Ordering number : ENA2076

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

Monolithic Digital IC

LB11862MC — Single-Phase Full-Wave Fan Motor Driver

Overview

The LB11862MC is a single-phase bipolar drive motor driver that easily implements direct PWM motor drive systems with excellent efficiency. The LB11862MC is optimal for fan motor drive in personal computer power supply systems and CPU cooling fan systems.

Features

- Single-phase full-wave drive
- Built-in lock protection and automatic recovery circuits
- Built-in thermal shutdown circuit.

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC} max		17	V
Output current	I_{OUT} max		0.8	A
Output withstand voltage	V_{OUT} max		17	V
Output withstand voltage on RD output pin	V_R max		17	V
RD output current	I_R max		5	mA
HB output current	I_B max		10	mA
Input voltage ST pin	V_{ST} max		15	V
Allowable power dissipation	Pd max	When mounted on a circuit board *1	0.75	W
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

*1 Specified circuit board : 114.3 × 76.1 × 1.6mm^3, glass epoxy.

Caution 1) Absolute maximum ratings represent the value which cannot be exceeded for any length of time.

Caution 2) Even when the device is used within the range of absolute maximum ratings, as a result of continuous usage under high temperature, high current, high voltage, or drastic temperature change, the reliability of the IC may be degraded. Please contact us for the further details.

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		3.8 to 16.8	V
ST input High-level voltage	$V_{ST}H$		3 to 14	V
ST input Low-level voltage	$V_{ST}L$		-0.3 to 0.4	V
Hall input common-mode input voltage range	VICM		0.2 to V_{CC}-1.5	V

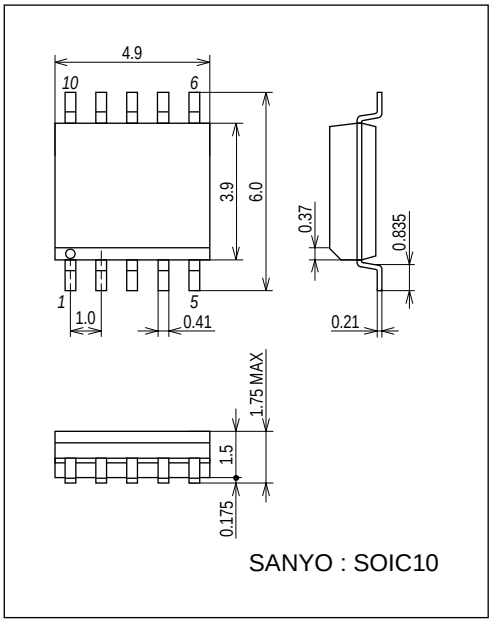
Electrical Characteristics Unless otherwise specified Ta = 25°C, V_{CC} = 5V

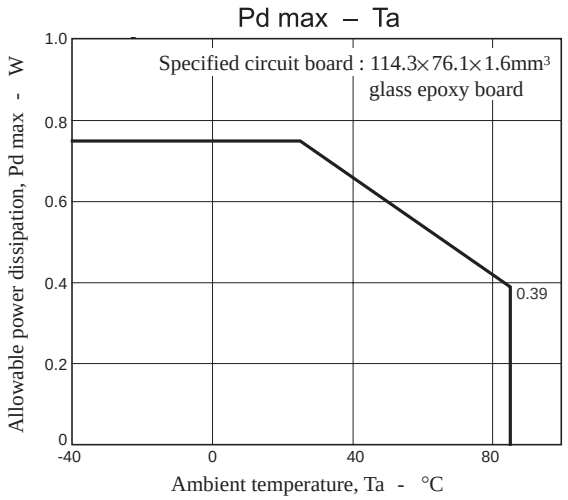
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit current	$I_{CC}1$	Operation mode (CT=L, ST=L)		12	17	mA
	$I_{CC}2$	Lock protection mode (CT=H, ST=L)		2.5	4.0	mA
	$I_{CC}2$	Standby mode (ST=H)		110	150	μA
Lock detection capacitor charging current	$I_{CT}1$	V_{CT} = 0.2V	1.5	2.1	3.0	μA
Capacitor discharging current	$I_{CT}2$	V_{CT} = 3.0V	0.21	0.35	0.50	μA
Capacitor charging / discharging current ratio	R_{CT}	$R_{CD} = I_{CT}1/I_{CT}2$	5.0	6.0	8.0	
CT charging voltage	$V_{CT}1$		2.55	2.75	2.95	V
CT discharging voltage	$V_{CT}2$		1.6	1.8	2.0	V
Output Low-level voltage	$V_{O}L$	I_O = 200mA		0.2	0.3	V
Output High-level voltage	$V_{O}H$	I_O = 200mA	3.9	4.1		V
Hall input sensitivity	V_{HN}	Zero peak value (including offset hysteresis)		7	15	mA
RD output pin Low-level voltage	$V_{RD}L$	I_{RD} = 5mA		0.1	0.3	V
RD output pin leakage current	$I_{RD}L$	V_{RD} = 15V			30	μA
HB output Low-level voltage	$V_{HB}L$	I_{HB} = 5mA		1.0	1.3	V
ST pin input current	I_{ST}	V_{ST} = 5V		75	100	μA

Package Dimensions

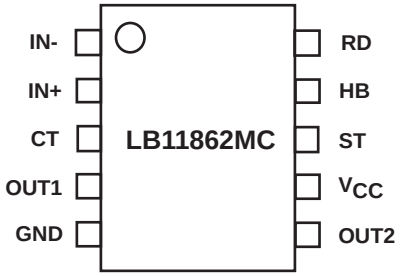
unit : mm (typ)

3426A





Pin Assignment



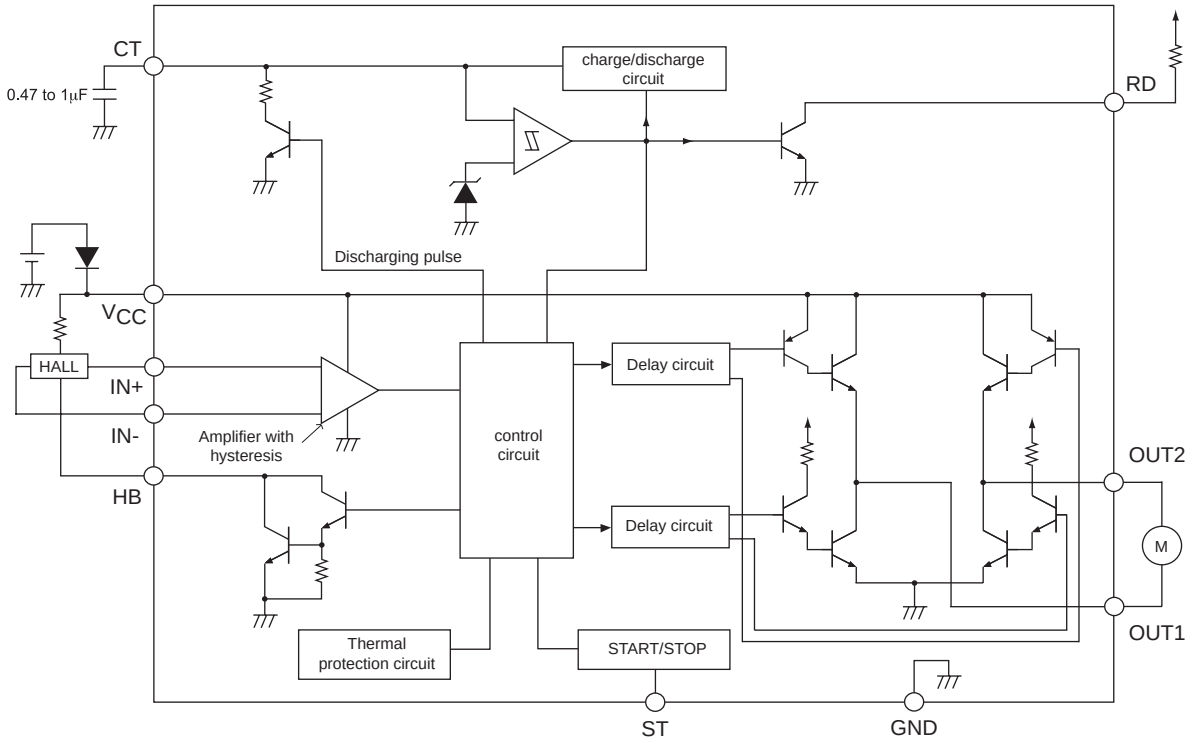
(TOP VIEW)

Truth Table

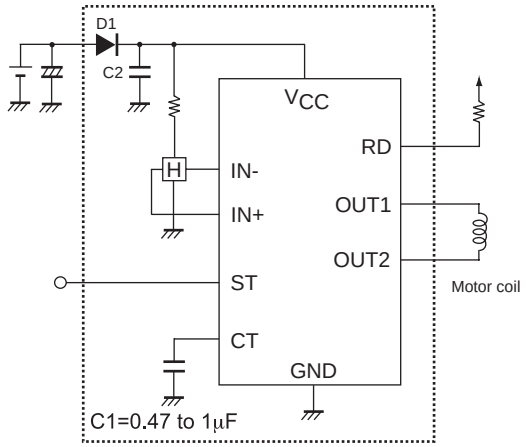
ST	IN-	IN+	CT	OUT1	OUT2	RD	HB	Mode
High	-	-	-	OFF	OFF	OFF	OFF	Standby
Low	High	Low	Low	High	Low	Low	Low	Operating
	Low	High		Low	High			
			High	OFF	OFF	OFF	Low	Lock protection

(The RD output is latched at “Low”-level in operating mode and “High”-level in stop mode.)

Block Diagram



Application Circuit Example



1. D1 is for protection against breakdown in case of reverse connection of power supply and mat is deleted when there is no problem.
2. C2 is necessary to allow the kick-back regenerative current to flow when C2 is to be used with the coil current of 500mA or more.
3. CT to be connected to GND when not used.
4. RD, ST and HB pins to be OPEN when not used.