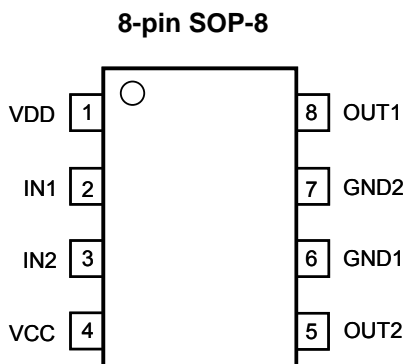


## 1. 概述

HM2517B 為單晶片 CMOS 的雙向馬達驅動 IC，利用大型積體電路 (LSI) 製造技術，具有低電源及低成本的特性，可應用於低電壓工作模式。電路採用 H 橋架構，內置功率 MOSFET 開關，可實現對直流電機做 正轉、反轉、煞車、停止 四個功能的控制。

## 2. 功能

- (1). 寬廣的工作電壓：1.8V ~ 6.8V。
- (2). 內置 PMOS/NMOS 功率開關的 H 橋驅動器。
- (3). 支援 4 種操作模式：正轉 / 反轉 / 剎車 / 停止。
- (4). 低待機電流 (Typ.=0.1uA)。
- (5). 1.5A 以上電流輸出能力。
- (6). 內建過溫保護功能。(TSD, Thermal Shutdown)
- (7). CMOS 輸入，輸入腳內建下拉電阻，無需外加限流電阻。
- (8). 高達 5KV 的人體靜電模式 (HBM) 的 ESD 保護。
- (9). 當邏輯電源 VDD 掉電或電壓過低時，輸出會進入停止 (Standby) 模式。
- (10). 僅提供 SOP-8 封裝。

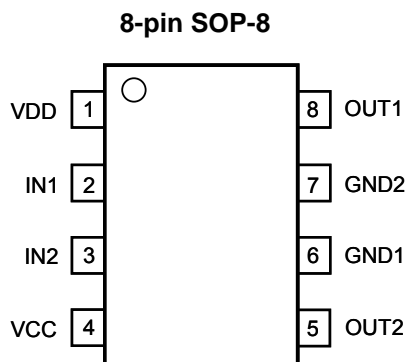


## 1. GENERAL DESCRIPTION

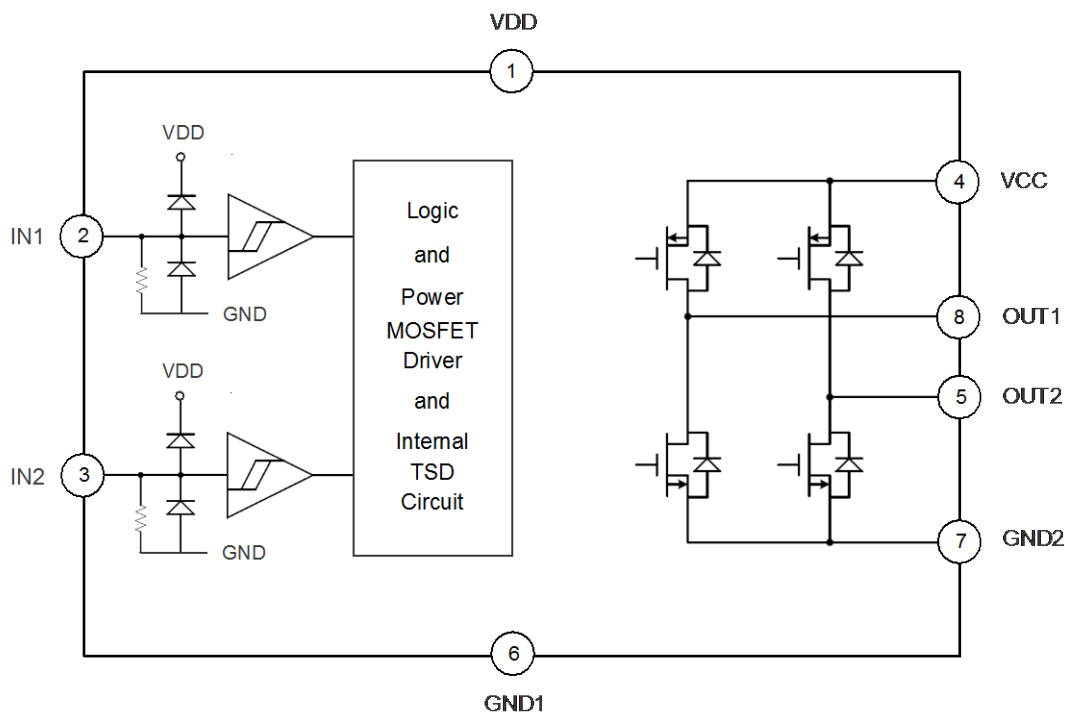
HM2517B is a single-chip bi-directional motor driver CMOS IC for low-voltage applications. It is designed by LSI high technology with a low-power and low-cost process. It has H bridge driver of built-in MOSFET power switch to provide Forward / Reverse / Brake / Stop function for motor driver applications.

## 2. FEATURES

- (1). Wide operating voltage: 1.8V ~ 6.8V.
- (2). H bridge driver of internal PMOS/NMOS power switches.
- (3). Support 4 operating mode: Forward / Backward / Brake / Stop.
- (4). Low standby current. (Typ.=0.1uA)
- (5). Over 1.5A output current capability.
- (6). Built-in Thermal Shutdown (TSD) circuit.
- (7). CMOS input. Built-in input pull-low resistance and no current-limit resistance required.
- (8). High 5KV Human Body Mode (HBM) ESD protection.
- (9). Stop (Standby) mode will take place when logic power VDD is switched off or voltage is too low.
- (10). Only SOP-8 package type is available.



### 3. BLOCK DIAGRAM



### 4. PIN DESCRIPTION

Pin Name	Pin No.	ATTR.	Description
IN1	2	I	Forward rotation logic input.
IN2	3	I	Backward rotation logic input.
OUT1	8	O	Forward rotation output.
OUT2	5	O	Backward rotation output.
VDD	1	Power	Positive power of logic control circuit.
VCC	4	Power	Positive power of output power MOSFET.
GND1	6	Power	Negative power of logic control circuit.
GND2	7	Power	Negative power of output power MOSFET.

### 5. FUNCTION DESCRIPTION

IN1	IN2	OUT1	OUT2	Function
0	0	Z (Off)	Z (Off)	Stop (Standby)
1	0	1	0	Forward
0	1	0	1	Backward
1	1	0	0	Brake

## 6. ELECTRICAL CHARACTERISTICS

### 6.1 Absolute Maximum Rating

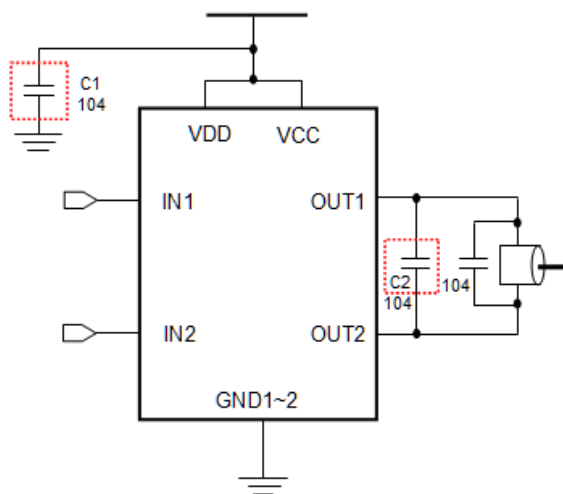
Symbol	Parameter		Rating	Unit
$V_{DD} - V_{SS}$	Supply voltage of logic control circuit		-0.5 ~ +7.5	V
$V_{CC}$	Supply voltage of output power MOSFET		7.5	V
$I_{OUT-PEAK}$	Output peak current		2.5	A
$\theta_{JA}$	Thermal resistance (Junction to Ambient)	SOP-8	150	°C/W
$P_D$	Power dissipation	SOP-8	0.9	W
$T_A$	Operating ambient temperature		-40 ~ +85	°C
$T_J$	Operating junction temperature		+160	°C
$T_{ST}$	Storage temperature		-55 ~ +160	°C

### 6.2 DC Characteristics ( $V_{DD}=3.0V$ , $V_{CC}=6.0V$ , $T_A=25^\circ C$ , unless otherwise specified)

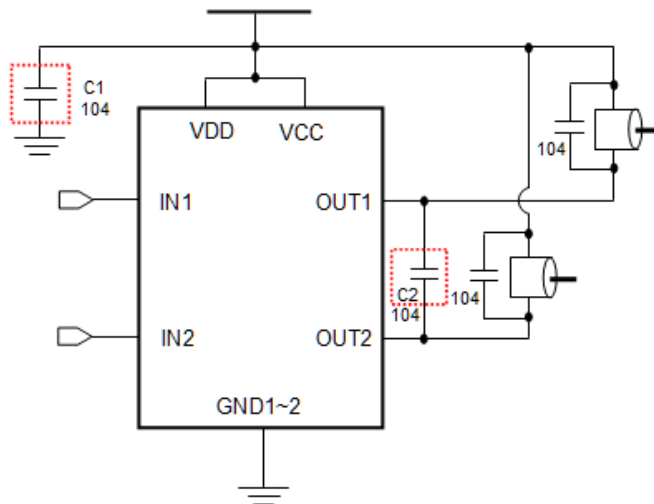
Symbol	Parameter		Min.	Typ.	Max.	Unit	Condition
$V_{DD}$	Operating voltage (Logic)		1.8		6.8	V	
$V_{CC}$	Operating voltage (MOSFET)		1.8		6.8	V	
$I_{SB}$	Standby current			0.1	1	uA	IN1=IN2=0
$I_{OP}$	Operating current	$V_{DD} = V_{CC} = 3.0V$		370		uA	IN1=1, IN2=0 or IN1=0, IN2=1 or IN1=1, IN2=1
		$V_{DD} = V_{CC} = 6.0V$		650		uA	
$I_{IH}$	Input high current (12kΩ pull-low resistance)			260		uA	$V_{IH} = 3.0V$
				510		uA	$V_{IH} = 6.0V$
$V_{IH}$	Input high voltage		2			V	
$V_{IL}$	Input low voltage				0.8	V	
$R_{ON}$	Output resistance (SOP-8 Package)			0.33		Ω	$I_{OUT} = 800mA$
				0.38		Ω	$I_{OUT} = 1200mA$
				0.43		Ω	$I_{OUT} = 1500mA$
$I_{OUT}$	Output continuous current (* with PCB heat dissipation)			1500	1700*	mA	SOP-8
$I_{PULSE}$	Pulsed drain current				6.0	A	Pulse width < 20ms
$T_{RISE}$	Output rise time			370		ns	PWM=20kHz, Duty=50%
$T_{FALL}$	Output fall time			180		ns	
$T_{RP}$	Input-to-Output response time			570		ns	
$T_{TSD}$	Thermal shutdown (TSD)			160		°C	Junction temperature
$T_{TSDH}$	Thermal shutdown hysteresis			40		°C	

## 7. APPLICATION CIRCUIT

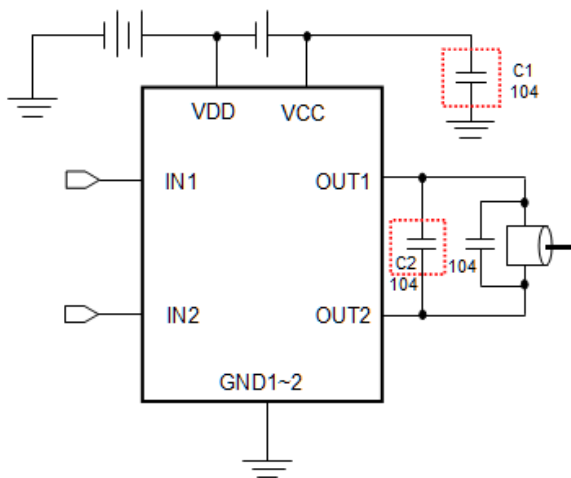
### (1) One Motor Bi-Directional Control (Single Power)



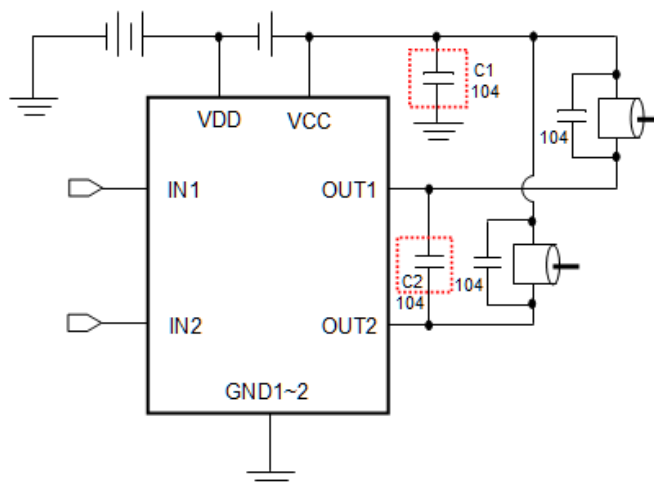
### (2) Two Motors Directional Control (Single Power)



### (3) One Motor Bi-Directional Control (Dual Power)



### (4) Two Motors Directional Control (Dual Power)

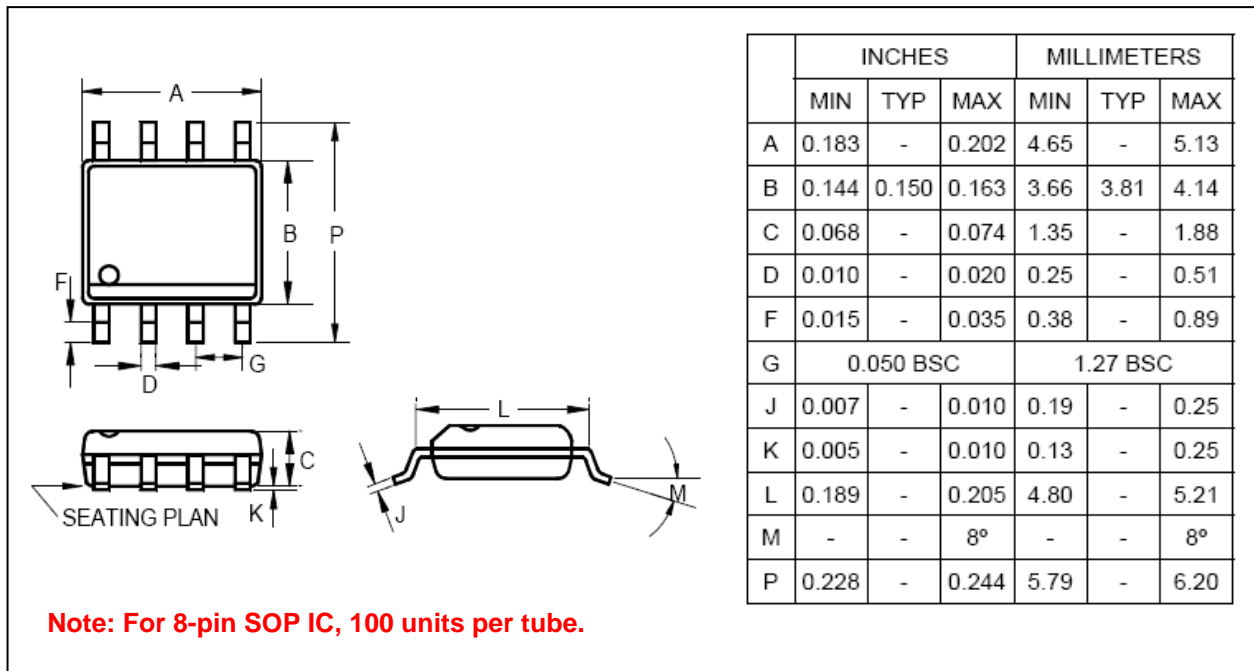


\* In normal application, C1 (0.1uF) can be saved, but please reserve C1 space at PCB layout.

\* If voltage is higher than 6.0V, C2 (0.1uF) is necessary to endure high voltage.

**8. PACKAGE DIMENSION**

**8-Pin Plastic SOP (150 mil)**



**9. ORDERING INFORMATION**

<b>P/N</b>	<b>Package Type</b>	<b>Package Width</b>	<b>Shipping</b>
HM2517B	SOP-8	150 mil.	<u>Tape &amp; Reel</u> : 2.5K pcs per Reel <u>Tube</u> : 100 pcs per Tube