

Product Overview

LV8728MR: Stepper Motor Driver, PWM, Constant-Current Control, 1/128 step

For complete documentation, see the data sheet.

The LV8728MR is a PWM current-controlled micro step stepper motor driver. This driver can perform eight excitation modes from Full step to 1/128 step and can drive simply by the CLK input. LV8728MR is suitable for various application to have an abundant excitation mode. And overcurrent protection, thermal shutdown, and low-voltage protection circuit is built-in, it is possible to design safely as customer's application.

Features

- Output on-resistance (upper side: 0.3Ω ; lower side: 0.25Ω ; total of upper and lower: 0.55Ω ; $T_a = 25^\circ\text{C}$, $I_O = 2.0\text{A}$)
- Full, Half, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128 step excitation mode are selectable
- Advance the excitation step with the only step signal input
- Over-current protection circuit
- Thermal shutdown circuit
- Input pull down resistance
- With reset pin and enable pin.
- Available forward reverse control
- Single-channel PWM current control stepper motor driver
- BiCDMOS process IC

For more features, see the data sheet

Benefits

- Low consumption by low ON resistance
- Abundant excitation mode is selectable
- Easy control
- Safety design
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- Low consumption

Applications

- Computing & Peripherals
- Industrial
- Consumer

End Products

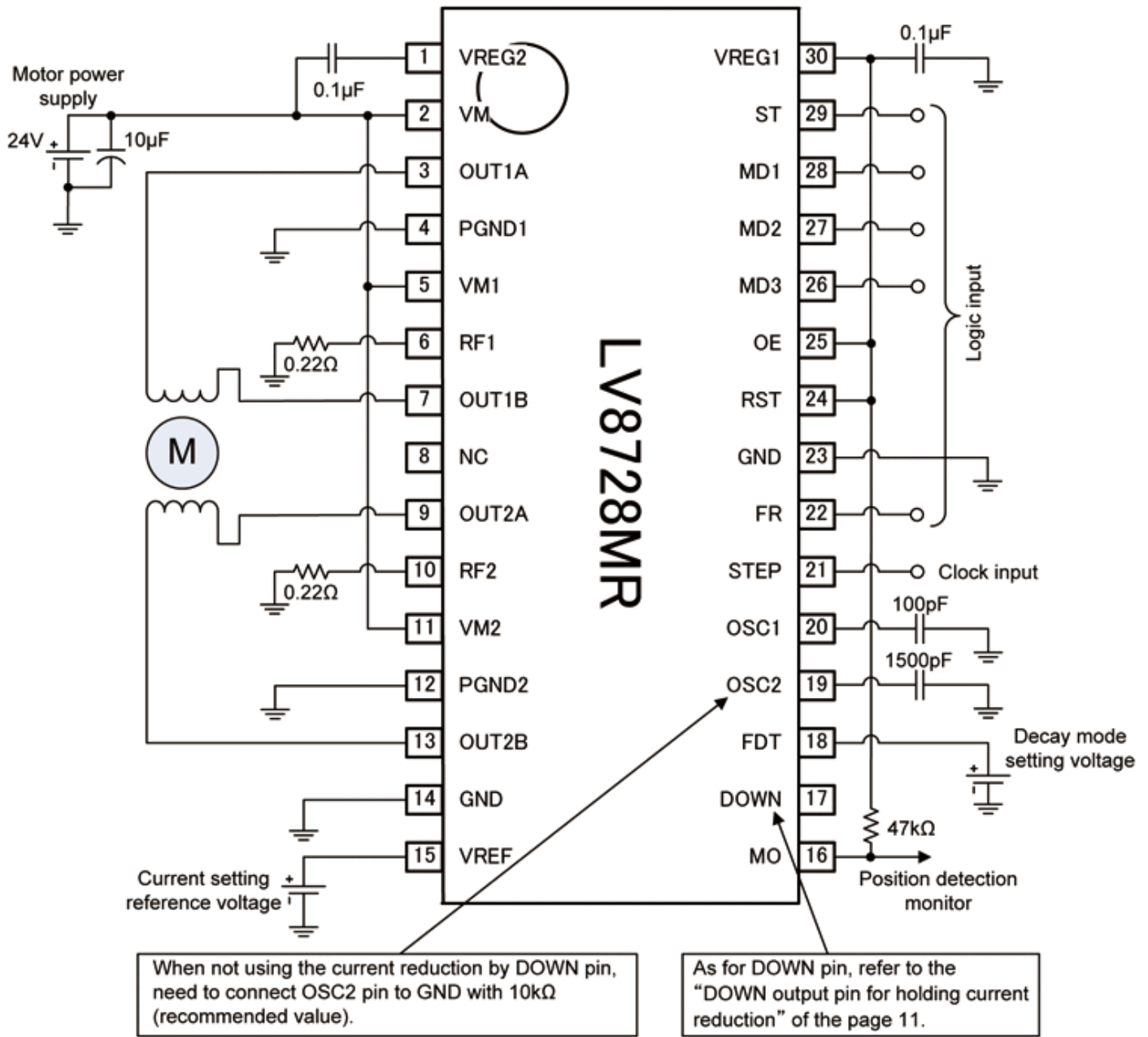
- Printer (Multi-function printer, 3D printer, etc.)
- Security camera
- Scanner
- Stage light

Part Electrical Specifications

| Product | Compliance | Status | 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 | Current Sense | Fault Detection | Package Type |
|-------------|------------------------|--------|---------------|---------------|------------------|------------------|---------------|--------------------|-----------------|--------------|-------------------|---------------------------------|----------------------|
| LV8728MR-AH | Pb-free Halide free | Active | 9 | 32 | | | 2 | | 1 | Clock | External Resistor | Thermal UVLO Over-Current | SOIC-30 W / MFP-30KR |
| | | | | | | | | | 1/2 | | | | |
| | | | | | | | | | 1/32 | | | | |
| | | | | | | | | | 1/4 | | | | |
| | | | | | | | | | 1/16 | | | | |
| | | | | | | | | | 1/64 | | | | |
| | | | | | | | | | 1/128 | | | | |
| | | | | | | | | | 1/8 | | | | |

Application Diagram

Application Circuit Example



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

For example, when $VREF=1.1V$, $I_{OSC1}=10\mu A$ (typ) and $C_{OSC1}=100pF$

- Coil current

$$I_{OUT} = \frac{1.1}{5 \times 0.22} \approx 1.0 [A]$$

- Chopping frequency

$$F_{ch} = \frac{10 \times 10^{-6}}{100 \times 10^{-12}} = 100 [kHz]$$

- STEP signal off detection time

$$T_{DOWN} = 1500 \times 10^{-12} \times 0.4 \times 10^9 = 0.6 [s]$$

For more information please contact your local sales support at www.onsemi.com.

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