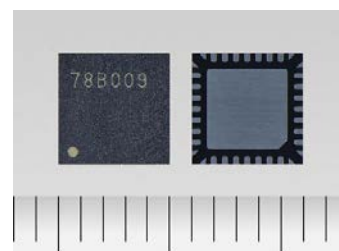


# Toshiba's New Three-Phase Brushless Motor Control Pre-driver IC Features Sensorless Control and Closed Loop Speed Control

Toshiba Electronic Devices & Storage Corporation ("Toshiba") launches "TC78B009FTG," a three-phase brushless motor control pre-driver IC that does not require Hall sensors, for applications that include high-speed fans used in servers, blowers, cordless vacuum cleaners, and robot vacuum cleaners.

A built-in closed loop speed control function regulates and maintains the motor rotational speed under dynamic power fluctuations and load variations. Precise setting of a speed profile is done by the built-in non-volatile memory (NVM) and TC78B009FTG therefore eliminates the need for an external MCU for closed loop speed control.



## Three features

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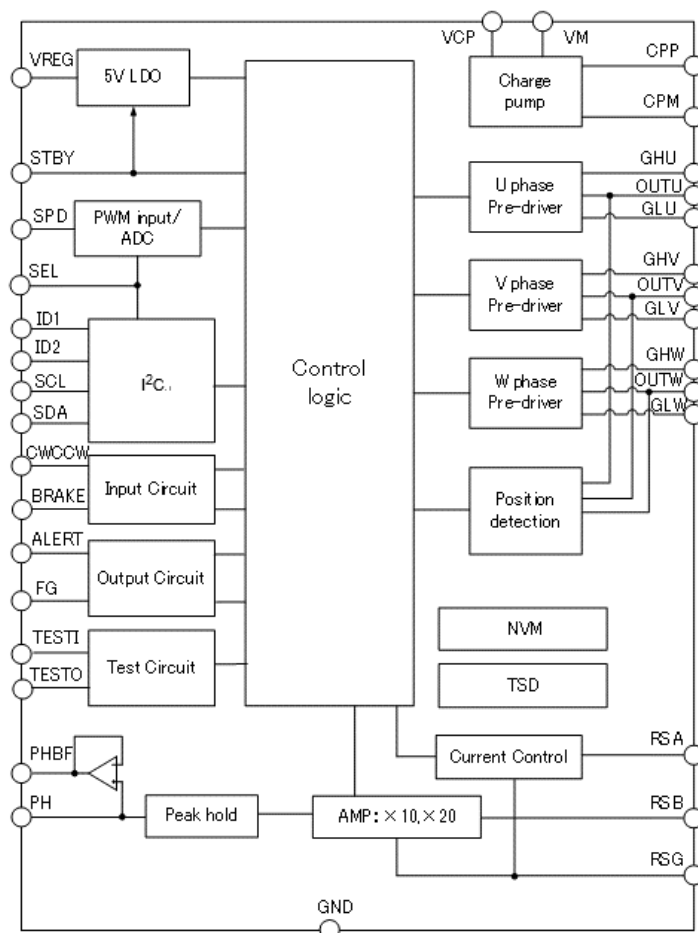
- Eliminating the Hall sensors allows reduction of mounting area and cost of IC, also contributing to motor downsizing and cost reduction.
- Closed loop speed control allows stable rotational speed under load variations, without using external MCUs.
- Various FETs can be used since FET gate current is controlled by the internal NVM.

## Applications

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- Cooling fans for servers
- Motors for cordless vacuum cleaners and robot vacuum cleaners
- Pumps
- Blowers, etc.

## Block Diagram

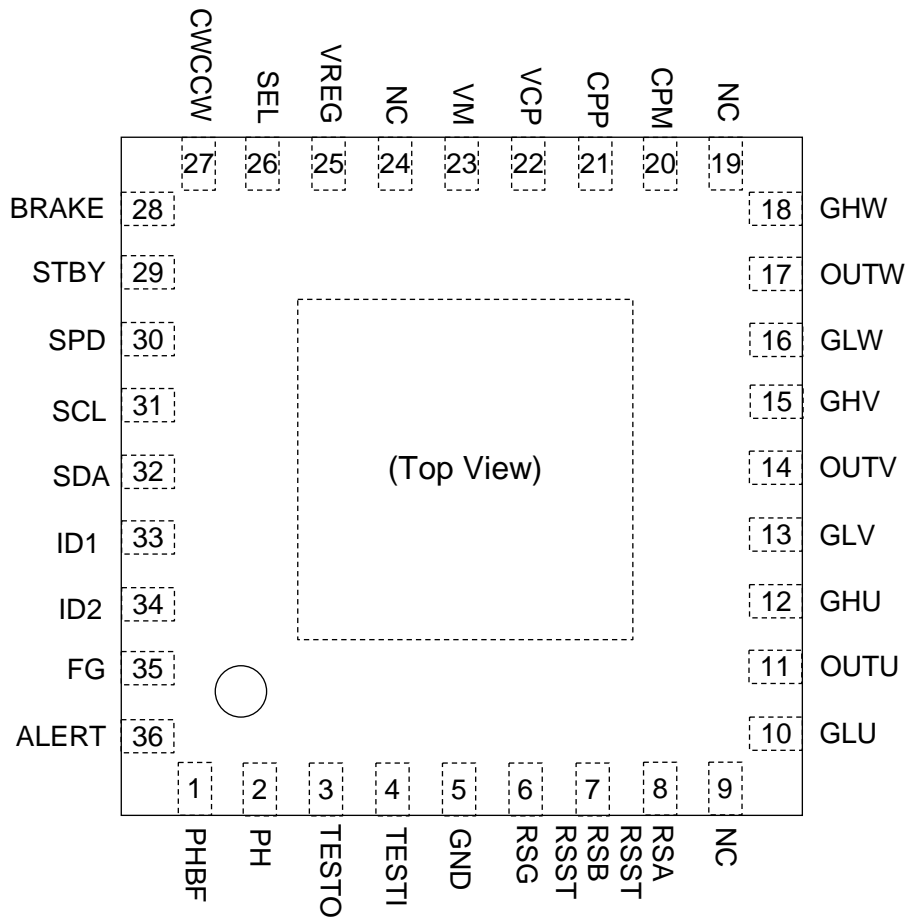


Note: Some of the functional blocks, circuits, or constants in the block diagram may be omitted or simplified for explanatory purposes.

## Product specifications

Part Number	TC78B009FTG
Supply voltage (Operating range)	5.5V to 27V
Driving method	Rectangular wave drive (120°, 135°, 142.5°, and 150° commutation)
Features	Hall sensorless
	Selectable open loop or closed loop control
	Standby mode function
	FET gate current configuration for slew rate control
	Selectable forward rotation or reverse rotation
	Supports speed control by PWM duty signal, analog voltage signal, and I <sup>2</sup> C.
	Supports various settings with I <sup>2</sup> C interface
Package	WQFN36 (5 mm × 5 mm × 0.8 mm)

### Pin assignment (Top View)



Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant information of this document and the instructions for the application that Product will be used with or for.

**TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION**

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