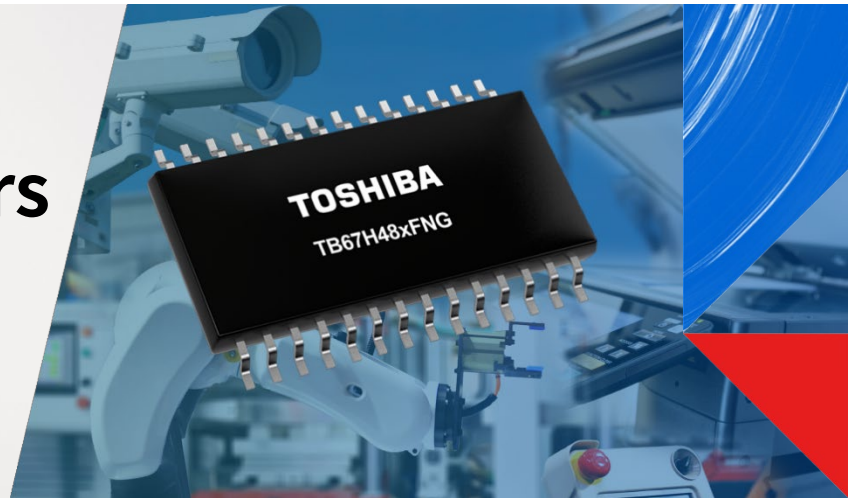# 50V / 2.5A H-Bridge Drivers

TB67H480FNG
TB67H481FNG

Dual DC Motor Drivers with integrated torque function

The dual-channel brushed DC motor drivers can independently drive 2 DC motors or one stepper motor. Housed in HTSSOP28 packages with popular pin-assignments, they allow quick re-designs or enable second sourcing strategies. The TB67H480FNG features a PHASE/ENABLE control interface, while the TB67H481FNG comes with a PWM/IN interface. Both drivers have built-in charge pump capacitors and the usual protection functions such as over temperature, over current and under voltage lockout. The motor torque can be set individually for each motor in 4 steps.

Applications

- Multifunction printers and scanners
- Office automation
- Factory automation
- Industrial equipment
- Surveillance cameras

Features

- Output: 50V / 2.5 A
- Operating voltage VM=8.2 to 44V
- Low $R_{DS(ON)}$(H+L)= 0.4Ω(typ.)
- 4 level torque setting feature
- Sleep mode
- Constant current drive mode
- Selectable control interface
  - TB67H480FNG: PHASE/ENABLE
  - TB67H481FNG: PWM/IN
- Integrated Charge Pump
- Selectable Mixed Decay Mode
- Built-in error detection & signalling

Advantages

- Control 2 DC motors independently
- Torque control by dedicated GPIO
- High integration requires less external components
- Signaling of an error state by a separate GPIO
- Pin-compatible to popular products
- Save energy in sleep mode

Benefits

- Lower bill of material (BoM) cost
- Saving PCB space
- Flexible reaction on variable motor loads
- Energy saving and less heating
- Error detection functions improve system safety
- Drop-in replacement option

Low BOM and 2nd sourcing strategies

A minimum number of external components are needed for the basic brushed-DC motor drive and control. With the popular pin-assignments and drop-in replacement compatibility, both parts enable second sourcing strategies or easy and quick redesigns without changing PCB layouts.
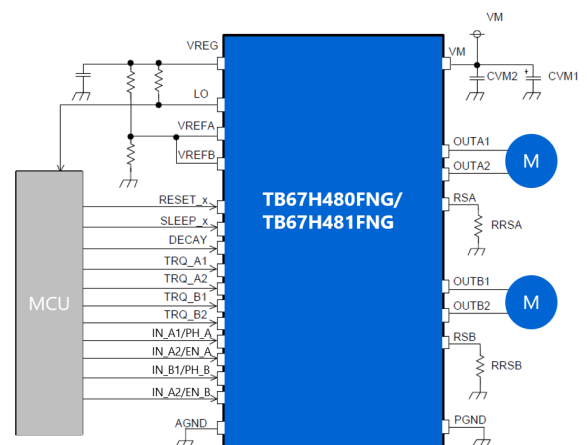
TB67H480FNG / TB67H481FNG functions

Dual H-Bridge
Reduced $R_{DS(ON)}$ of 0.4Ω (typ.) for high-side and low-side with high-current drive capability of up to 50V/2.5A.

Integrated charge pump
External components are not required.

Advanced Features

Torque control
Individually torque setting for each motor by 2 dedicated pins in a range of 100%, 71% , 38% , 0% .

Decay mode settings
Set the decay mode with a tri state pin to SLOW, FAST and MIXED decay.

Safety features

Thermal shutdown function (TSD)
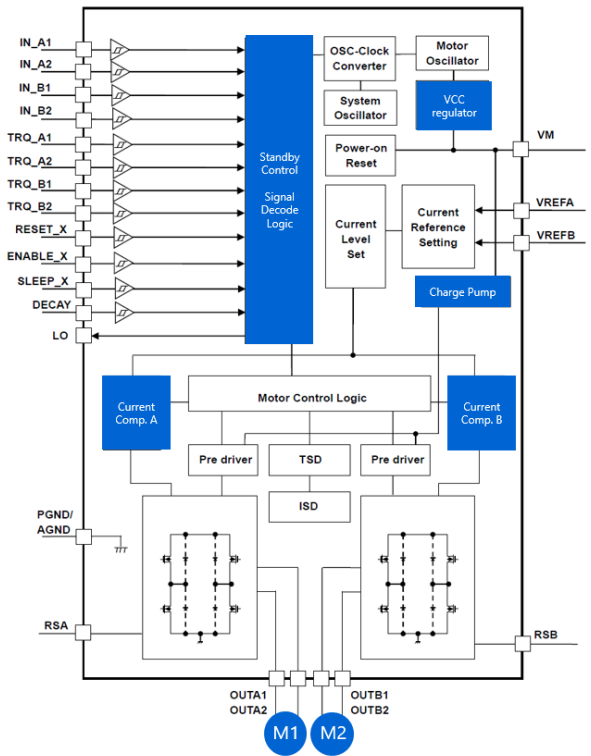At >160°C (typ.) junction temperature (Tj)

Under voltage lockout function (UVLO)
At <8.2V (typ.) power supply voltage

Over current detection function (ISD)
At >3.0A (typ.) output current

TB67H480FNG (Phase/EN) input output function

Decay	Enable x	Phase x	OUTx1	OUTx2	Mode
L	L	-	L	L	Slow decay
H	L	-	Z	Z	Fast decay
-	H	H	H	L	CW*
-	H	L	L	H	CCW*

* CW: Clockwise; CCW: Counter-clockwise

TB67H481FNG (PWM/IN) input output function

IN_x1	IN_x2	OUTx1	OUTx2	Mode
L	L	L	L	Short brake
L	H	L	H	CCW*
H	L	H	L	CW*
H	H	H	H	Short brake

* CW: Clockwise; CCW: Counter-clockwise

HTSSOP28 package

6.4mm

9.7mm
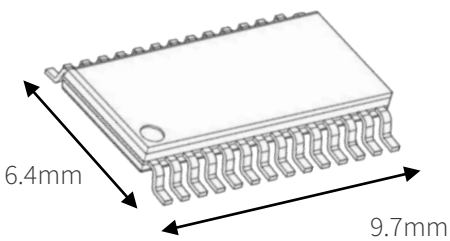
The mounting area of the package is approximately 39% smaller compared to the previous generation.

Low cost evaluations boards from Mikroelektronika

TB67H481FNG

www.mikroe.com/dc-motor-13-click

TB67H480FNG

www.mikroe.com/dc-motor-23-click

Toshiba brushed DC motor drivers

Further product information available at

https://toshiba.semicon-storage.com/eu/semiconductor/product/motor-driver-ics/brushed-dc-motor-driver-ics.html