

50V / 3.5A H-Bridge Driver

TB67H450AFNG TB67H451AFNG



DC Motor Drivers with 1 μ 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 μ 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 μ 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

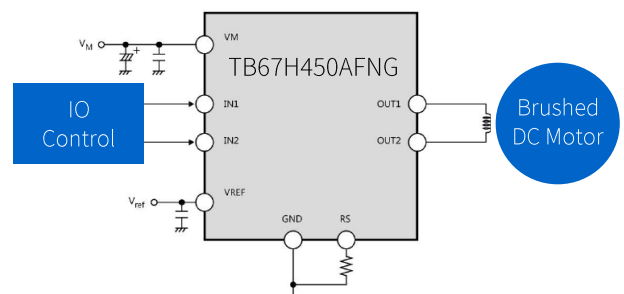
- Optimized regulator circuitry leads to low power consumption
- No external MOSFET drivers required
- No external charge-pump capacitor required
- Convenient non-latching overcurrent detection
- Two devices can be combined to control a stepper motor
- Pin-compatible to popular products

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.)

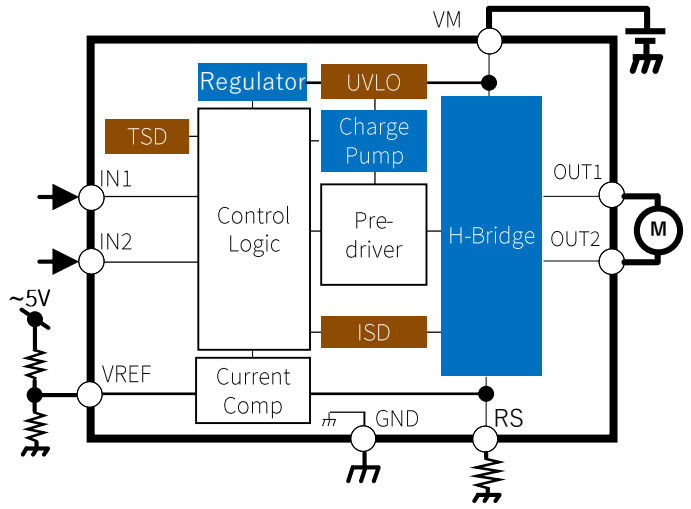
Over current detection function (ISD)

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

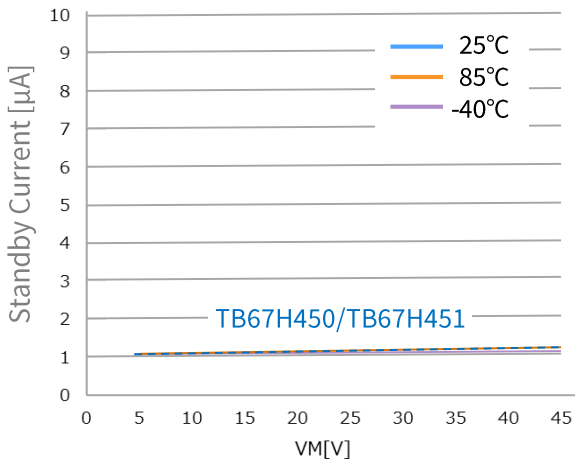
- TB67H450AFNG: output is turned off indefinitely until a power cycle or entering and leaving the standby mode.
- TB67H451AFNG: resumes operation automatically after a recovery time once the overcurrent condition is removed

Regulator

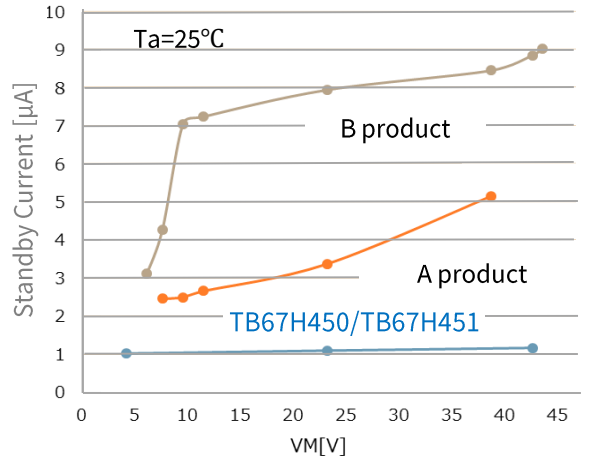
Supports automatic transitions from STOP mode to STANDBY mode and turns off the VCC regulator for the internal circuit operation



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.



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Toshiba brushed DC motor drivers

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