

DESCRIPTION

PT2431 is an integrated 12V-operationable 3-phase sensorless BLDC motor driver with advanced protections which include soft-start circuit, thermal shutdown, lock protection and output current limit. PT2431 is specially designed for sensorless motor and ideal for fan motor control requiring high power efficiency. And a direct PWM-control interface is built in to smooth the fan speed from low to high. Peripheral devices are limited to few so that it is not difficult to make the PCB layout tight and small.

PT2431 uses a new multi-power BCD technology, requiring a single power supply of $VDD = 5\sim 12V$, packed as TSSOP16 package and displaying excellent power efficiency, is a perfect solution for comprising a compact, low-cost sensorless BLDC motor system.

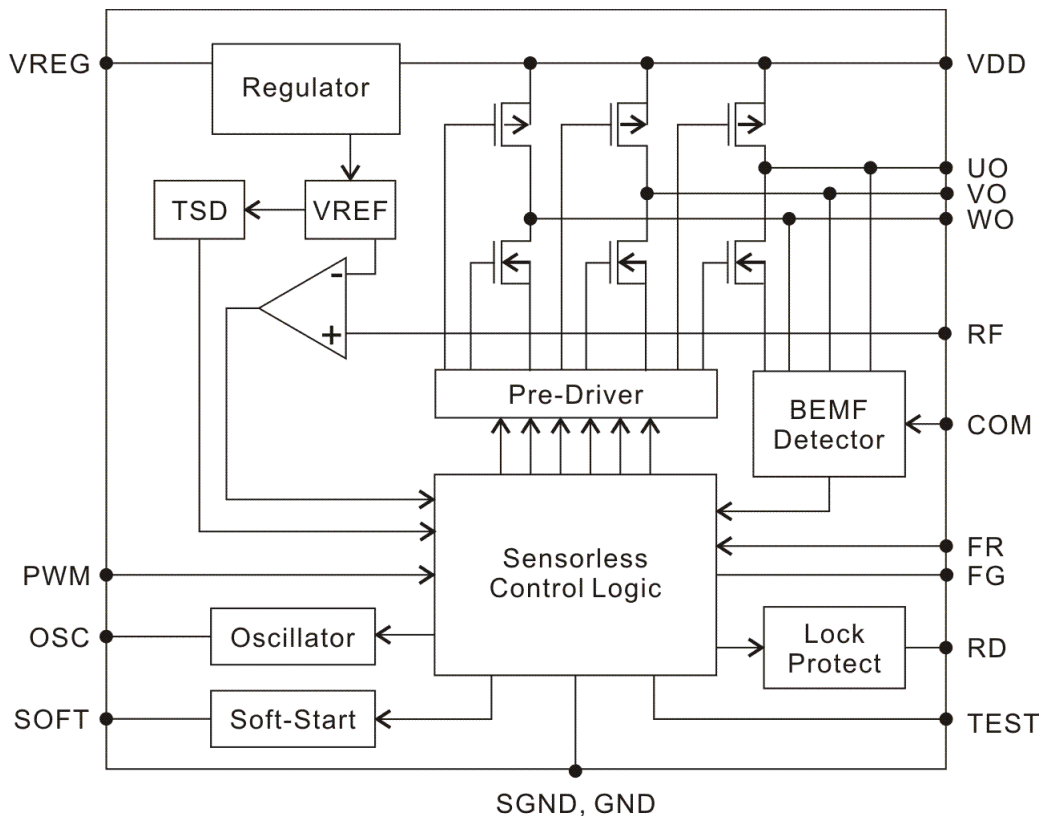
FEATURES

- Multi-power BCD technology
- Direct-PWM of 20~50 KHz for fan speed control
- Adjustable soft-start time by an external capacitor
- Adjustable Lock protection time by an external capacitor
- Thermal protection of shutdown/release at 150 °C/120°C
- Over-current limit set by an external precision resistor
- FG output is offered, which gives the pulse signal as the hall sensor system

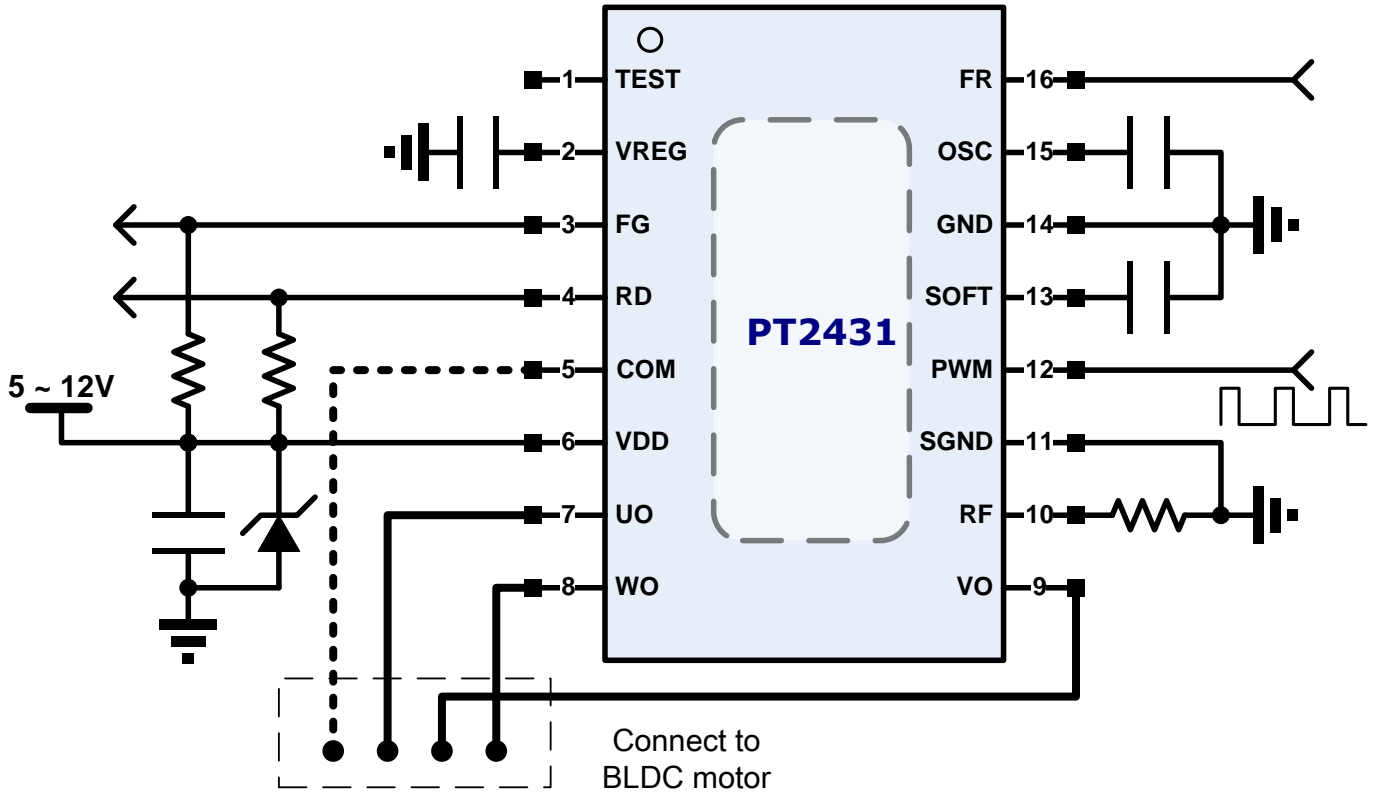
APPLICATIONS

- 3-phase sensorless BLDC fan motor driver
- Fan for CPU or graphic card
- Fan for server

BLOCK DIAGRAM



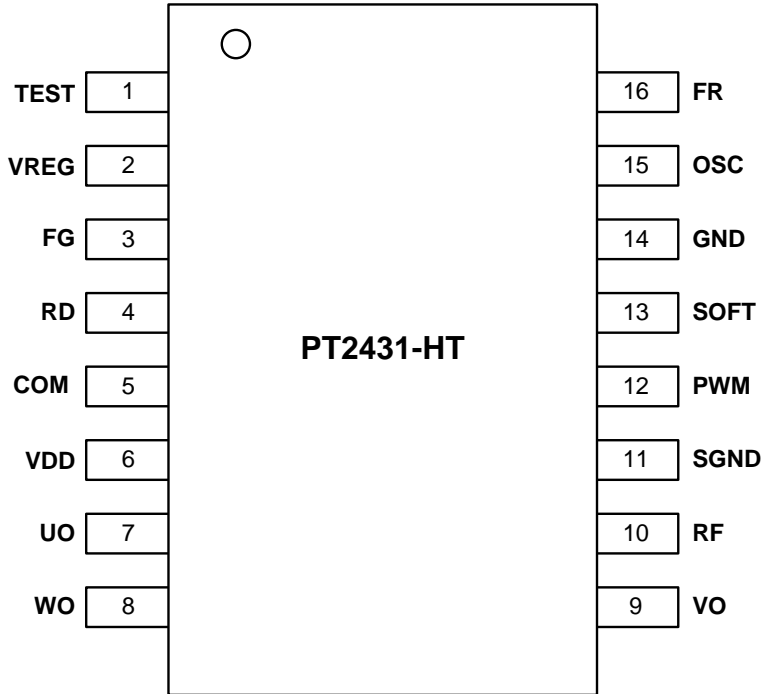
APPLICATION CIRCUIT



ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT2431	16-pin, HTSSOP, 173mil	PT2431-HT

PIN CONFIGURATION





PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.
TEST	I	Test mode , keep floating or low for normal operation	1
VREG	IO	Regulator output pin. Connect a bypass capacitor of 2.2 μ F to ground	2
FG	O	Pulse output signal with open-drain structure	3
RD	O	Lock mode signal with open-drain structure. Hi-Z for Lock mode	4
COM	I	Motor middle point connection for BEMF detection reference It is an optional.	5
VDD	P	High voltage power supply pin	6
UO	O	Motor driving pin U. Connect to the U phase of motor coil Current flows in the order of U, W, V	7
WO	O	Motor driving pin W. Connect to the W phase of motor coil Current flows in the order of U, W, V	8
VO	O	Motor driving pin V. Connect to the V phase of motor coil Current flows in the order of U, W, V	9
RF	O	Output current sense signal Connect a 0.5 Ω resistor to ground for 1A output current limit	10
SGND	P	High voltage ground signal	11
PWM	I	PWM input signal. 20~50KHz is allowed. 75K Ω pull-up to VREG	12
SOFT	IO	Soft start control pin. Connect a capacitor of 1 μ F to ground	13
GND	P	Low voltage ground signal	14
OSC	IO	Start-up frequency and Lock mode period setting pin Connecting a capacitor of 2200pF to ground causes 10S lock time	15
FR	I	Forward or reverse, change status when power off	16
Heatsink	P	For heat dissipation	back side

IMPORTANT NOTICE

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

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>