{CC}+Is			60	mA
Output Saturation Voltage (upper side + lower side)	V_{OUT1}	I_{OUT}=200mA			0.6	V
	V_{OUT2}	I_{OUT}=400mA			1.2	V
	V_{OUT3}	I_{OUT}=400mA, parallel connection			0.7	V
	V_{OUT4}	I_{OUT}=800mA, parallel connection			1.3	V
Output Sustain Voltage	Vo(sus)	I_{OUT}=400mA	9			V
Input Current	I_{IN}	V_{IN}=6V, V_{CC}=6V			1.0	mA
Spark Killer Diode Reverse Current	Is(leak)	V_{CC}=1,2=6V			30	uA
Spark Killer Diode Forward Voltage	V_{SF}	I_{OUT}=500mA			1.7	V

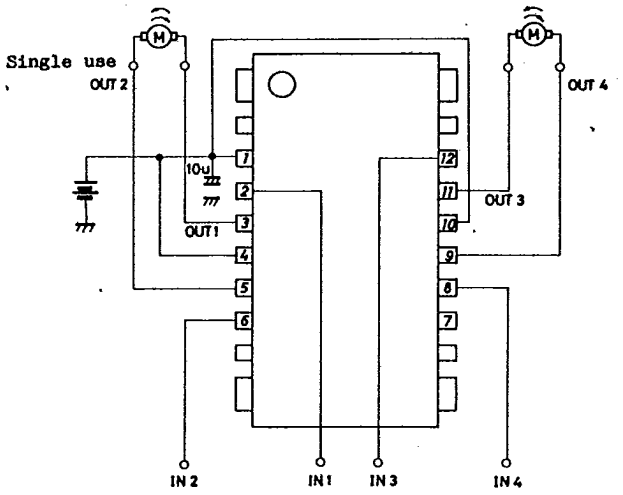
Truth Table

IN 1/3	IN 2/4	OUT 1/3	OUT 2/4	Mode
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	L	L	Brake
L	L	OFF	OFF	Standby

Equivalent Circuit Diagram



Sample Application Circuit



Parallel Connection