

SANYO	No.3545A	Monolithic Digital IC
		LB1634M
Low-voltage, Low-saturation Forward/Reverse Motor Driver		

OVERVIEW

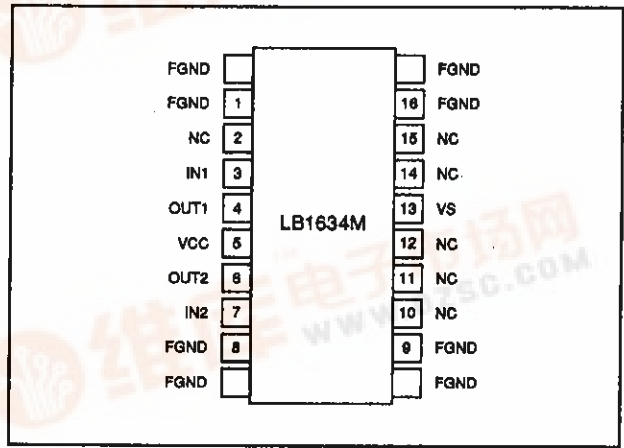
The LB1634M is a low-voltage, low-saturation forward/reverse motor driver. The output saturation voltage is a low 1.4 V for a 1 A output current, making it ideal for use in portable electronic equipment where maximum battery efficiency is required. The LB1634M also features a very low standby-current consumption of 10 μ A or lower.

The LB1634M operates from a 2.5 to 7 V supply and is available in 16-pin MFPs.

FEATURES

- Low-voltage operation
- Low-saturation voltage
- Device current and motor current separation
- On-chip brake function
- On-chip spark-suppressor diode
- 2.5 to 7 V supply
- 16-pin MFP

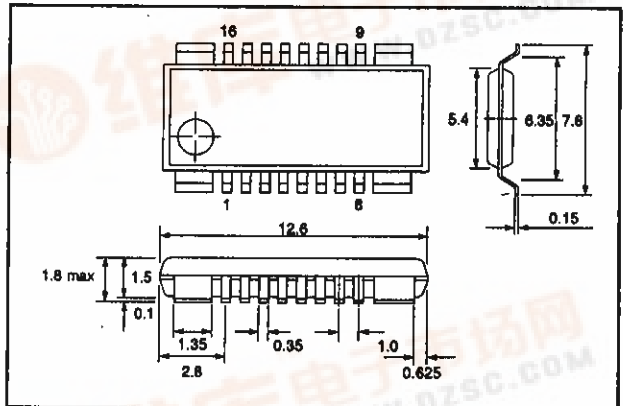
PINOUT



PACKAGE DIMENSIONS

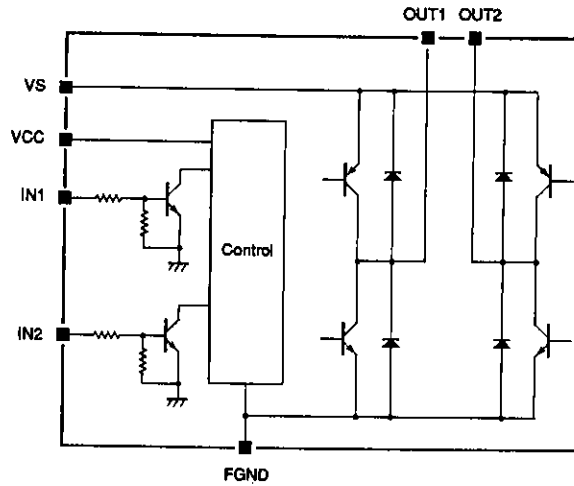
Unit: mm

3097-MFP16FS



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SCHEMATIC DIAGRAM



PIN DESCRIPTION

Number	Name	Description
1, 8, 9, 16	FGND	Frame ground
2, 12 to 15	NC	No connection
3, 7	IN1, IN2	Data inputs
4, 6	OUT1, OUT2	Motor driver outputs
5	VCC	Supply voltage
13	VS	Motor supply voltage

SPECIFICATIONS

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage range	$V_{CC \text{ max}}$	-0.3 to 8.0	V
	$V_S \text{ max}$	-0.3 to 8.0	V
Output voltage range	V_{OUT}	-0.3 to $V_S + V_{SF}$	V
Input voltage range	V_{IN}	-0.3 to 8.0	V
GND current	I_{GND}	2	A
Power dissipation	P_D	900	mW
		1200. See note.	
Operating temperature range	T_{opr}	-20 to 75	deg. C
Storage temperature range	T_{stg}	-40 to 125	deg. C

Note

Mounted on a 20 mm × 30 mm × 1.5 mm circuit board

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Recommended Operating Conditions

$T_a = 25 \text{ deg. C}$

Parameter	Symbol	Rating	Unit
Supply voltage range	V_{CC}	2.5 to 7.0	V
	V_S	2.2 to 7.0	V
LOW-level input voltage	V_{IH}	-0.3 to 0.7	V
HIGH-level input voltage	V_{IL}	2.0 to 7.0	V

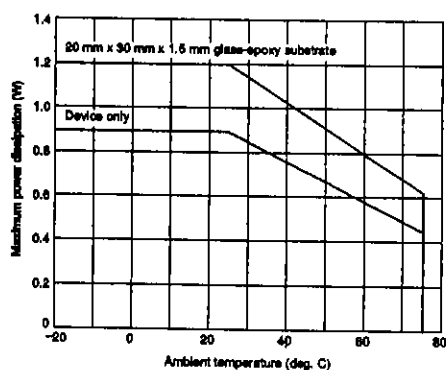
Electrical Characteristics

$V_{CC} = V_S = 3 \text{ V}$, $T_a = 25 \text{ deg. C}$ unless otherwise noted

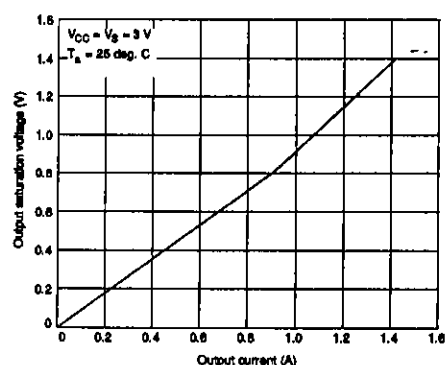
Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	I_{CC}	$V_{IN1} = V_{IN2} = 0 \text{ V}$	–	0.1	10	μA
		$V_{IN1} = 3 \text{ V}$, $V_{IN2} = 0 \text{ V}$	–	–	30	mA
		$V_{IN1} = V_{IN2} = 3 \text{ V}$	–	–	60	
Output saturation voltage (upper and lower limits)	V_{OUT}	$I_{OUT} = 500 \text{ mA}$	–	0.45	0.7	V
		$I_{OUT} = 1 \text{ A}$	–	0.9	1.4	
Output voltage tolerance	ΔV_{OUT}	$I_O = 500 \text{ mA}$	-20	0	20	%
Output sustain current	$V_O (\text{sus})$	$I_{OUT} = 1 \text{ A}$	9	–	–	V
Input current	I_{IN}	$V_{IN} = V_{CC} = 7 \text{ V}$	–	–	0.5	mA
Reverse leakage current	$I_S (\text{leak})$	$V_{CC} = V_S = 7 \text{ V}$	–	–	10	μA
Forward voltage	V_{SF}	$I_{OUT} = 1 \text{ V}$	–	–	1.7	V

Typical Performance Characteristics

Power dissipation vs. ambient temperature

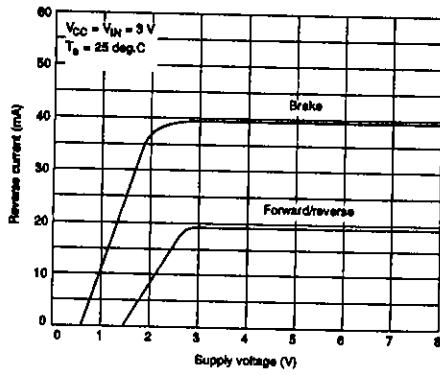


Saturation voltage vs. output current

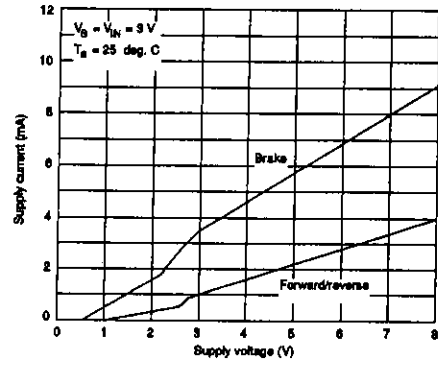


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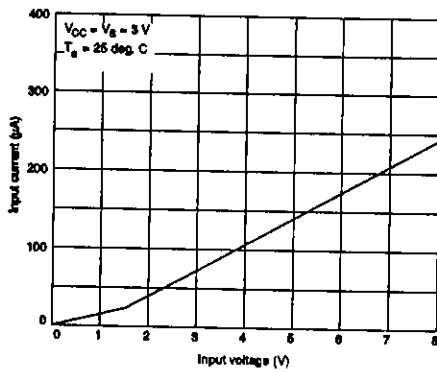
Reverse current vs. supply voltage



Supply current vs. supply voltage



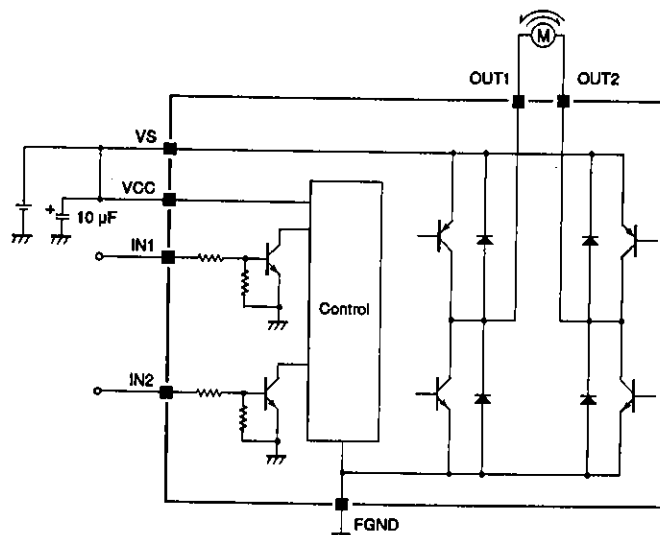
Input current vs. Input voltage



MODE SELECTION

IN1	IN2	OUT1	OUT2	Mode
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	L	L	Brake
L	L	OFF	OFF	Standby

TYPICAL APPLICATION

**Note**

Any of the FGND pins can be connected to ground. Heat transfer precautions should be taken to avoid damaging the LB1634M.

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