Ordering number : EN3517A

Monolithic Digital IC

LB1834M

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

Overview

The LB1834M is a low-saturation bidirectional motor driver IC (with brake function) for use in low-voltage applications. It is especially suited for use in portable equipment such as VCR, camera, radio cassette recorder.

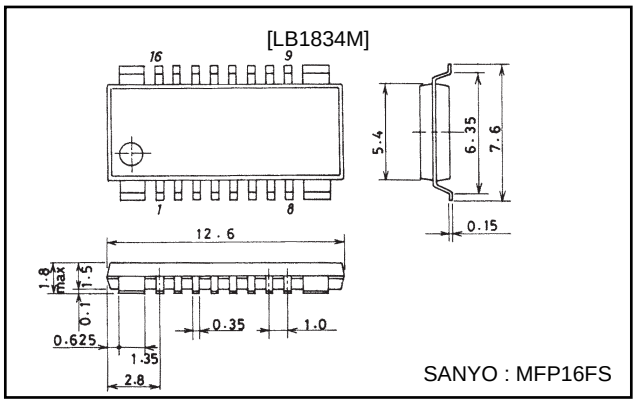
Features

- 2 motors drivable due to on-chip 1.5ch bridge driver of I_O=1.0A drive current.
- Capable of being operated from low voltage (2.5V min).
- Low saturation voltage.
- Low current dissipation at standby mode.
- Logic power supply and motor power supply are separate.
- Brake function (Pins OUT1, OUT2 provide BS terminal for forced brake by external transistors).
- On-chip spark killer diodes.
- Compact package (MFP-16FS).

Package Dimensions

unit: mm

3097-MFP16FS



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC}/V_S max		–0.3 to +8.0	V
Output supply voltage	V_{OUT}		–0.3 to V_S+V_{SF}	V
Input supply voltage	V_{IN}		–0.3 to +8.0	V
GND pin flow-out current	I_{GND}		2	A
Allowable power dissipation	Pd 1	IC only	900	mW
	Pd 2	Mounted on specified board (40×30×1.5mm^3 glass epoxy)	1350	mW
Operating temperature	Topr		–20 to +75	°C
Storage temperature	Tstg		–40 to +125	°C

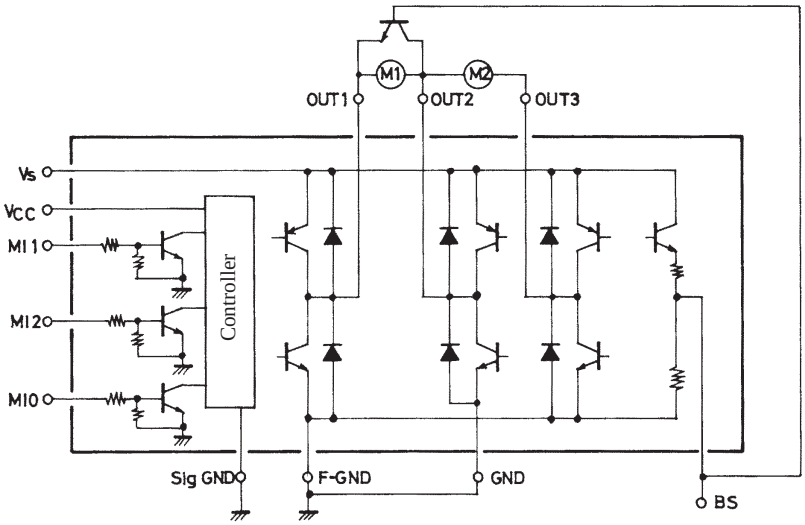
Allowable Operating Condition at Ta=25°C

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

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply current	$I_{CC}0$	Standby $I_{CC}+I_S$		0.1	10	μA
	$I_{CC}1$	Forward/reverse $I_{CC}+I_S$		30	40	mA
	$I_{CC}2$	Brake $I_{CC}+I_S$		30	45	mA
Output saturation voltage (upper+lower)	V_O(sat)	I_{OUT}=500mA		0.45	0.7	V
(each channel)	V_O(sat)	I_{OUT}=1A (V_{CC}=V_S=3.5V)		0.95	1.4	V
Output supply voltage variation		I_O=500mA	–20	0	+20	%
Output sustain voltage	V_O(sus)	I_{OUT}=1A	9			V
Input current	I_{IN}	V_{IN}=2V, V_{CC}=7V			100	μA
[Spark killer diode]						
Reverse current	I_S(leak)	V_{CC}, V_S=7V			10	μA
Forward current	V_{SF}	I_{OUT}=1A			1.7	V

Block Diagram



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

Truth Table

Bland : OFF

Input			Output				Mode	
MI 0	MI 1	MI 1	OUT 1	OUT 2	OUT 3	BS 1/2		
L	L	L					Standby	
H	L	L						
L	H	L	H	L			ch1	Forward
L	L	H	L	H				Reverse
L	H	H	L	L		H		Brake
H	H	L		L	H		ch2	Forward
H	L	H		H	L			Reverse
H	H	H		L	L			Brake

Pin Assignment