



Product Overview

STK984-091A-E: Motor Driver, DC, 3-Phase, Brushless

For complete documentation, see the data sheet

Product Description

The STK984-091A-E is a 3-phase BLDC motor driver hybrid IC consisted of pre-driver and power MOSFET. It has shunt resistor and thermistor built in. So, various protective functions against over-temperature, over-current, over-voltage and low voltage are incorporated. You can design BLDC motor drive circuit easily and reduce the PCB area.

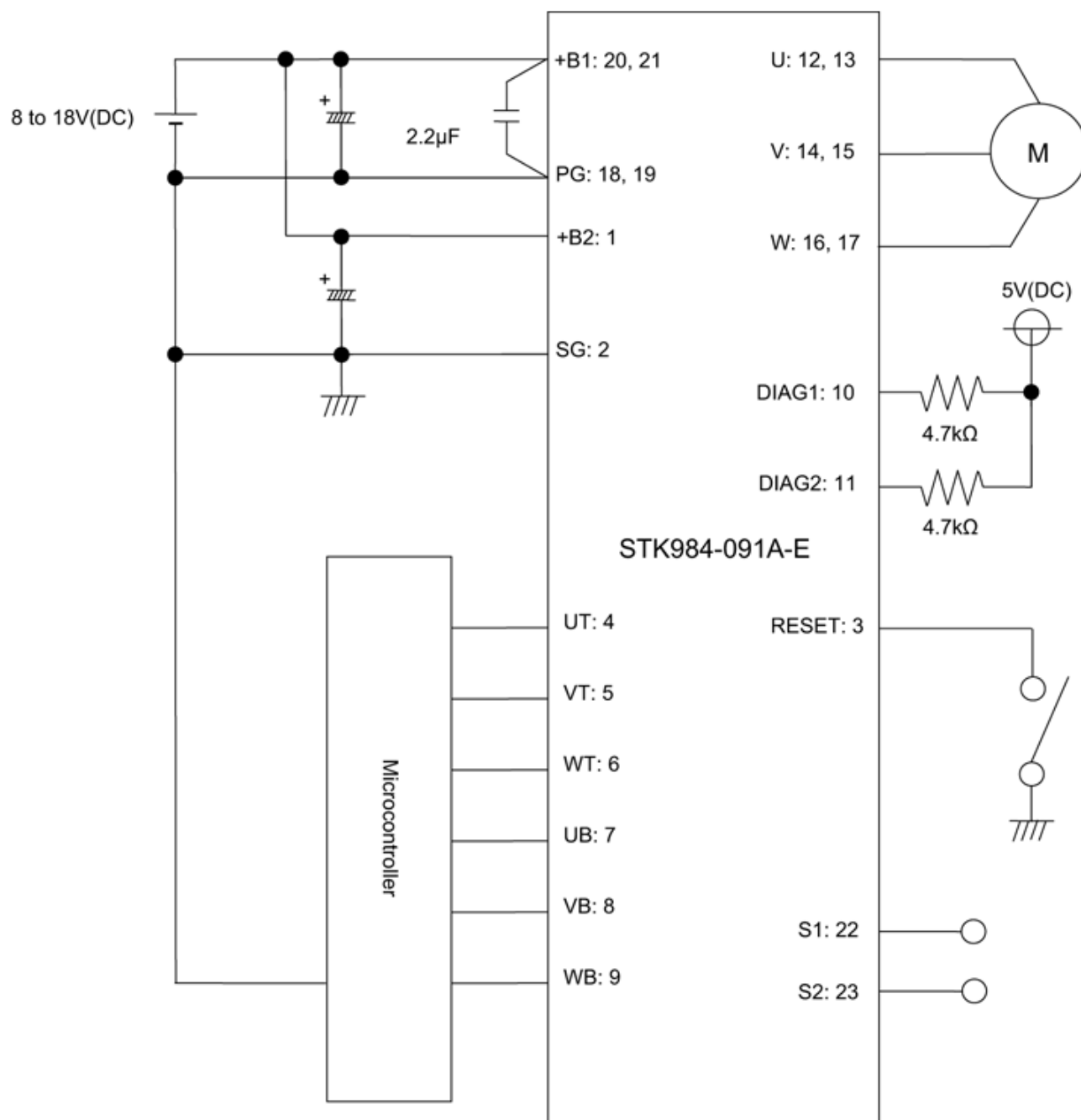
Features	Benefits
<ul style="list-style-type: none"> Built-in pre-driver IC Various protections (Overcurrent Protection, Over Temperature Protection, Low Voltage Protection, Over Voltage Protection) are incorporated On board terminals that output fault signal on board a reset terminal Built-in shunt resistor Dual-Stage Charge-pump for low voltage operation (Cranking) 	<ul style="list-style-type: none"> FET can be driven by microcontroller output (logic system) Protected by various abnormal states Easy to confirm which protection function acted. (Over current or Over temperature) The current detection is possible External boot strap diodes and condensers are unnecessary

Applications	End Products
<ul style="list-style-type: none"> Industrial 	<ul style="list-style-type: none"> Industrial Machines Motor Control System General Control System

Part Electrical Specifications

Product	Compliance	Status	Type	V _M Min (V)	V _M Max (V)	V _{CC} Min (V)	V _{CC} Max (V)	I _O Max (A)	I _O Peak Max (A)	Step Resolution	Control Type	Feedback Method	Current Sense	Regulator Output	Fault Detection	Flyback Protection	R _{DS(on)} Typ (Ω)	Package Type
STK984-091A-E	Pb-free	Active	Brushless DC	-0.3	40	-0.3	6	20	180		Parallel	None	Fully Integrated	No	Over-Current Thermal UVLO			SIP-23

Application Diagram



NOTE

1. A voltage overshoot with vibration will be occurred during a switching operation due to floating inductance of the power source wiring connected between terminal +B1 and PG. In order that the voltage overshoot between +B1 and PG, +B1 and each -UBW, each UVW and PG will not exceed its rating, please minimize wiring inductance by shortening the wiring, also connect a snubber circuit close to between +B1 and PG terminals.
2. With the object of the overcurrent protection circuit fail-safe design, inserting a fuse in +B1 line is recommended.
3. There is a 100kΩ (Typ) pull-down resistor connected inside of the signal input terminal. However, in the case of mounting a resistor externally to reduce noise due to wiring, please satisfy the input voltage threshold of this Hybrid-IC.
4. Terminal DIAG 1 and DIAG 2 are the open drain output configuration. Please pull up with 4.7kΩ resistor to 5V power supply.
5. There is a 100kΩ (Typ) pull-up resistor connected inside of the RESET terminal. It operates normally in the open-state. When the short-circuit protection operates and latches the output OFF, the latched output OFF can be released by making RESET terminal Low and re-opened.

