

<b>SANYO</b>	No.3545A	<b>LB1634M</b>
	<b>Low-voltage, Low-saturation Forward/Reverse Motor Driver</b>	

**OVERVIEW**

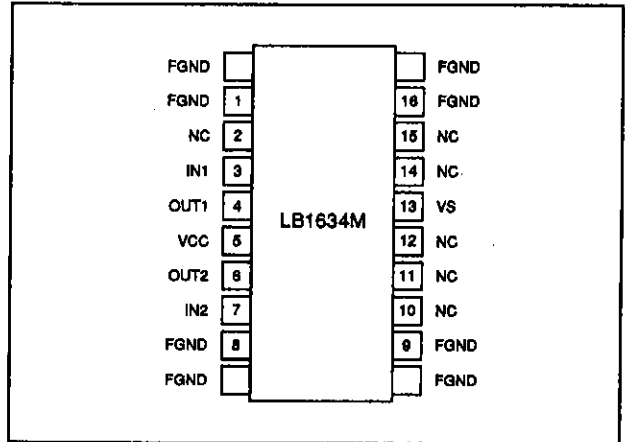
The LB1634M is a low-voltage, low-saturation forward/reverse motor driver. The output saturation voltage is a low 1.4 V for a 1 A output current, making it ideal for use in portable electronic equipment where maximum battery efficiency is required. The LB1634M also features a very low standby-current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

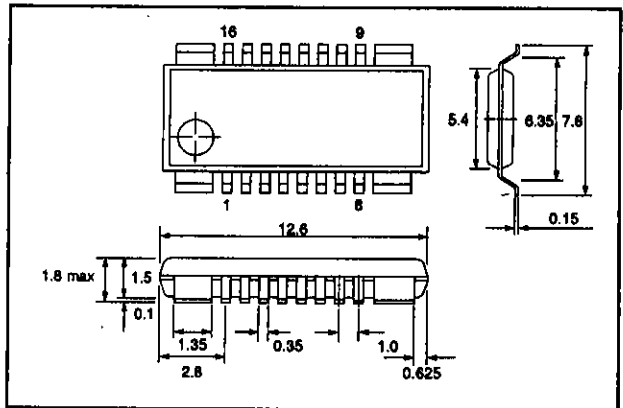
**PINOUT**



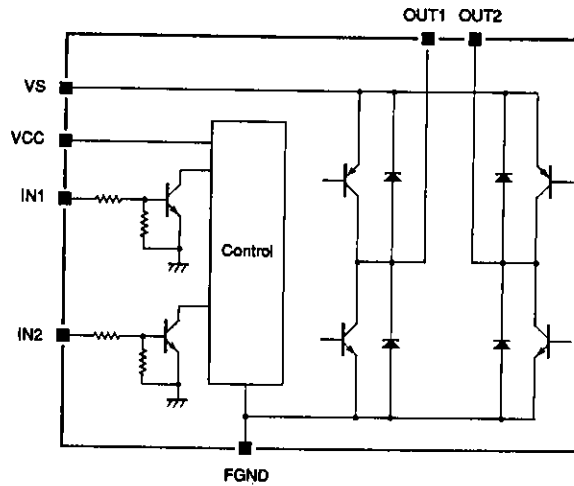
**PACKAGE DIMENSIONS**

Unit: mm

3097-MFP16FS



**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	$V_{CC}$ max	-0.3 to 8.0	V
	$V_S$ 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

## 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

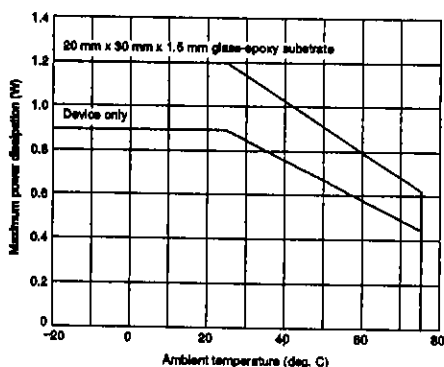
## Electrical Characteristics

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

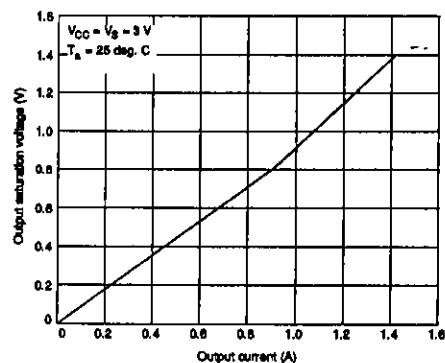
Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	$I_{CC}$	$V_{IN1} = V_{IN2} = 0 \text{ V}$	-	0.1	10	$\mu\text{A}$
		$V_{IN1} = 3 \text{ V}$ , $V_{IN2} = 0 \text{ V}$	-	-	30	mA
		$V_{IN1} = V_{IN2} = 3 \text{ V}$	-	-	60	
Output saturation voltage (upper and lower limits)	$V_{OUT}$	$I_{OUT} = 500 \text{ mA}$	-	0.45	0.7	V
		$I_{OUT} = 1 \text{ A}$	-	0.9	1.4	
Output voltage tolerance	$\Delta V_{OUT}$	$I_O = 500 \text{ mA}$	-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	$\mu\text{A}$
Forward voltage	$V_{SF}$	$I_{OUT} = 1 \text{ V}$	-	-	1.7	V

## Typical Performance Characteristics

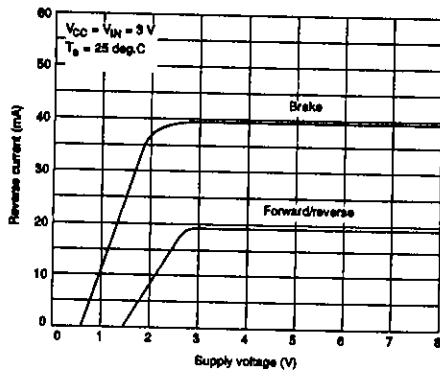
### Power dissipation vs. ambient temperature



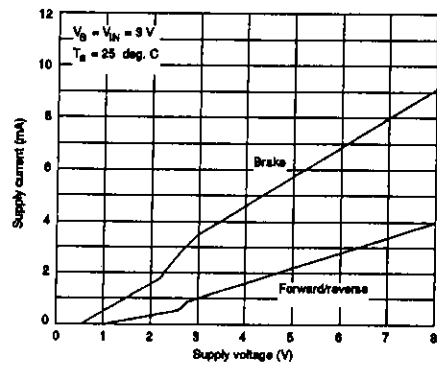
### Saturation voltage vs. output current



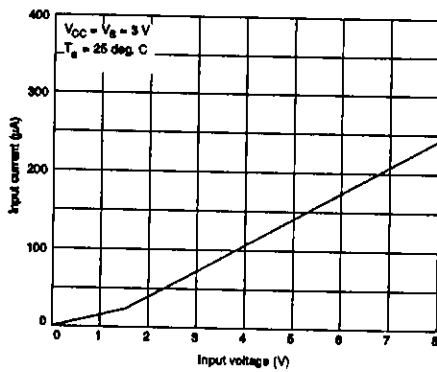
Reverse current vs. supply voltage



Supply current vs. supply voltage



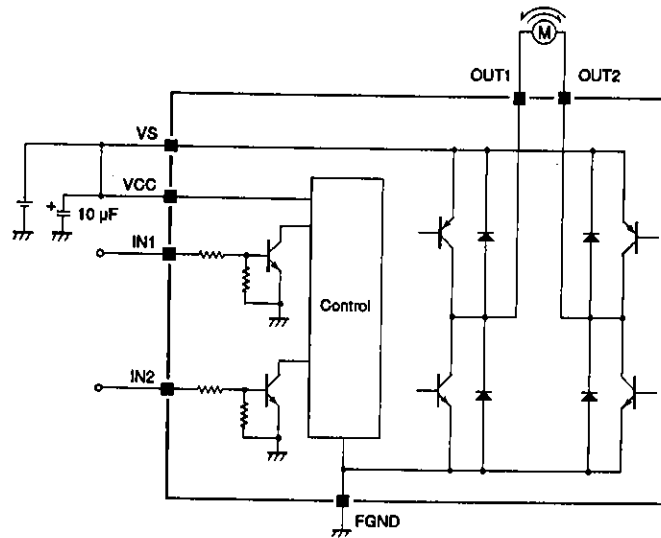
Input current vs. Input voltage



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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