Ordering number:EN3545A

Monolithic Digital IC

LB1634M

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

Overview

The LB1634M is a low-saturation bidirectional motor driver IC for use in low-voltage applications. At an I_O of 1A, they have a low saturation output V_O max=1.4V. They are especially suited for use in compact motor of portable equipment.

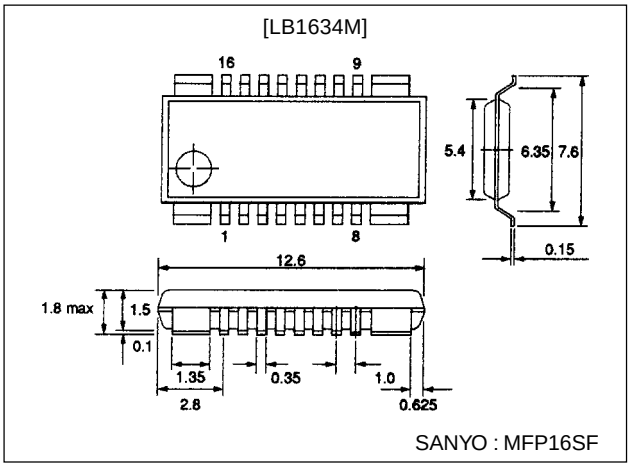
Features

- Low voltage operation (2.5V min).
- Low saturation voltage.
  (upper transistor + lower transistor residual voltage ; at I_O=1A, V_O(sat)=0.9V typ.).
- Low current drain at standby mode (I_{CCO}=10μA typ. or less.
- Separate logic power supply and motor power supply.
- Brake function built in.
- Spark killer diode built in.
- Compact package (MFP-16FS) suited for surface mounting.

Package Dimensions

unit:mm

3097-MFP16FS



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		–0.3 to +8.0	V
	V_S max		–0.3 to +8.0	V
Output applied votlage	V_{OUT}		–0.3 to V_S + V_F	V
Input applied voltage	V_{IN}		–0.3 to +8.0	V
Ground pin flow-out current	I_{GND}		2	A
Allowable power dissipation	Pd max1	Independent IC	900	mW
	Pd max2	With board (20×30×1.5mm³ glass epoxy)	1200	mW
Operating temperature	Topr		–20 to +75	˚C
Storage temperature	Tstg		–40 to +125	˚C

Recommended Operating Conditions at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		2.5 to 7.0	V
	V_S		2.2 to 7.0	V
Input high-level voltage	V_{IH}		2.0 to 7.0	V
Input low-level voltage	V_{IL}		–0.3 to +0.7	V

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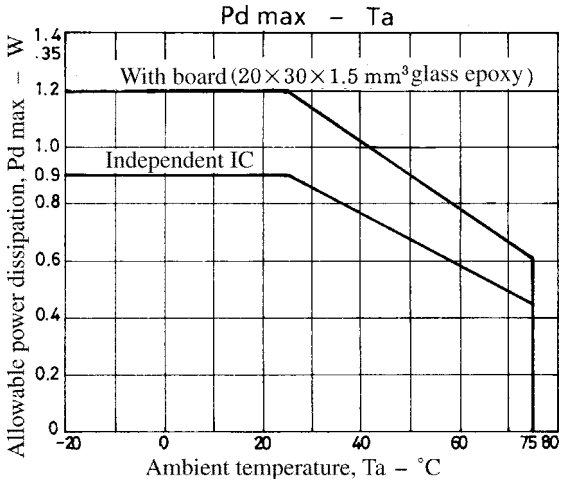
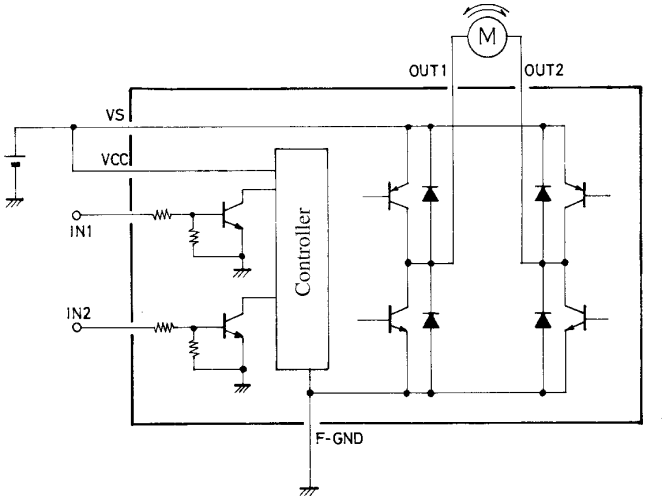
Electrical Characteristics at Ta = 25˚C, V_{CC}=V_S=3V

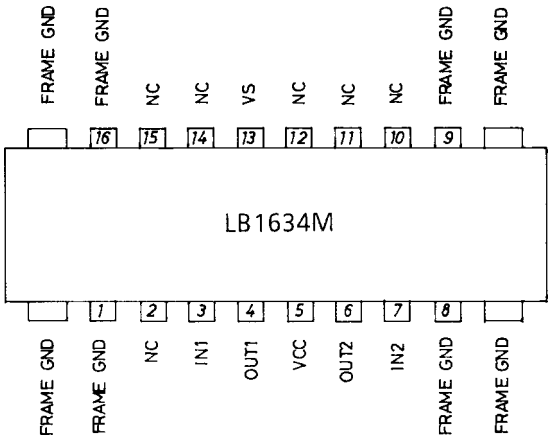
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply current	$I_{CC}0$	V_{IN} 1, 2=0V I_{CC}+I_S			10	µA
	$I_{CC}1$	V_{IN}1=3V, V_{IN}2=0V I_{CC}+I_S			30	mA
	$I_{CC}2$	V_{IN}1, 2=3V I_{CC}+I_S			60	mA
Operatinh saturation voltage (upper + lower)	$V_{OUT}1$	I_{OUT}=500mA			0.7	V
	$V_{OUT}2$	I_{OUT}=1A			1.4	V
Output pin voltage difference		I_O=500mA	–20	0	+20	%
Output sustain voltage	V_O(sus)	I_{OUT}=1A	9			V
Input current	I_{IN}	V_{IN}=7V, V_{CC}=7V			0.5	mA
[Spark killer diode]						
Reverse current	I_S(leak)	V_{CC}, V_S=7V			10	µA
Forward voltage	V_{SF}	I_{OUT}=1A			1.7	V



Sample Application Circuit



Pin Assignment



(Top view)

Truth Table

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

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