

## 50V / 3.5A H-Bridge Driver

### TB67H450AFNG TB67H451AFNG



## DC Motor Drivers with 1 $\mu$ A Maximum Standby Current

The single channel brushed DC motor driver ICs are housed in a small HSOP8 package with popular pin-assignment allowing quick re-designs by drop-in replacement. The motor drivers feature various protections functions including automatic shutdown under overcurrent conditions, thermal shutdown and low voltage detection. The standby current consumption was optimized to 1 $\mu$ A max.

### Applications

- Battery driven appliances
  - Electronic locks
  - Vacuum robot cleaner
  - Fiscal printer
- Coffee Machine
- Charging cable lock for wallboxes
- Linear actuators
- Industrial equipment

### Features

- Standby current max.1 $\mu$ A
- Low  $R_{DS(ON)}(H+L)=0.6\Omega$ (typ.)
- Output: 50V / 3.5 A
- Wide range of operating voltage  $V_M=4.5$  to 44V
- Constant current mode adjustable with VREF voltage and sense resistor
- Direct PWM speed control option
- Built-in error detection

### Advantages

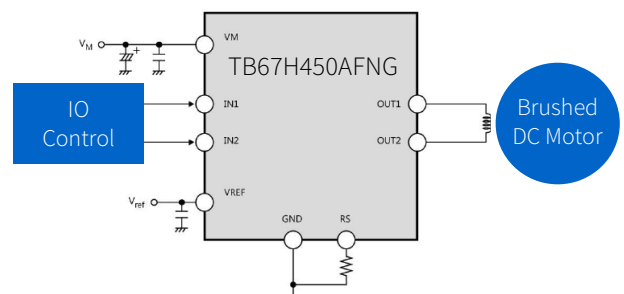
- Optimized regulator circuitry leads to low power consumption
- No external MOSFET drivers required
- No external charge-pump capacitor required
- Convenient non-latching overcurrent detection
- Two devices can be combined to control a stepper motor
- Pin-compatible to popular products

### Benefits

- Longer battery life time
- High integration requires less external components
  - Lower bill of material (BoM) cost
  - Saving PCB space
- Error detection functions improve system safety
- Re-use of existing designs due to drop-in replacement option

### Low BOM & simple control

A minimum number of external components are needed for the basic brushed-DC motor drive and control: the four operation modes forward (clockwise), reverse (counter-clockwise), short brake, and stop mode are selected by the IN1 and IN2 input pins.



## TB67H450/451AFNG functions

### H-Bridge

Reduced  $R_{DS(ON)}$  of 0.6Ω (typ.) for high-side and low-side with high-current drive capability of up to 3.5A

### Charge Pump

External components are not required

### Safety features

#### Thermal shutdown function (TSD)

When the junction temperature ( $T_j$ ) of the IC exceeds 160°C (typ.)

#### Under voltage lockout function (UVLO)

When the power supply voltage drops below 3.8V (typ.)

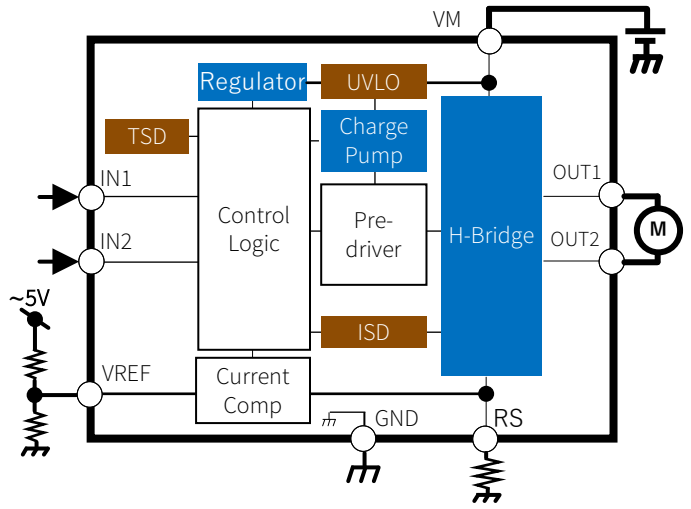
#### Over current detection function (ISD)

When the output current exceeds the threshold level of 4.9A (typ.)

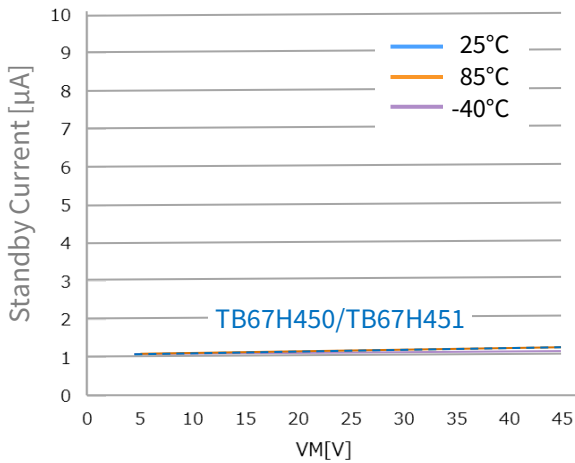
- TB67H450AFNG: output is turned off indefinitely until a power cycle or entering and leaving the standby mode.
- TB67H451AFNG: resumes operation automatically after a recovery time once the overcurrent condition is removed

### Regulator

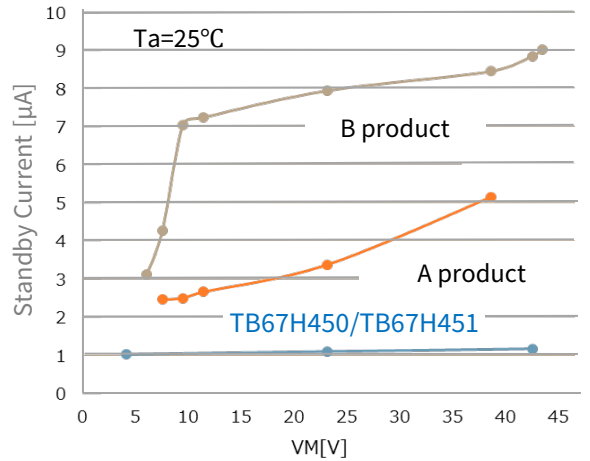
Supports automatic transitions from STOP mode to STANDBY mode and turns off the VCC regulator for the internal circuit operation



## Low power consumption



Stable standby current over temperature



Very low standby current consumption

## Low cost evaluations boards

The Mikroelektronika Click boards™ allow quick and easy device evaluation and prototyping.



[Mikroelektronika DC Motor 6 click](#)



[Mikroelektronika DC Motor 14 Click](#)

## Toshiba brushed DC motor drivers

[Further product information on website](#)

