普 誠 科 技
Princeton Technology Corp.

DESCRIPTION

PT2509 is a full-bridge driver with build-in driving pattern for the swing head motor application.

It integrates the over temperature protection, short-circuit protection, and under voltage protection. With one EN control pin, the PT2509 will deliver 50Hz PWM waveform to drive the AC synchronous motor. Besides the 50Hz pattern, a clock signal can also feed to EN pin to operate with required frequency. PT2509 with package in SOP8.
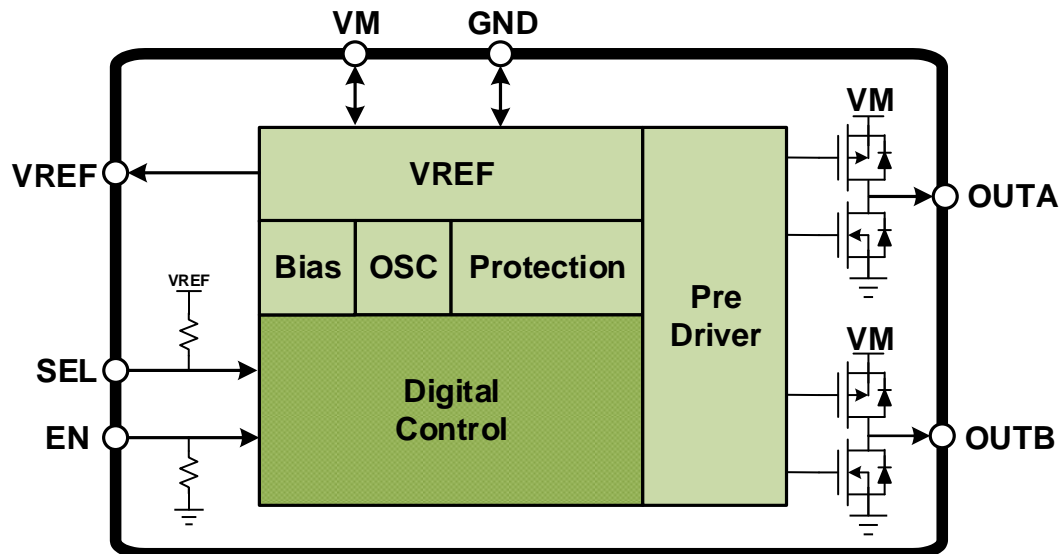
FEATURES

- Full-bridge driver with fixed pattern for AC synchronous motor
- Short Circuit Protection (SCP)
- Over Temperature Protection (OTP)
- Under Voltage Lock-Out protection (UVLO)
- Sinewave or trapezoid-like driving waveform
- 40Hz to 100Hz adjustable driving frequency

APPLICATIONS
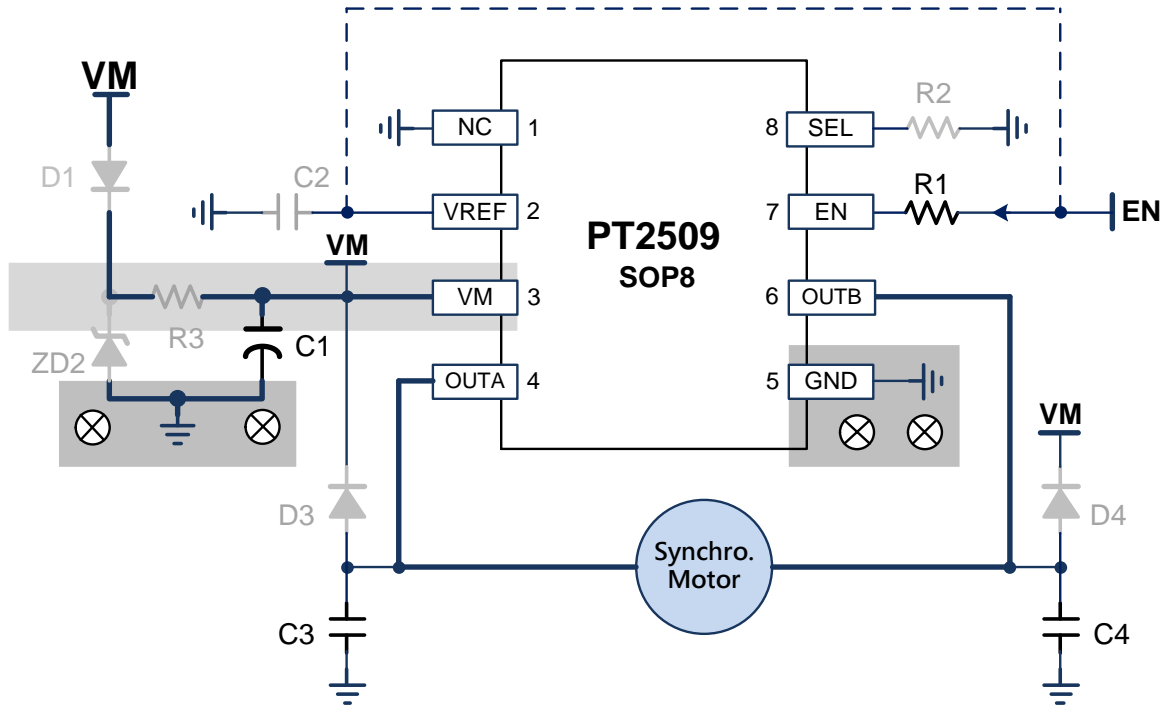
- Fan with swing head motor

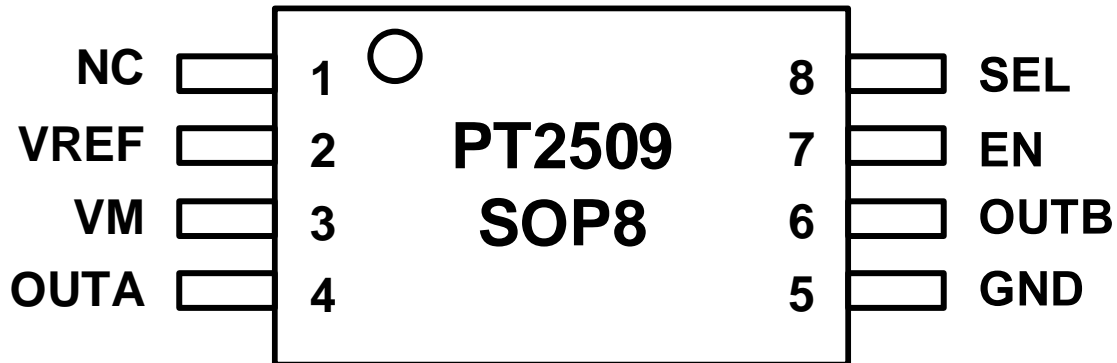# BLOCK DIAGRAM

ORDER INFORMATION

Part Number	Package	Top Logo
PT2509-S	8-PIN, SOP	PT2509-S

APPLICATION BLOCK DIAGRAM

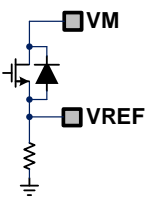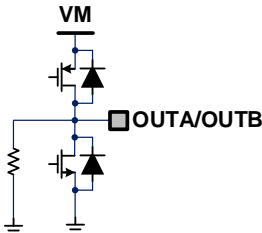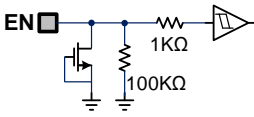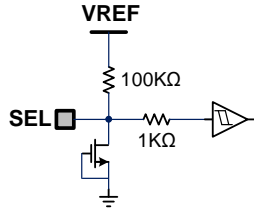| Part	Value	Unit	Description
R1	1K	Ω	Protection resistor for EN input
R2	1K	Ω	Setting resistor for SEL input(option)
R3	0~1	Ω	Filter resistor over the VM input(option) *its selection need care about power rating and heat generation
C1	10u/50V	F	Filter capacitor over VM
C2	NC~100p	F	Filter capacitor for VREF(option) *<100pF will not influence to circuit response
C3/C4	10n/50V	F	Surge voltage suppressing capacitor over motor terminal
D1	>50V/2A	V	Reverse supply voltage protection(option)
ZD2	27V/1A	V	Surge voltage suppressing over VM(option)
D3/D4	>50V/1A	V	Surge voltage suppressing diode over motor terminal(option). *1N4148

PIN ASSIGNMENT

```
         NC   ┌──┐ 1   ◯        8 ┌──┐   SEL
        VREF  ┌──┐ 2                7 ┌──┐   EN
                      PT2509
         VM   ┌──┐ 3    SOP8       6 ┌──┐   OUTB
        OUTA  ┌──┐ 4                5 ┌──┐   GND
```

PIN DESCRIPTION

Pin Name	I/O/P	Description	Pin No.
			8 Pin
NC		No connection(or connect to GND)	1
VREF	P	+5V reference voltage for internal use	2
VM	P	Power supply	3
OUTA	O	Full-bridge driver output A	4
GND	P	Signal ground	5
OUTB	O	Full-bridge driver output B	6
EN	I	It can apply with DC or clock input DC input: 0V to disable, 5V to enable and default driving frequency is 50Hz Clock input: 40Hz to 100Hz square wave input to set the driving frequency EN is internal pull-down to GND via 100KΩ and recommend in series an 1KΩ resistor to it	7
SEL	I	Driving mode selection 5V to sinewave(default) 0V to trapezoid wave SEL is internal pull-up to VREF via 100KΩ	8

PIN EQUIVALENT CIRCUIT

VM/VREF	OUTA/OUTB	EN	SEL

IMPORTANT NOTICE

Princeton Technology Corporation (PTC) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and to discontinue any product without notice at any time.

PTC cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a PTC product. No circuit patent licenses are implied.

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