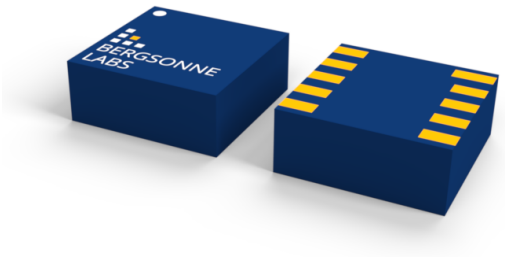
Drive.DC.H

11V/2A H-bridge DC-motor driver

The Drive.DC.I is a single-channel H-bridge motor driver built around the DRV8214. It can deliver up to 4 A peak (2 A RMS continuous) and operates from a 1.65 V to 11 V supply, making it suitable for a wide range of small brushed DC motors in robotics, haptics, and actuation applications.

The DRV8214 features sensorless ripple counting, which tracks motor commutation ripples in the current waveform to determine relative position and speed — eliminating the need for external encoders. Integrated speed regulation maintains constant motor speed across varying supply voltages, while voltage regulation allows driving the motor at a programmable lower terminal voltage to save energy.

Motor speed can be controlled via either PWM at frequencies up to 200 kHz or via the I2C interface, which is also used for register-based configuration and diagnostics, including soft-start/stop, stall detection, and various limits.



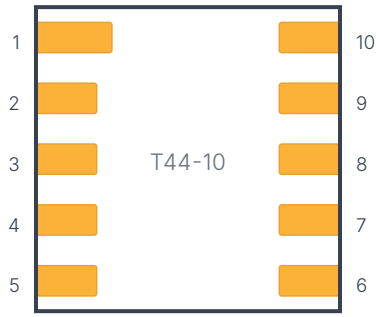
Overview

Revision	a
Package	T44-10
Power	1.8–5V (system), 1.8–11V (drive)
Component	DRV8214
Interfaces	I2C

Configuration

Motor control mode	I²C only (pads 2, 3 unused) (default) · EN/PH (PWM enable + direction) · IN1/IN2 (independent half-bridge PWM)

Pad Assignments



(top view)

PAD	TYPE	FUNCTION	NOTE
1	power	GND	
2	digital	EN	
	digital	IN1	
3	digital	PH	
	digital	IN2	
4	digital	I2C.CLK	
5	digital	I2C.DAT	

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6	analog	NPROP	analog current output proportional to motor current
7	drive	OUT2	
8	drive	OUT1	
9	power	VM	1.8-11V drive supply
10	power	V+	1.8-5.0V

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Interfaces

I2C

I2C

Mode	slave
Address	variant (default)

FUNCTION	REQ	PAD(S)
I2C.CLK	Yes	4
I2C.DAT	Yes	5

Application Notes

Integrated Current Sensing
Integrated current sensing via an internal current mirror provides an analog output (NPROP) proportional to load current, with selectable gain for accurate sensing down to 10 mA. Current regulation limits motor current autonomously during stall or high-load events.

I2C address variants
Four different order-time variants exist for this tile, representing the four possible I2C addresses (0x30, 0x31, 0x33, 0x34), allowing up to four motors to be independently controlled on the same bus.

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