# DESCRIPTION

The PT5619 is a high-speed 3-phase gate driver for power MOSFET and IGBT devices with three independent high and low side referenced output channels. Built-in dead time protection and shoot-through protection prevent damage to the half-bridge. The UVLO circuits prevent malfunction when VCC and VBS are lower than the specified threshold voltage. A novel high-voltage BCD process and common-mode noise canceling technique provide stable operation of high-side drivers under high dV/dt noise conditions while achieving excellent negative transient voltage tolerance. An enable pin (ENB) is included so that standby mode may be used to set the chip into a low quiescent current state to realize long battery lifetime.

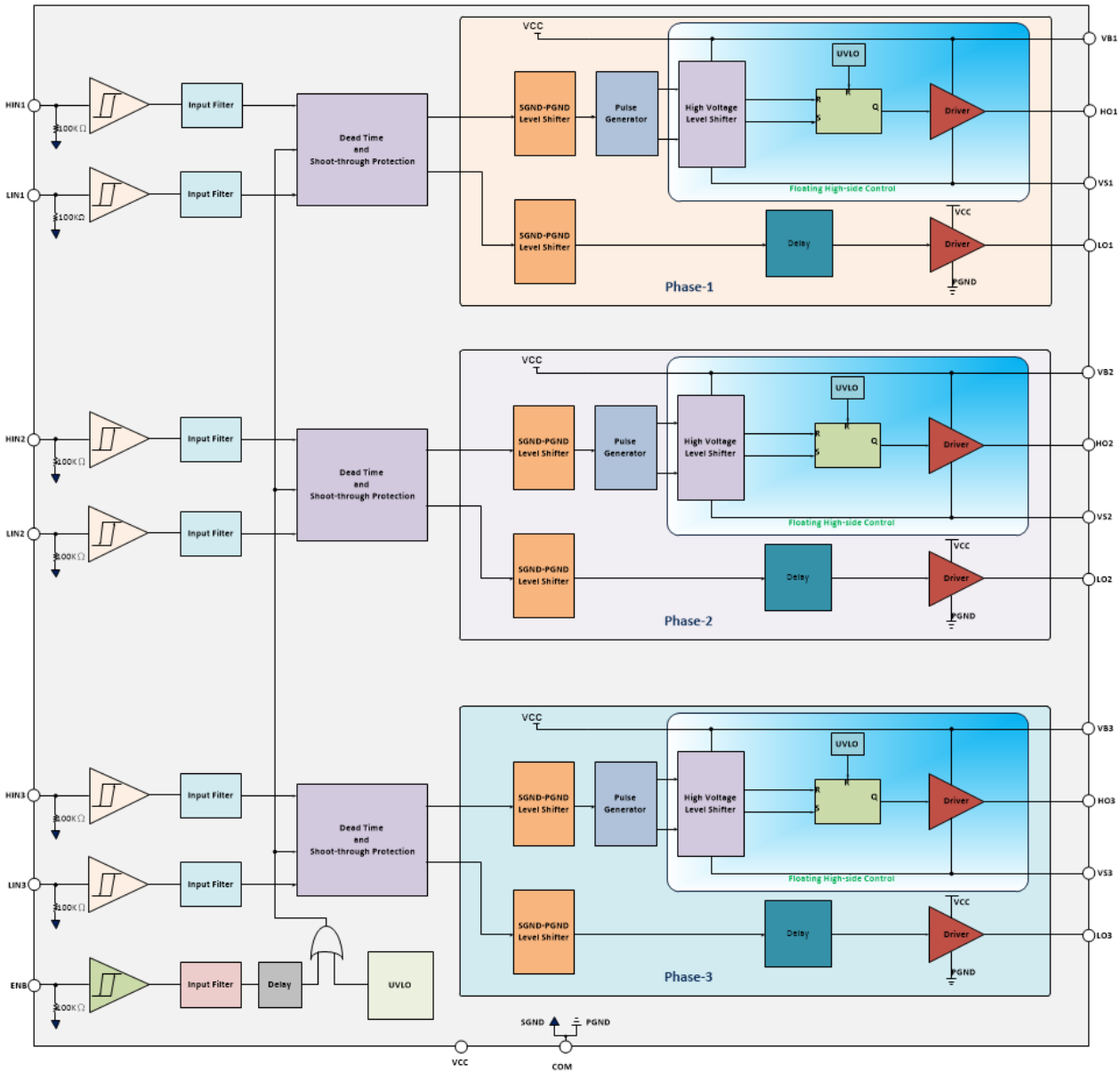
# APPLICATION

- E-BIKE/electric power tool 3-phase motor driver
- Battery-powered mini/micro motor control
- General purpose inverter

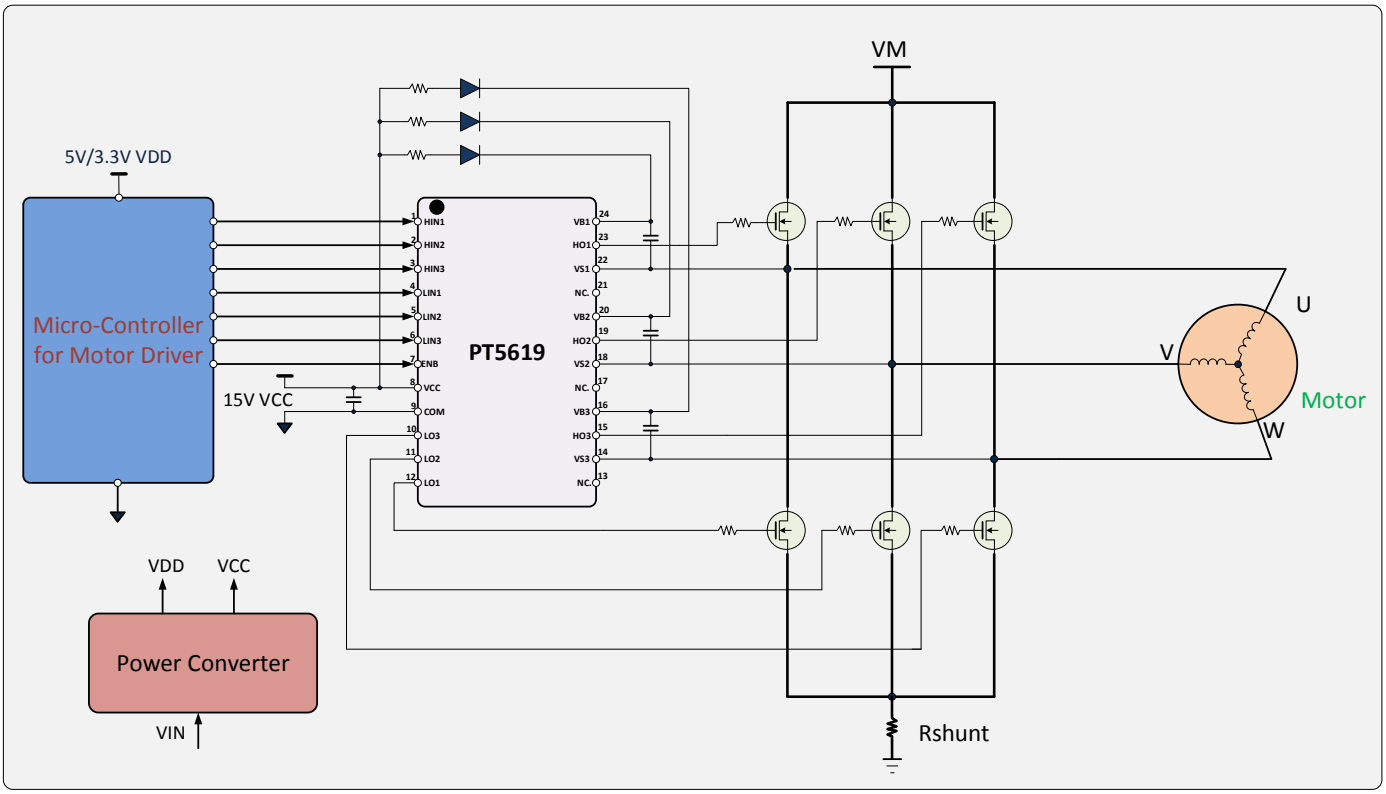
# FEATURES

- Integrated 90V half-bridge high side driver
- Ability to drive up to 3-phase half-bridge gates
- Built-in dead time protection
- Shoot-through protection
- Under voltage lockout for VCC and VBS
- Low operation voltage 0–5.5V for VCC and VBS
- 3.3V and 5V input logic compatible
- Enable pin (ENB) for low standby current
- IO+/IO-: +1.2A/-2.0A at VCC=15V, VBS=15V
- Built-in dead time：0.5μs (typ.)
- Common-mode dV/dt noise cancellation circuit
- Tolerant of negative transient voltage
- Low dI/dt gate drive for better noise immunity
- -40ºC to 125ºC operating range
- Small footprint package：TSSOP20L/24L, QFN24

# BLOCK DIAGRAM



# TYPICAL APPLICATION CIRCUIT

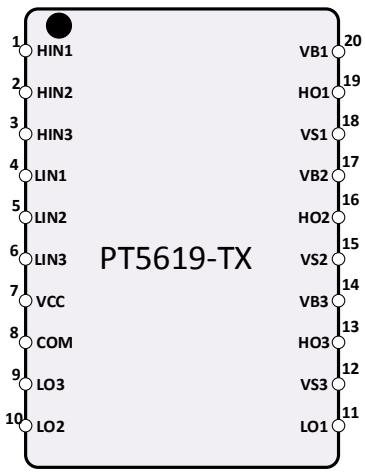


# ORDER INFORMATION

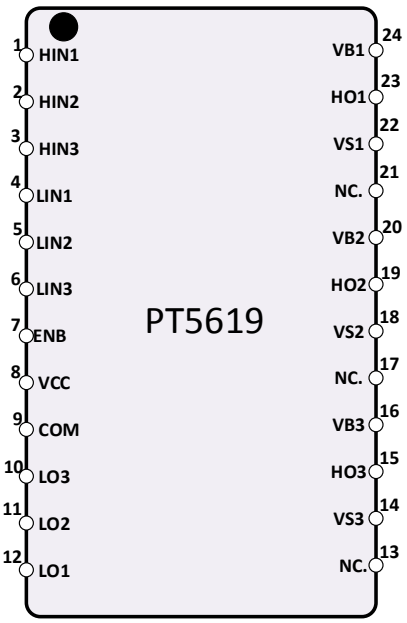
| Valid Part Number | Package Type | Top Code |
|---|---|---|
| PT5619-TX | 20 Pins, TSSOP | PT5619-TX |
| PT5619 | 24 Pins, TSSOP | PT5619 |
| PT5619 | 24 Pins, QFN | PT5619 |

# PIN CONFIGURATION

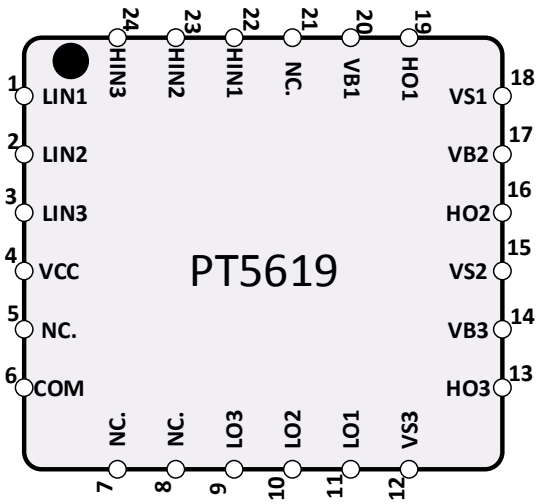
*20-PIN TSSOP*




*24-PIN TSSOP*




*QFN*



# PIN DESCRIPTION

| Pin Name | Description | Pin No. | | |
|---|---|---|---|---|
| | | 20-Pin TSSOP | 24-Pin TSSOP | QFN |
| HIN1 | Logic input for phase-1 high-side gate driver | 1 | 1 | 22 |
| HIN2 | Logic input for phase-2 high-side gate driver | 2 | 2 | 23 |
| HIN3 | Logic input for phase-3 high-side gate driver | 3 | 3 | 24 |
| LIN1 | Logic input for phase-1 low-side gate driver | 4 | 4 | 1 |
| LIN2 | Logic input for phase-2 low-side gate driver | 5 | 5 | 2 |
| LIN3 | Logic input for phase-3 low-side gate driver | 6 | 6 | 3 |
| ENB | Logic input for standby mode control | - | 7 | - |
| VCC | Logic and low-side gate drivers power supply voltage | 7 | 8 | 4 |
| NC | Not connected | - | - | 5 |
| COM | Logic ground and low-side gate drivers ground | 8 | 9 | 6 |
| NC | Not connected | - | - | 7 |
| NC | Not connected | - | - | 8 |
| LO3 | Phase-3 low-side gate driver output | 9 | 10 | 9 |
| LO2 | Phase-2 low-side gate driver output | 10 | 11 | 10 |
| LO1 | Phase-1 low-side gate driver output | 11 | 12 | 11 |
| NC. | Not connected | - | 13 | - |
| VS3 | Phase-3 high-side driver floating supply offset voltage | 12 | 14 | 12 |
| HO3 | Phase-3 high-side driver output | 13 | 15 | 13 |
| VB3 | Phase-3 high-side driver floating supply | 14 | 16 | 14 |
| NC. | Not connected | - | 17 | - |
| VS2 | Phase-2 high-side driver floating supply offset voltage | 15 | 18 | 15 |
| HO2 | Phase-2 high-side driver output | 16 | 19 | 16 |
| VB2 | Phase-2 high-side driver floating supply | 17 | 20 | 17 |
| NC. | Not connected | - | 21 | - |
| VS1 | Phase-1 high-side driver floating supply offset voltage | 18 | 22 | 18 |
| HO1 | Phase-1 high-side driver output | 19 | 23 | 19 |
| VB1 | Phase-1 high-side driver floating supply | 20 | 24 | 20 |
| NC | Not connected | - | - | 21 |

# IMPORTANT NOTICE

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