

DESCRIPTION

The PT2501 is a three-phase, hall sensor sinusoidal brushless DC motor control chip. The three-phase control is based on sine wave driving scheme and it is designed to reduce electrical audible noise in motor phase commutation. On-chip +5V LDO provide voltage for logic and analog circuits operation. Combined with an external high voltage gate driver and six n-channel MOSFETs, PT2501 can operate with high voltage motor to 400V. For 12V to 24V operation, the built-in 60mA gate driving can connect to external high side PMOS and low side NMOS easily. The PT2501 offers external and internal OTP parameters setting to optimize with different motors and applications. PT2501 with package in SSOP28 and LQFP32.

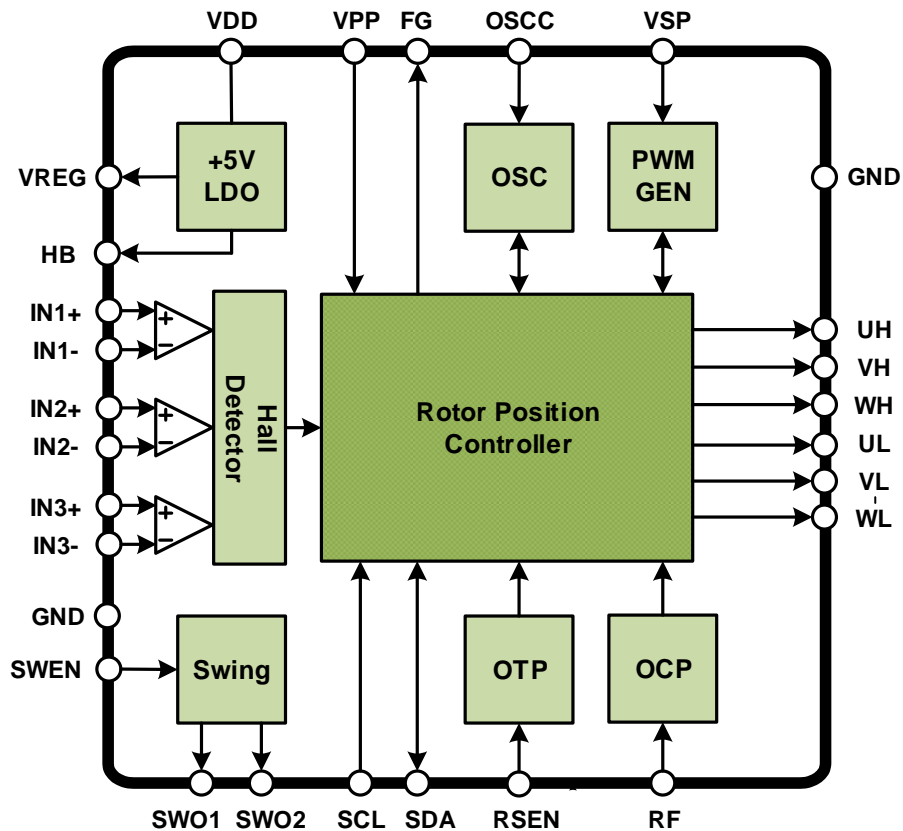
FEATURES

- Hall sensor sinusoidal control for 3-phase BLDC
- Current limit function
- Over temperature protection from external NTC
- Motor lock protection
- Reverse function.
- PWM or DC input for speed control
- FG output for rotation speed
- Pre-driver for 12V to 24V high side PMOS and low side NMOS.
- Support Hall element and Hall sensor
- I2C interface for parameter setting and write to internal OTP.

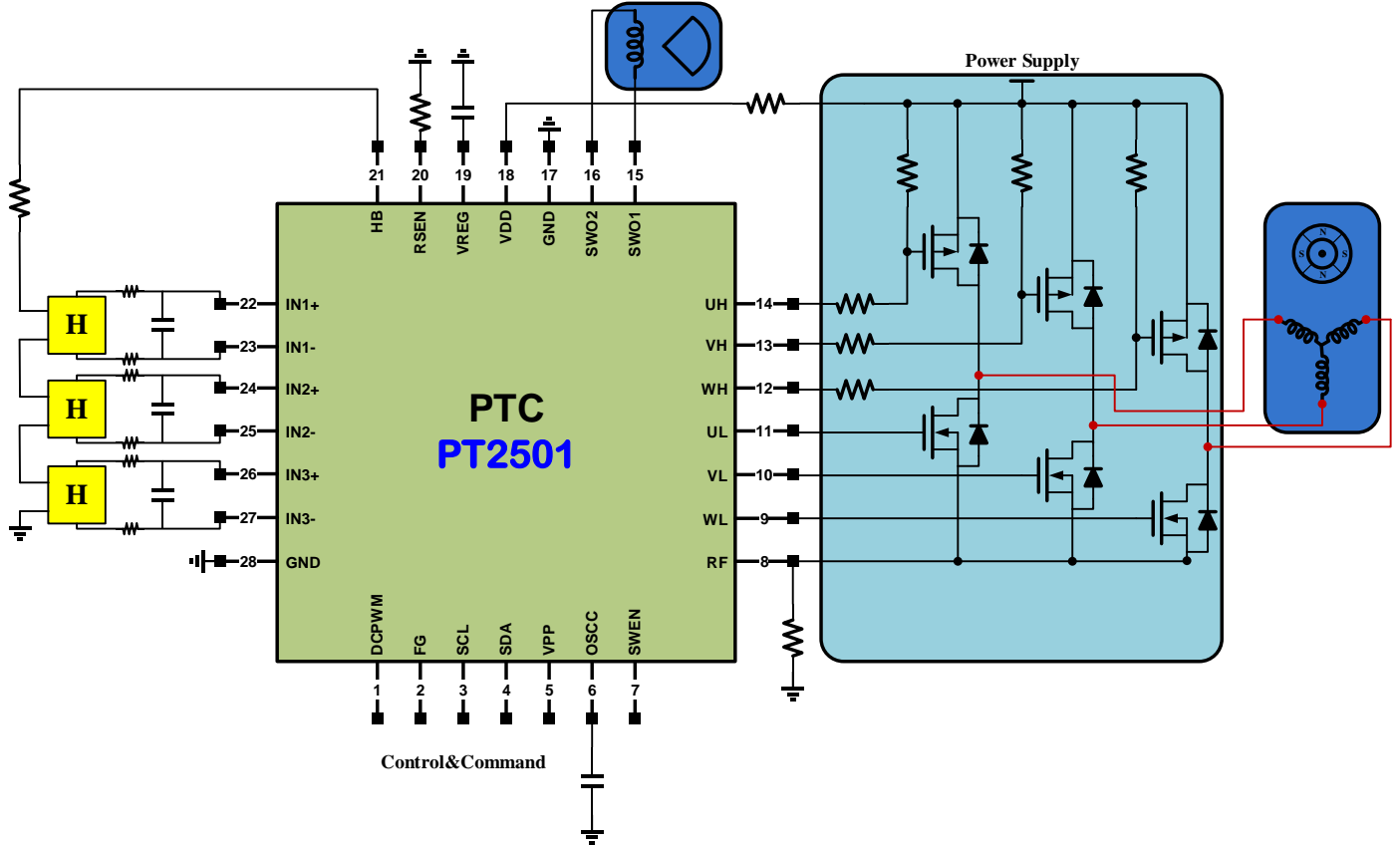
APPLICATIONS

- Three-phase BLDC motor
- Fan application

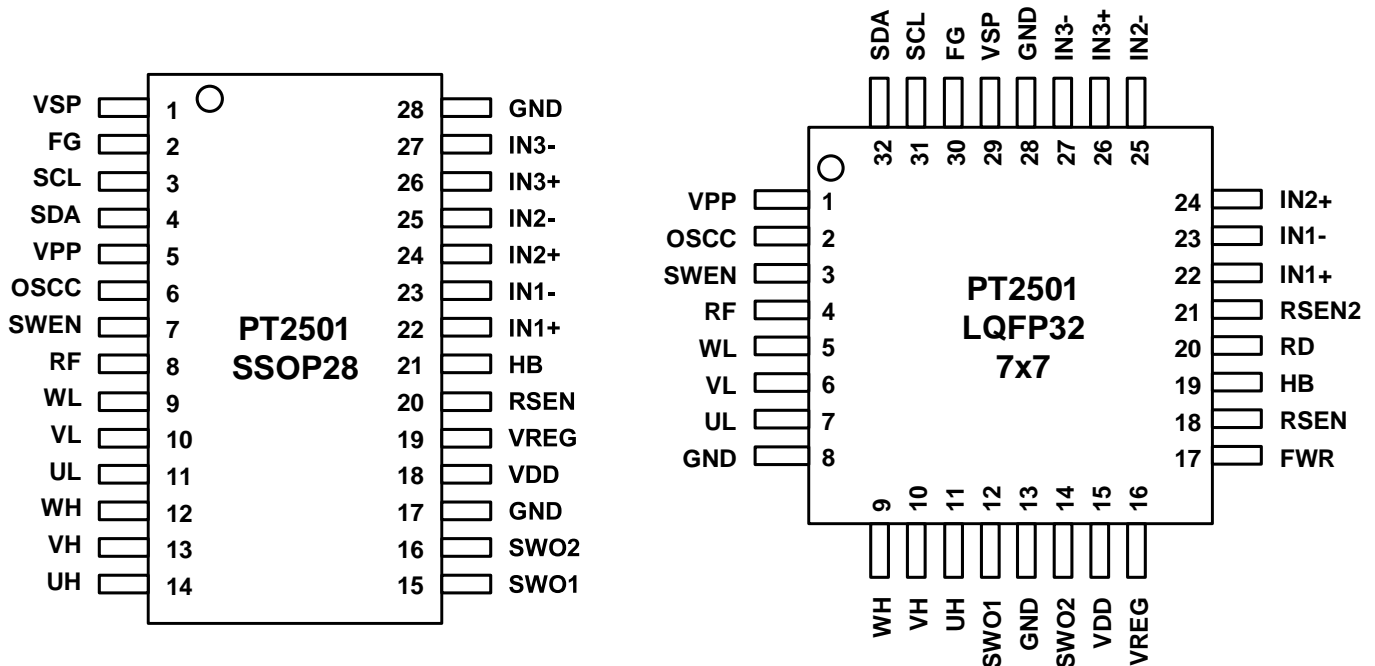
BLOCK DIAGRAM



APPLICATION BLOCK DIAGRAM



PIN ASSIGNMENT



PIN DESCRIPTION

Pin Name	I/O/P	Description	Pin No. SSOP28	Pin No. LQFP32
VSP	I	DC or PWM input for speed control	1	29
FG	O	Motor rotation speed indicator, logic level output	2	30
SCL	I	Serial clock input - I2C control interface	3	31
SDA	I/O	Serial data input/output - I2C control interface	4	32
VPP	P	a. Apply +7.5v for OTP programming b. Internal diode pickup to VREG for OTP reading	5	1
OSCC	I	Connect to external capacitor for startup step setting	6	2
SWEN	I	Swing head enable control; "1" = start motor	7	3
RF	I	Current limit voltage sensing	8	4
WL	O	W phase low side signal output	9	5
VL	O	V phase low side signal output	10	6
UL	O	U phase low side signal output	11	7
GND	P	Signal ground	n.a.	8
WH	O	W phase high side signal output(open drain)	12	9
VH	O	V phase high side signal output(open drain)	13	10
UH	O	U phase high side signal output(open drain)	14	11
SWO1	I/O	Swing motor control - full-bridge output 1	15	12
SWO2	I/O	Swing motor control - full-bridge output 2	16	14
GND	P	Signal ground	17	13
VDD	P	VDD supply input	18	15
VREG	O	+5V LDO output	19	16
FWR	I	Forward/Reverse Control - internal pull-high as forward	n.a.	17
RSEN	O	Over-Voltage/Over-Temperature sensing resistor connection	20	18
HB	O	Controlled +5V output for Hall sensor bias	21	19
RD	O	Motor lock indicator, HIGH for abnormal event.	n.a.	20
RSEN2	I	Over-Temperature sensing resistor connection	n.a.	21
IN1+	I	Hall element 1 input+	22	22
IN1-	I	Hall element 1 input-	23	23
IN2+	I	Hall element 2 input+	24	24
IN2-	I	Hall element 2 input-	25	25
IN3+	I	Hall element 3 input+	26	26
IN3-	I	Hall element 3 input-	27	27
GND	P	Signal ground	28	28

IMPORTANT NOTICE

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Princeton Technology Corp.
2F, 233-1, Baociao Road,
Sindian Dist., New Taipei City 23145, Taiwan
Tel: 886-2-66296288
Fax: 886-2-29174598
<http://www.princeton.com.tw>