

Monolithic Digital IC

SANYO	No.3296	LB1831M
	Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications	

The LB1831M is a dual low-saturation bidirectional motor driver IC for use in low-voltage applications. It is especially suited for use in compact low-voltage motors in portable equipment such as printer, FDD, camera.

Features

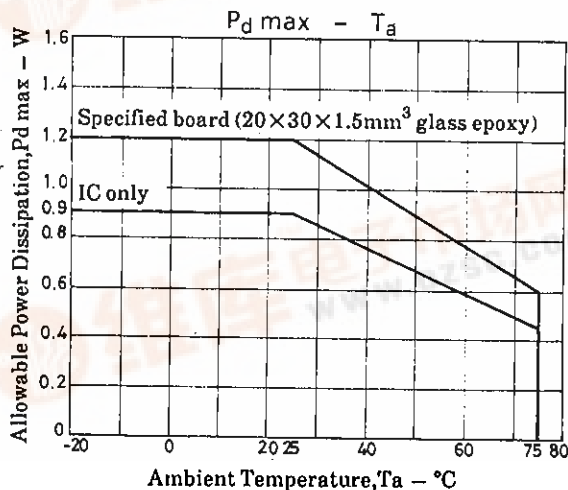
- Capable of being operated from a low voltage (2.5V min)
- Low saturation voltage
(Upper transistor + lower transistor residual voltage 1.0V max at 400mA)
- Parallel connection available
(Upper transistor + lower transistor residual voltage 0.5V max at 400mA)
(Upper transistor + lower transistor residual voltage 1.0V 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 compact (MFP-16FS) and heat can be radiated easily to the outside.

Absolute Maximum Ratings at Ta = 25°C

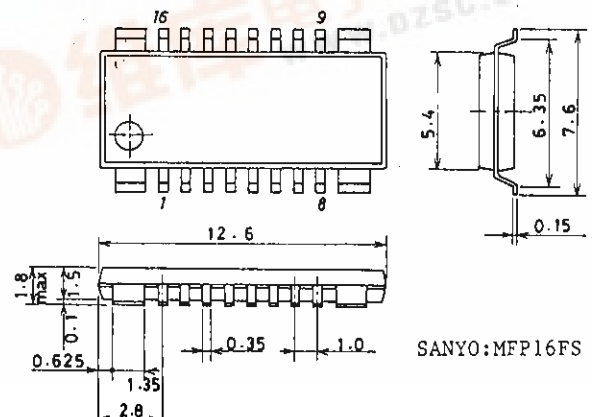
Parameter	Symbol	Value	unit
Maximum Supply Voltage	VCC max	-0.3 to +10	V
	VS max	-0.3 to +10	V
Output Supply Voltage	VOUT	VS + VSF	V
Input Supply Voltage	VIN	-0.3 to +10	V
GND Pin Flow-out Current	IGND	Per channel 1.0	A
Allowable Power Dissipation	Pd max1	IC only 900	mW
	Pd max2	Mounted on specified board (20×30×1.5mm ³ glass epoxy) 1200	mW
Operating Temperature	Topr	-20 to +75	°C
Storage Temperature	Tstg	-40 to +125	°C

Allowable Operating Conditions at Ta = 25°C

Parameter	Symbol	Value	unit
Supply Voltage	VCC	2.5 to 9.0	V
	VS	1.8 to 9.0	V
Input 'H'-Level Voltage	VIH	1.8 to 9.0	V
Input 'L'-Level Voltage	VIL	-0.3 to +0.7	V



Package Dimensions 3097
(unit: mm)



LB1831M

Electrical Characteristics at $T_a = 25^\circ\text{C}, V_{CC} = 3\text{V}$

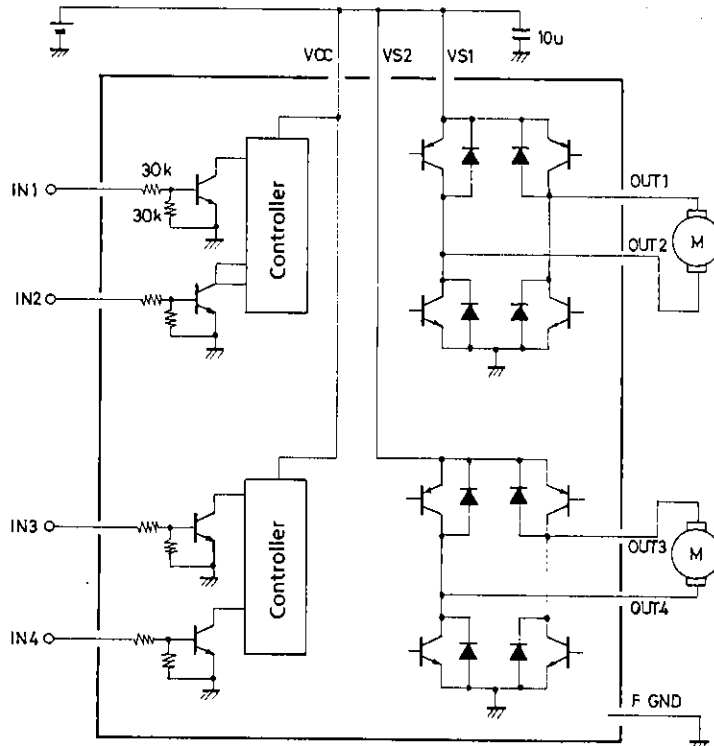
			min	typ	max	unit
Supply Current	I_{CC}	$V_{IN1,2,3,4} = 0\text{V}, I_{CC} + I_S$		0.1	10	μA
	I_{CC1}	$V_{IN1} = 3\text{V}, V_{IN2,3,4} = 0\text{V}, I_{CC} + I_S$		10	18	mA
	I_{CC2}	$V_{IN1,2} = 3\text{V}, V_{IN3,4} = 0\text{V}, I_{CC} + I_S$		20	35	mA
Output Saturation Voltage (Upper + Lower)	V_{OUT1}	$I_{OUT} = 200\text{mA}$		0.35	0.50	V
	V_{OUT2}	$I_{OUT} = 400\text{mA}$		0.75	1.0	V
	V_{OUT3}	$I_{OUT} = 400\text{mA}, \text{parallel connection}$		0.4	0.55	V
	V_{OUT4}	$I_{OUT} = 800\text{mA}, \text{parallel connection}$		0.8	1.1	V
Output Sustain Voltage	$V_{O(sus)}$	$I_{OUT} = 400\text{mA}$	9			V
Input Current [Spark Killer Diode]	I_{IN}	$V_{IN} = 2\text{V}, V_{CC} = 6\text{V}$			80	μA
Reverse Current	$I_S(\text{leak})$	$V_{CC1,2} = 9\text{V}$			30	μA
Forward Voltage	V_{SF}	$I_{OUT} = 500\text{mA}$		1.7		V

Truth Table

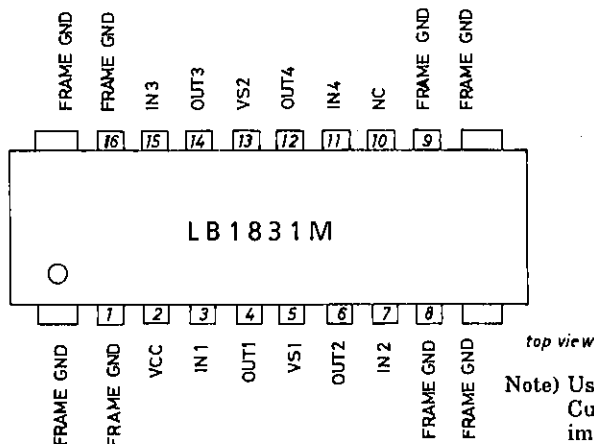
IN 1/3	IN 2/4	OUT 1/3	OUT 2/4	Mode
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	L	L	Brake
L	L	OFF	OFF	Standby

Equivalent Circuit Block Diagram

Unit (resistance: Ω , capacitance: F)



Pin Assignment



Note) Use one of the FRAME-GND pins for grounding. When the Cu-foild side is soldered, heat radiation can be more improved.

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.