



Product Overview

LV8702V: PWM Current Control High-Efficiency Stepper Motor Driver

For complete documentation, see the data sheet

Product Description

The LV8702V is a 2-channel Full-bridge driver IC that can drive a stepper motor driver, which is capable of micro-step drive and supports quarter step. Current is controlled according to motor load and rotational speed at half step, half step full-torque and quarter step excitation, thereby highly efficient drive is realized. Consequently, the reduction of power consumption, heat generation, vibration and noise is achieved.

Features

- Built-in 1ch PWM current control stepper motor driver (bipolar type)
- Ron (High-side Ron: 0.3, Low-side Ron: 0.25, total: 0.55, Ta = 25°C, IO = 2.5A)
- Micro-step mode is configurable as follows: full step/half step full-torque/half step/quarter step
- Excitation step moves forward only with step signal input
- Built-in output short protection circuit (latch method)
- Control power supply is unnecessary
- Built-in high-efficient drive function (supports half step full-torque/half step/quarter step excitation mode)
- Built-in step-out detection function (Step-out detection may not be accurate during high speed rotation)
- IO max=2.5A
- Built-in thermal shut down circuit

Applications

- Stepper
- Computing & Peripherals
- Industrial

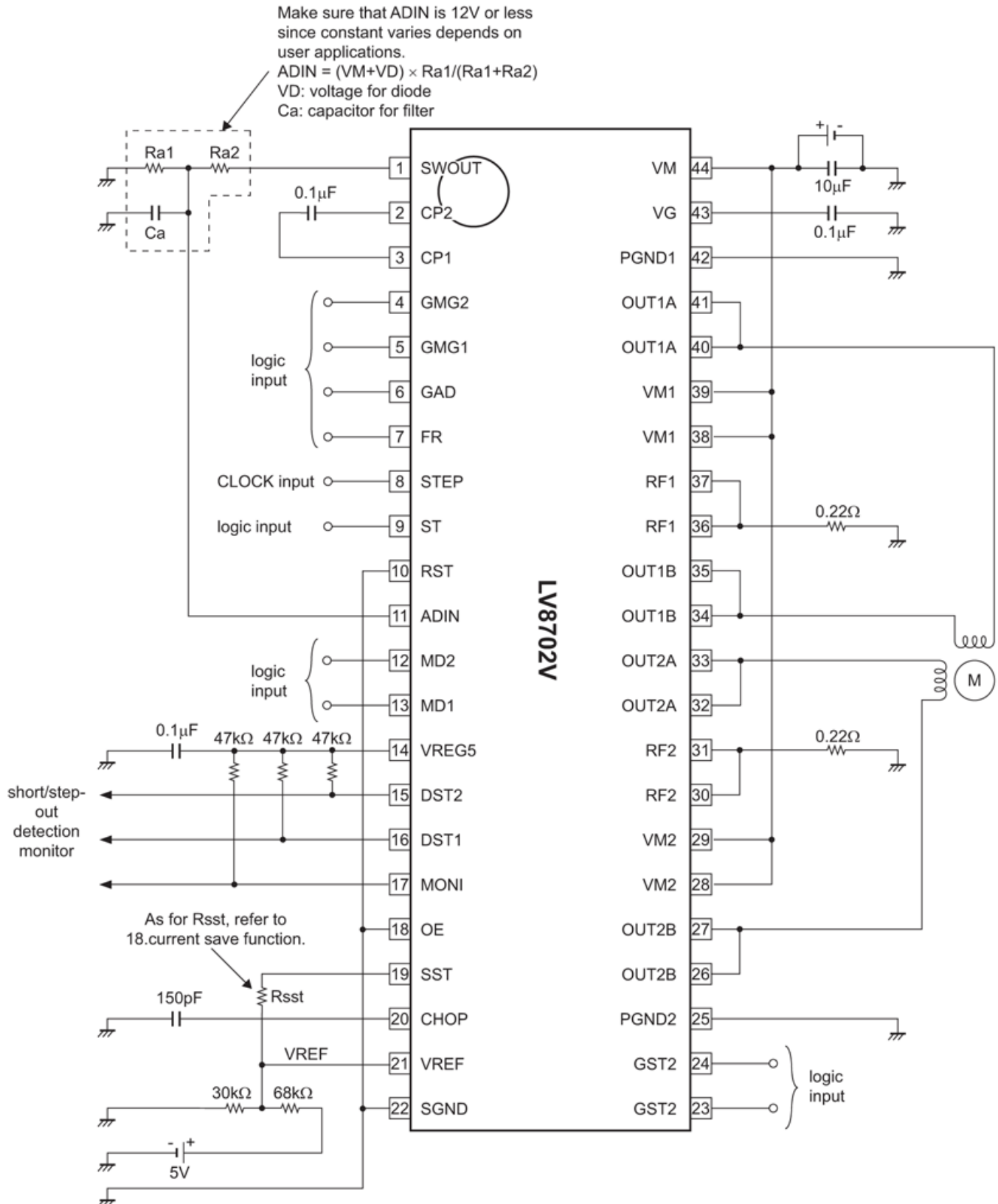
End Products

- Printer
- Scanner
- Surveillance camera(CCTV)
- Textile machine

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
LV8702V-MPB-H	Pb-free Halide free	Active	Stepper	9	32	9	32	2.5	3	$\frac{1}{2}$ $\frac{1}{1}$?	Clock		External Resistor		Over-Current Thermal UV LO		0.55	SSOP-44J EP
LV8702V-TLM-H	Pb-free Halide free	Active	Stepper	9	32	9	32	2.5	3	$\frac{1}{2}$ $\frac{1}{1}$?	Clock		External Resistor		Over-Current Thermal UV LO		0.55	SSOP-44J EP

Application Diagram



Calculation for each constant setting according to the above circuit diagram is as follows.

1) Constant current (100%) setting

$$VREF = 5V \times 30k\Omega / (68k\Omega + 30k\Omega) \approx 1.53V$$

When $VREF = 1.53V$:

$$I_{OUT} = VREF / 5 / 0.22\Omega \approx 1.39A$$

2) Chopping frequency setting

$$\begin{aligned} F_{chop} &= I_{chop} / (C_{chop} \times V_{tchop} \times 2) \\ &= 10\mu A / (150pF \times 0.5V \times 2) \\ &\approx 66.7kHz \end{aligned}$$

