

DESCRIPTION

The PT5139 is a dual bridge motor driver which has two H-bridge drivers, and can drive two DC brush motors, a bipolar stepper motor, solenoids, or other inductive loads.

It operates from 2.7V to 15V, and can deliver load current up to 700mA per channel. The output driver block of each H-bridge consists of N-channel power MOSFETS configured as an H-bridge to drive the motor windings. Each H-bridge includes circuitry to regulate or limit the winding current.

The internal safety features include sinking and sourcing current limits implemented with external sensors, under-voltage lockout, over current protection (OCP) and thermal shutdown. An over-temperature output flag is available to indicate thermal shutdown.

The PT5139 is packaged in 16-pin, 5.0mm×6.4mm TSSOP-EP and TSSOP, 3mm×3mm and 4mm×4mm QFN package with an exposed thermal pad on the back.

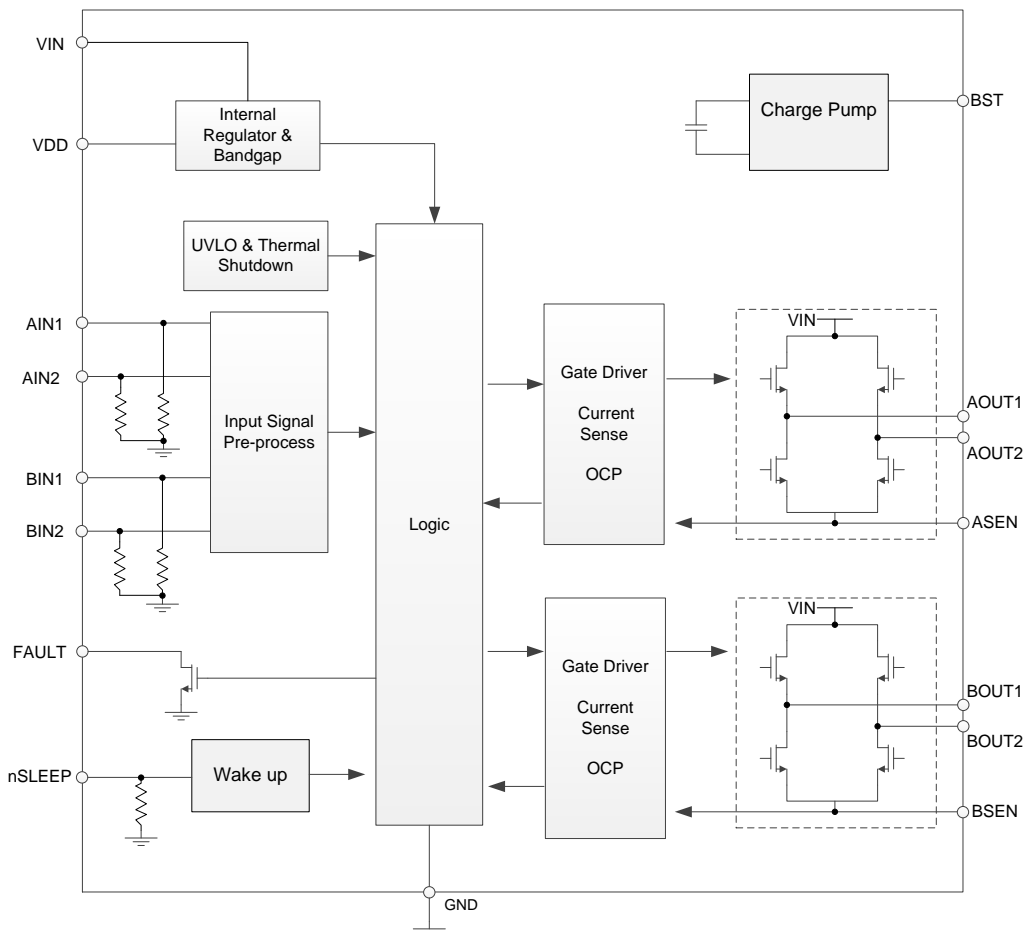
FEATURES

- Wide Power Supply Voltage Range: 2.7V to 15V
- Two Internal Full-Bridge Drivers
- Internal Charge Pump for the High-Side Driver
- Low Quiescent Current: 1.1mA
- Low Sleep Current: 1μA
- Thermal Shutdown and Under-Voltage Lockout Protection
- Over Current Protection (OCP)
- Over-Temperature Output Flag
- Thermally-Enhanced Surface-Mount Package
- Low MOSFET On Resistance (HS: 600mΩ; LS: 570 mΩ)

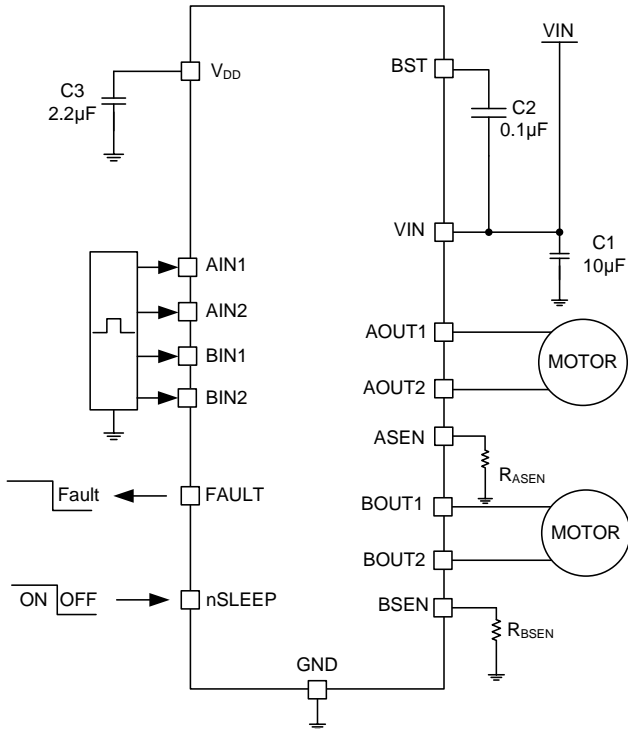
APPLICATIONS

- Digital Still Cameras
- POS Printers
- Video Security Camera
- Robotics
- Battery Powered Toys

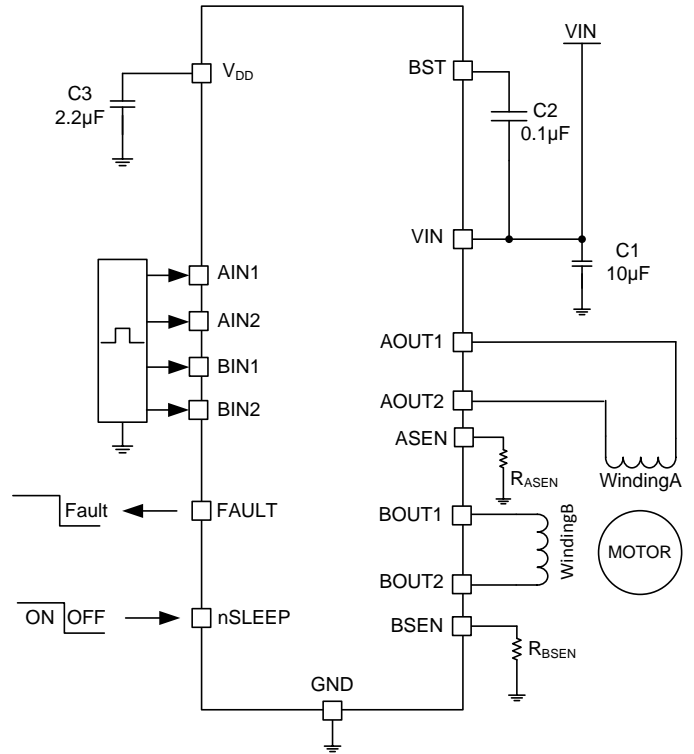
BLOCK DIAGRAM



APPLICATION CIRCUIT



Dual DC Motor Application

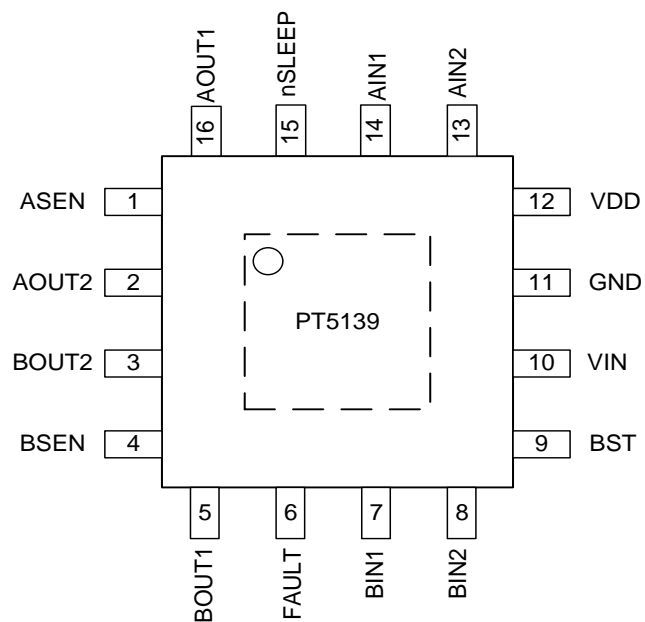
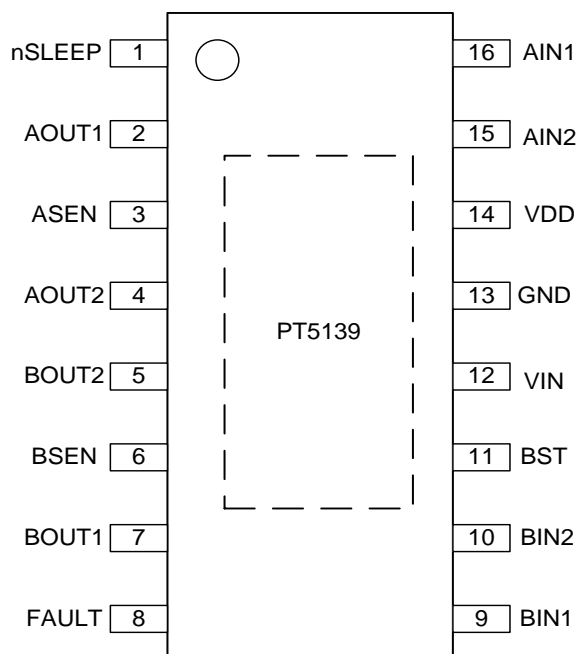


Stepper Motor Application

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT5139-HT	16-Pin, HTSSOP	PT5139-HT
PT5139-TX	16-Pin, TSSOP	PT5139-TX
PT5139	16-Pin, QFN (3x3mm)	PT5139
PT5139	16-Pin, QFN(4x4mm)	PT5139

PIN CONFIGURATION



Note: The exposed pad for TSSOP16-EP and QFN package need to be connected to GND.

PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.	
			QFN-16	TSSOP-16
ASEN	I/O	Channel A current sense. Connect to current sensor resistor for Channel A	1	3
AOUT2	O	Connecting to motor winding A.	2	4
BOUT2	O	Connecting to motor winding B.	3	5
BSEN	I/O	Channel B current sense. Connect to current sensor resistor for Channel B	4	6
BOUT1	O	Connecting to motor winding B.	5	7
FAULT	OD	Fault output. Logic low when in over-temperature fault condition.	6	8
BIN1	I	Bridge B input 1 to control BOUT1. (200K internal pull down resistor to GND.)	7	9
BIN2	I	Bridge B input 2 to control BOUT2. (200K internal pull down resistor to GND.)	8	10
BST	I/O	Charge Pump Output. Connect a 10nF to 100nF ceramic capacitor to VIN.	9	11
VIN	Power	Device power supply. Ranges from 2.7V to 15V. A 10- μ F ceramic bypass capacitor to GND is recommended.	10	12
GND	GND	Device ground. (Both the GND pin and device PowerPAD must be connected to ground.)	11	13
VDD	Power	Internal control and logic supply voltage. Connect a 2.2 μ F capacitor from VDD to GND. VDD is for internal use only. Do not connect any external load to VDD pin.	12	14
AIN2	I	Bridge A input 2 to control AOUT2. (200K internal pull down resistor to GND.)	13	15
AIN1	I	Bridge A input 1 to control AOUT1. (200K internal pull down resistor to GND.)	14	16
nSLEEP	I	Sleep mode input. Logic high to enable device, logic low to enter low-power sleep mode and reset all internal logic.(200K internal pull down resistor to GND.)	15	1
AOUT1	O	Connect to motor winding A.	16	2

IMPORTANT NOTICE

Princeton Technology Corporation (PTC) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and to discontinue any product without notice at any time.

PTC cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a PTC product. No circuit patent licenses are implied.

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