

DESCRIPTION

The PT5139A is a dual H-bridge motor driver which can drive two brushed DC motors or a single bipolar stepper motor, solenoids or other inductive loads. Each bridge driver includes a PWM current regulation circuitry to limit the winding current. The H-bridge driver consists of all of N-channel MOSFETs.

The device has built-in protection features, including under-voltage lockout (UVLO), over current protection (OCP) and thermal shutdown (TSD). A fault flag output is available to indicate the OCP or TSD conditions when they happen.

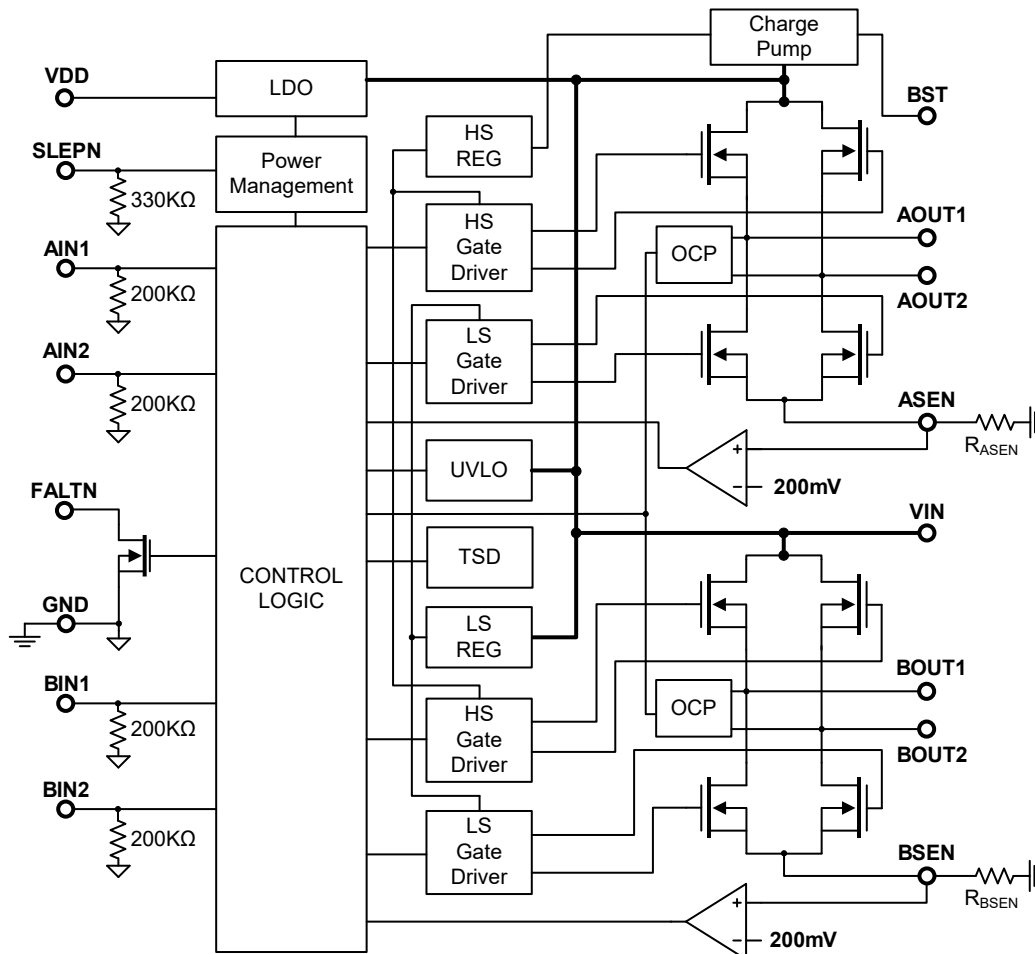
APPLICATIONS

- POS Printers
- Video Security Camera
- Robotics
- Battery Powered Toys

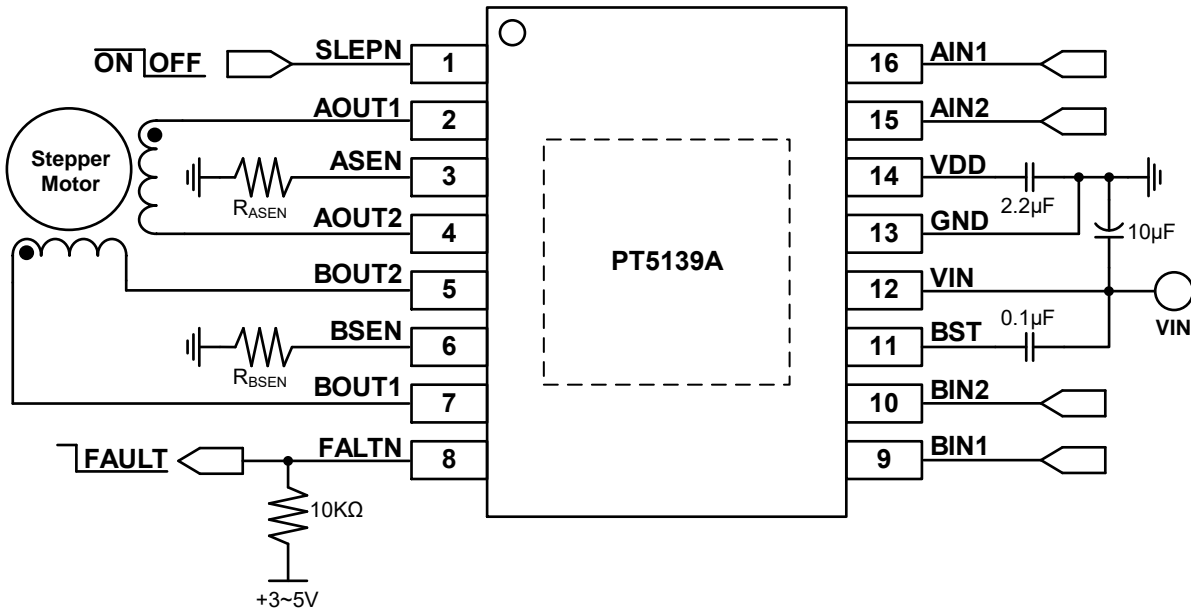
FEATURES

- Wide Supply Voltage Range: 2.7V to 15V
- Dual H-bridge Drivers, drive two brushed DC motor or single bipolar stepping motor
- MOSFET RDS(on) Resistance HS + LS = 1060mΩ
- Output Current : 700mA (HTSSOP package)
- Internal PWM Current Regulation Function
- Low Quiescent Current : 1.5mA
- Low Sleep Current: <1μA
- Built-in Protection Circuits; Thermal Shutdown (TSD), Under Voltage Lock-Out (UVLO) and Over Current Protection (OCP) functions.
- Fault Indicates Output (FALTN)
- Multiple Packages Available:
 - 16 pins QFN, 3.0mm × 3.0mm with thermal pad.
 - 16 pins HTSSOP, 5.0mm × 6.4mm with thermal pad.
 - 16 pins TSSOP, 5.0mm × 6.4mm

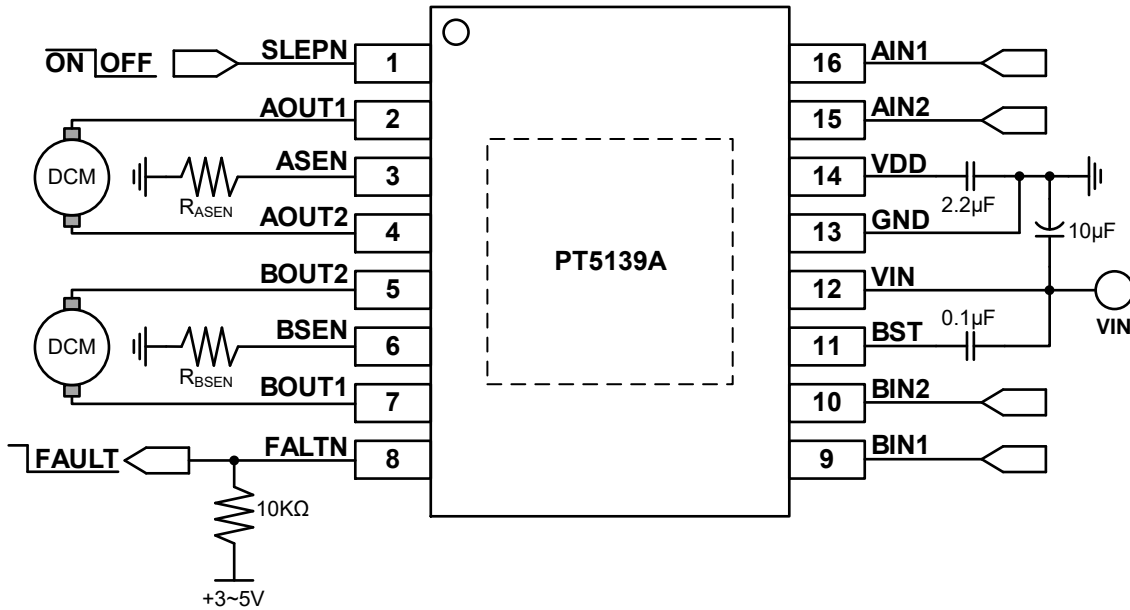
BLOCK DIAGRAM



APPLICATION CIRCUIT



Drives a bipolar stepping motor



Drives two brushed DC motors

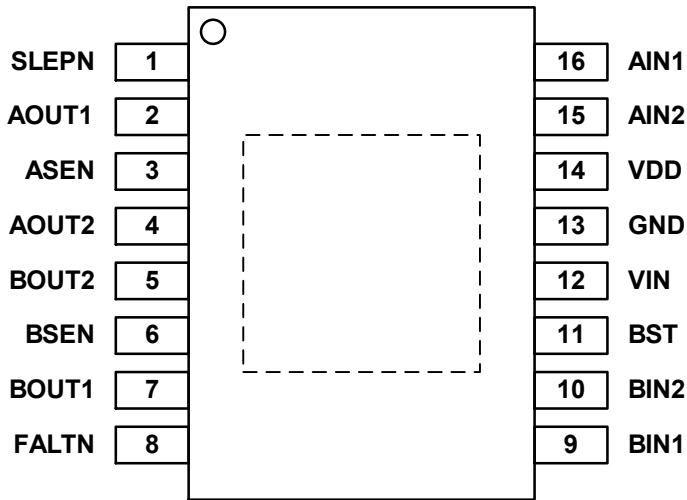
ORDER INFORMATION

Part Number	Package Type	Top Code
PT5139A-HT	16-Pin, HTSSOP, 5.0mm × 6.4mm	PT5139A-HT
PT5139A-TX	16-Pin, TSSOP, 5.0mm × 6.4mm	PT5139A-TX
PT5139A	16-Pin, QFN, 3.0mm × 3.0mm	PT5139A

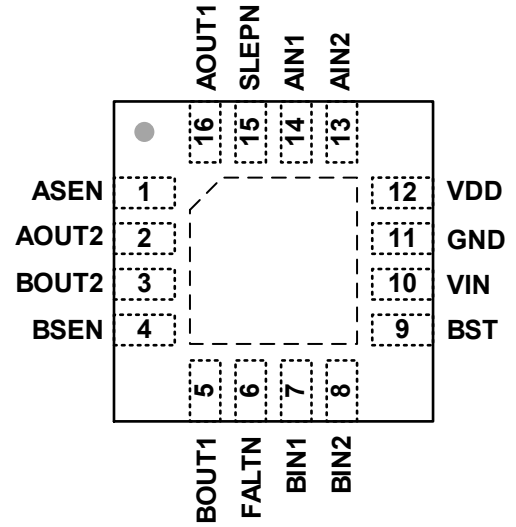
PIN CONFIGURATION

Top View

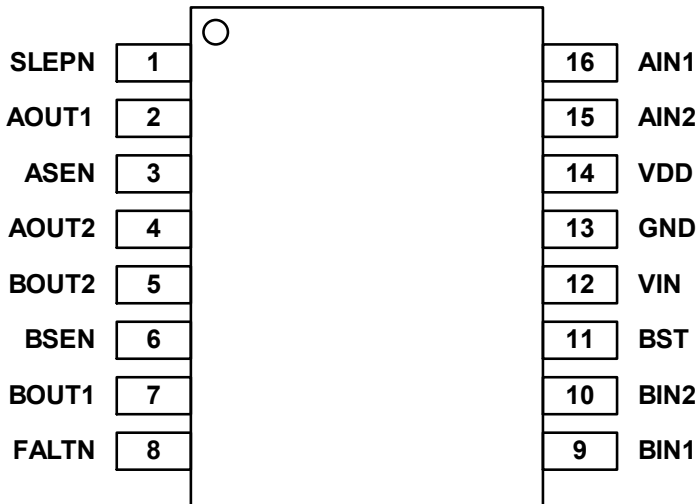
PT5139A, HTSSOP



PT5139A, QFN, 3mm * 3mm



PT5139A, TSSOP



The exposed thermal pad should be connected to GND.

PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.	
			QFN-16, 3*3	HTSSOP-16 TSSOP-16
ASEN	I/O	H-bridge driver A channel current sense, connects a current sensor resistor to GND.	1	3
AOUT2	O	H-bridge driver A channel output 2.	2	4
BOUT2	O	H-bridge driver B channel output 2.	3	5
BSEN	I/O	H-bridge driver B channel current sense, connects a current sensor resistor to GND.	4	6
BOUT1	O	H-bridge driver B channel output 1.	5	7
FALTN	OD	Fault, Logic low when fault condition appear (OCP, OTP)	6	8
BIN1	I	H-bridge driver B channel input 1, internal 200KΩ pull down resistor to GND.	7	9
BIN2	I	H-bridge driver B channel input 2, internal 200KΩ pull down resistor to GND.	8	10
BST	Power	Charge pump output, connects a 0.01μF ~ 0.1μF ceramic capacitor to VIN.	9	11
VIN	Power	Device power supply input, connects a 10μF (at least) bypass capacitor to GND is recommended.	10	12
GND	GND	Device ground. The GND pin and thermal pad both must be connected to ground.	11	13
VDD	Power	Bypassing pin for Internal LDO output; connects a 2.2μF capacitor to GND. Do not connect any external load to VDD pin.	12	14
AIN2	I	H-bridge driver A channel input 2, internal 200KΩ pull down resistor to GND.	13	15
AIN1	I	H-bridge driver A channel input 1, internal 200KΩ pull down resistor to GND.	14	16
SLEPN	I	Sleep mode input, with internal 330KΩ pull down resistor to GND. H=device enable, L=low-power sleep mode,	15	1
AOUT1	O	H-bridge driver A channel output 1.	16	2