

Toshiba Electronic Devices & Storage Corporation Adds 500V Sine-Wave Driver IC Adopting Small Surface Mounting Package for Three-Phase Brushless Fan Motors: TB67B000FG

TB67B000FG is a new three-phase brushless fan motor driver realizing sine-wave drive in a single package for air conditioners, air purifiers and other home appliances, and for industrial equipment. The new driver is a package addition to the "TB67B000 series," which adopts surface mounting package (HSSOP34). The required mounting area is about 53% smaller than that for the 'TB67B000HG' sine-wave driver IC, which is packaged in 'HDIP30,' a conventional lead-insertion package. The new IC contributes to board space-saving.



Three features

- **Sine-wave drive with a rating of 500V is realized in a single package.**

The sine-wave motor control IC and IGBT (rating of 500 V/2 A) are integrated in a single package. This reduces the size of mounting area and board layout, and contributes to overall system cost reduction.

- **Small surface mount package for reflow mounting**

The small 34-pin HSSOP package (mounting area: 17.5 mm × 11.93 mm) is adopted. A heat radiation pad on the package surface improves heat dissipation. Components can be mounted on boards automatically, as the package enables reflow mounting. The required mounting area is 53% smaller than that of its predecessor, which is packaged in HDIP type (mounting area: 32.8 mm × 13.5 mm)

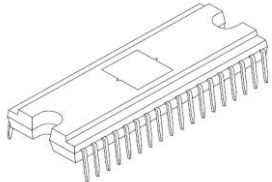
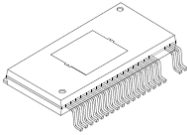
- **Built-in error detection functions**

Error detection functions for motor lock detection, under voltage lock out for power control, and thermal shutdown are incorporated.

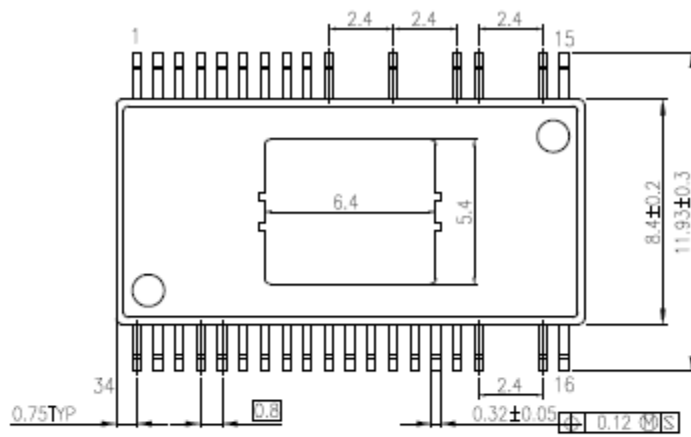
Applications

- Fans for home appliances (air conditioners, air purifiers, and hot-water supply machines, ventilation fans, and electric fans)
- Fans for industrial equipment (Refrigeration showcases)

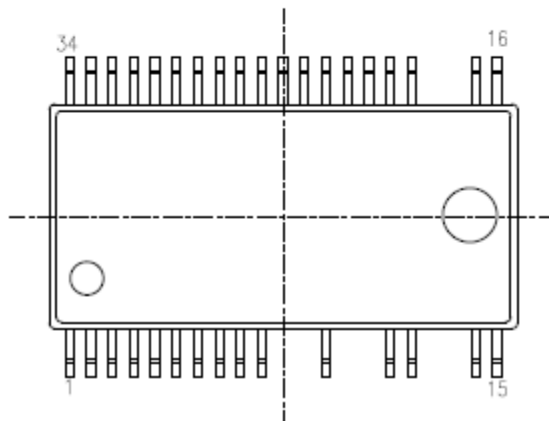
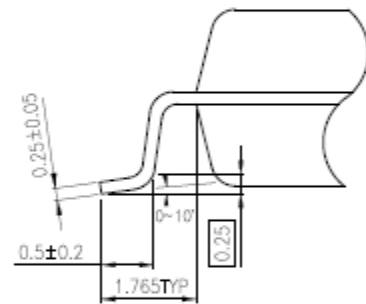
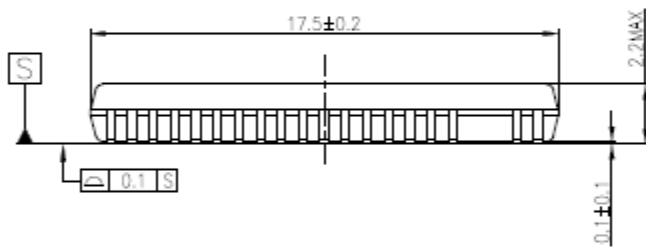
Main specifications of product

Part number	Current product TB67B000HG	New product TB67B000FG
Package	HDIP30 (Mounting area: 32.8 mm×13.5 mm) 	HSSOP34 (Mounting area: 17.5 mm×11.93 mm) 
Power supply voltage (absolute maximum ratings)	For motor operation: 500 V For controller: 18 V	
Power supply voltage (operation range)	For motor operation: 50 V to 450 V For controller: 13.5 V to 16.5 V	
Output current (operation range)	2 A	
Driving method	Sine-wave PWM drive/Trapezoidal commutation	
PWM frequency	14 kHz to 23 kHz	
Lead angle control	Sine-wave PWM drive: 0 to 58°/32 steps Trapezoidal commutation: 0 to 28°/16 steps	
Input voltage for rotational speed command	Motor operation: 2.1 V to 5.4 V	
Other features	<ul style="list-style-type: none"> • Built-in IGBT three-phase bridge • Built-in oscillation circuit (resistor connected externally.) • Built-in bootstrap diode • Built-in error detection functions: current limiter, thermal shutdown, under voltage lock out, and motor lock detection • Built-in regulator circuit (5 V/35 mA, 7 V/30 mA) 	

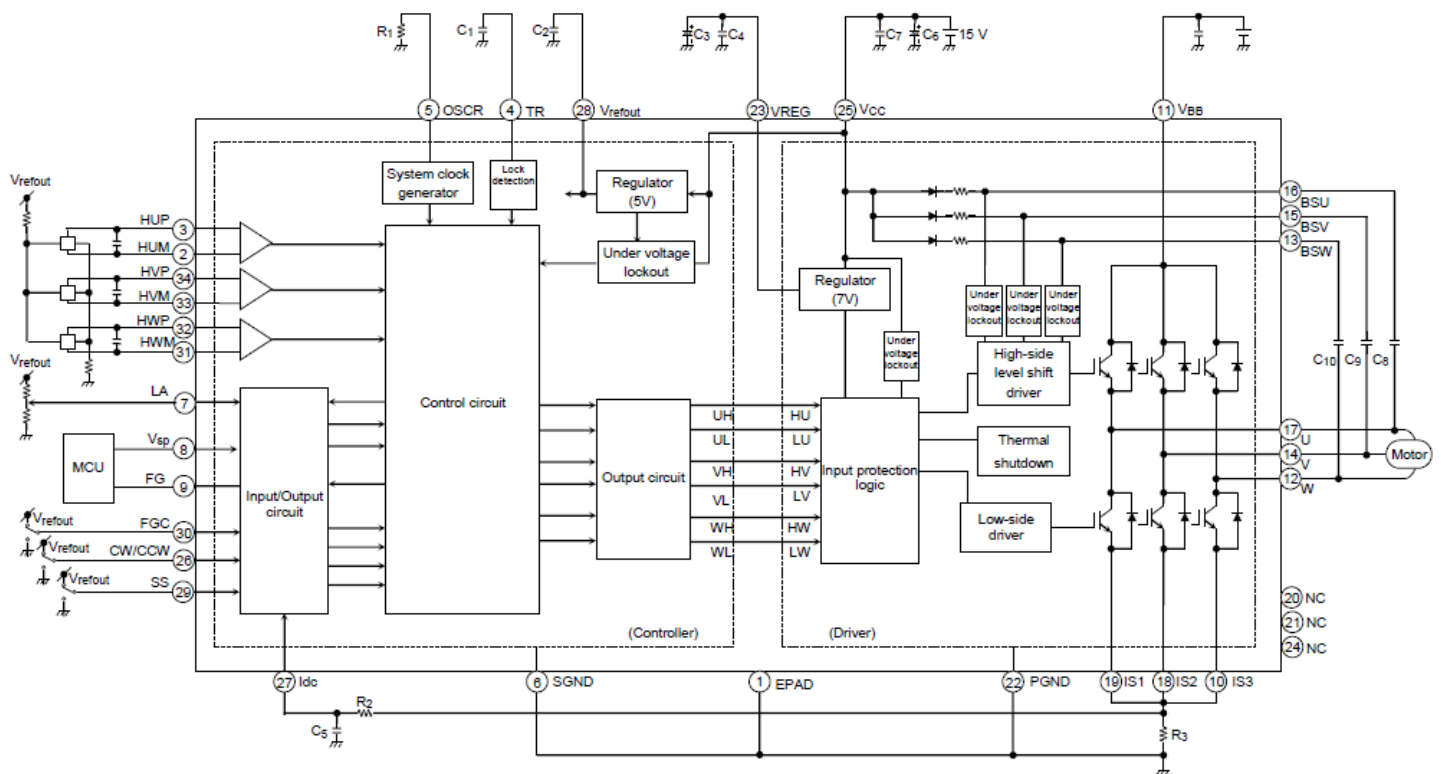
Package dimensions



Unit: mm



Application circuit example



Note: The application circuit shown above is provided for reference purposes only and not guaranteed for mass production.

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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