

## **Three Phase Sensorless BLDC Motor Driver**

# FT3216

#### Overview

The FT3216 is a Three Phase sensorless BLDC motor driver. Due to its adaptive features and wide power-supply range capabilities, it is intended to cover a wide range of motor characteristics, while requiring minimal tuning from the user. Speed adjustment can be achieved through either direct-PWM or analog voltage control. Speed indicator is provided through a Frequency Generator output, generating digital pulse with its frequency proportional to the speed of the motor.

Protection functions of FT3216 are comprehensive including lock protection and automatic recovery,

under voltage, thermal shutdown, current limit and

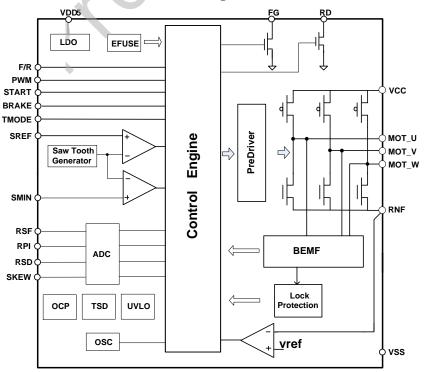
over current protections. These prevent the control

circuits and the motor from being damaged, particularly under stressed applications and demanding environments.

#### **Features**

- Position sensorless BLDC controller
- Selectable soft switch SBLDC (150 °) or BLDC (120 °) drives
- PWM speed input
- Analog speed input
- Soft start
- FG (Frequency Generator) and RD (Rotation detection) output
- Current limit and internal over current protection
- Lock protection
- Built-in thermal shutdown protection (TSD)
- Built-in Under Voltage Lock Out (UVLO)
- Low Rds  $(1.0\Omega)$

### **Block Diagram**





## 1. Pin Assignment

Package: TSSOP20

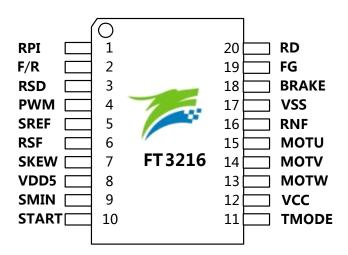


Table 1 Pin Configuration

PIN NO. PIN Name Type Descri  1 RPI I Initial PWM duty cycle setting.  2 F/R I Motor rotation direction input  3 RSD I Stall protection time setting  4 PWM I PWM input for speed adjustment. Interr  5 SREF I Analog input voltage for speed adjustment	nal pull-up
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	ent.
0 005 1 00 10	
6 RSF I Start frequency setting	
7 SKEW I Soft start time setting	
8 VDD5 O Digital power output, LDO DC5V output	for digital signal.
9 SMIN I Minimum speed setting	
10 START I Motor start input. High: Start; Low: Free	. Internal pull-up
11 TMODE I Test signal input, connect to GND	
12 VCC P Power supply	
13 MOT_W O Motor output W	
14 MOT_V O Motor output V	
15 MOT_U O Motor output U	
16 RNF O Output current detection pin	
17 VSS G Signal and power ground.	
18 BRAKE I Brake signal input, Low: Brake. Internal	pull-up.
19 FG O Open drain. Frequency Generator, spec	ed signal output.
20 RD O Open drain. Motor rotate detection outp	ut.