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# **eSW4506A**

**Bi-directional Motor Driver**

# **Product Specification**

**Doc. Version 1.1**

**ELAN MICROELECTRONICS CORP.**


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<b>Specification Revision History</b>		
Version	Revision Description	Date
1.0	Initial version	2005/03/31
1.1	Add the application circuitry	2006/02/21

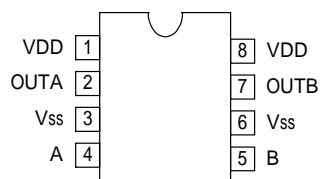
## 1 General Description

**eSW4506A** The IC is bi-directional motor driver IC for use in low-voltage application. It provides Forward/Reverse/Brake/Stop function for motor driver application. It is designed by LSI high technology with low power process.

## 2 Features

- Low voltage operation
- Low current drain at standby mode
- Build in Input Pull down resistance
- Provide 4 mode motor driver, Forward/Reverse/Brake/Stop.

## 3 Pin Assignment



PDIP 8 Pin

## 4 Pin Descriptions

Symbol	I/O	PIN NO	Function
VDD	I	1, 8	Positive power supply
Vss	I	3, 6	Negative power supply.
A	I	4	Input signal A
B	I	5	Input signal B
OUTA	O	2	Motor driver outout A
OUTB	O	7	Motor driver output B

## 5 Absolute Maximum Ratings

Items	Symbol	Min	Max	Unit
Supply Voltage	$V_{DD}-V_{SS}$	-0.3	+5.5	V
Input Voltage	$V_{IN}$	$V_{SS}-0.3$	$V_{DD}+0.3$	V
Operating Temperature	$T_{OP}$	-20.0	+70.0	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55.0	+125.0	$^{\circ}C$

## 6 Electrical Characteristics

(Operating Temperature =25°C)

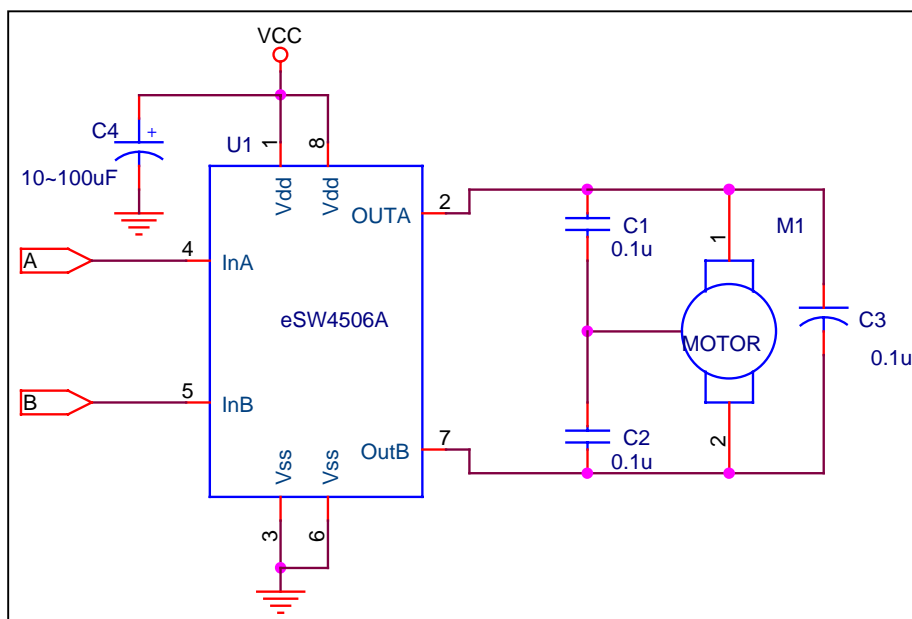
Items	Sym	Min.	Typ.	Max.	Unit	Condition
Operating Voltage	$V_{DD}$	2.0	3.0	5.5	V	
Standby Current	$I_{DDS}$	-	0.4	1	$\mu A$	$V_{DD}=3V, A,B = V_{SS}$
			1.1	2	$\mu A$	$V_{DD}=4.5V, A,B = V_{SS}$
Operating Current	$I_{DDO}$	-	3.4	50	$\mu A$	$V_{DD}=3V, \text{no load,}$
			8.7	50	$\mu A$	$V_{DD}=4.5V, \text{no load,}$
A/B Input Current	$I_{IN}$	-	3	6	$\mu A$	$V_{DD}=3V, V_{IN} = V_{DD}$
			7.5	15	$\mu A$	$V_{DD}=4.5V, V_{IN} = V_{DD}$
A/B Input High Voltage	$V_{IH}$	2.4		$V_{DD}$	V	$V_{DD}=3V$
		3.2		$V_{DD}$	V	$V_{DD}=4.5V$
A/B Input Low Voltage	$V_{iL}$	$V_{SS}$		0.6	V	$V_{DD}=3V$
		$V_{SS}$		1.2	V	$V_{DD}=4.5V$
OUTA-OUTB Load Current	$I_o$	-		400	mA	$V_{DD}=3V,$
				670	mA	$V_{DD}=4.5V,$
Output Low Voltage	$V_{OL}$	-	0.15	0.3	V	$V_{DD}=3V, I_{OL}= 100mA$
			0.10	0.3	V	$V_{DD}=4.5V, I_{OL}= 100mA$
Output High Voltage	$V_{OH}$	$V_{DD} -0.3$	2.8	-	V	$V_{DD}=3V, I_{OH}=100mA$
		$V_{DD} -0.3$	4.4	-	V	$V_{DD}=4.5V, I_{OH}=100mA$
Output Rise Time	$T_{RS}$	-	3.8	10	nS	$V_{DD}=3V, \text{no load}$
			2.8	10	nS	$V_{DD}=4.5V, \text{no load}$
Output Fall Time	$T_{FL}$	-	3.2	10	nS	$V_{DD}=3V, \text{no load}$
			4.0	10	nS	$V_{DD}=4.5V, \text{no load}$
Input to Output Response Time	$T_{RP}$	-	6	15	nS	$V_{DD}=3V, \text{no load}$
			3.5	10	nS	$V_{DD}=4.5V, \text{no load}$

## 7 Operation Mode

Input A	Input B	OutA	OutB	Mode
L	L	L	L	STOP
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	H	H	Brake

## 8 Application Circuit

### 8.1 Drive one motor with bi-directional :



## 8.2 Drive two motors with on-off :

