

Microstepping Driver

KL6852

Feature

- High performance, cost-effective
- Supply voltage up to +68VDC
- Output current up to 5.2A
- Self-adjustment technology
- Pure-sinusoidal current control technology
- Pulse input frequency up to 300 KHz
- TTL compatible and optically isolated input
- Automatic idle-current reduction
- 16 selectable resolutions, up to 51,200 steps/rev
- Suitable for 2-phase and 4-phase motors
- Support PUL/DIR and CW/CCW modes
- Short-voltage, over-voltage, over-current and over temperature protection

Introduction

The KL6852 is a high performance microstepping driver based on pure-sinusoidal current control technology. Owing to the above technology and the self-adjustment technology (self-adjust current control parameters) according to different motors, the driven motors can run with smaller noise, lower heating, smoother movement and have better performances at higher speed than most of the drivers in the markets. It is suitable for driving 2-phase and 4-phase hybrid stepping motors.

Applications

Suitable for a wide range of stepping motors, from NEMA size 17 to 34. It can be used in various kinds of machines, such as X-Y tables, labeling machines, laser cutters, engraving machines, pick-place devices, and so on. Particularly adapt to the applications desired with low noise, low heating, high speed and high precision.

Electronic Specifications (T_j=25°C)

| Parameters | KL6852 | | | |
|-----------------------|--------|---------|---------------|------|
| | Min | Typical | Max | Unit |
| Output current | 1.8 | - | 5.2 (3.7 RMS) | A |
| Supply voltage | +20 | +48 | +68 | VDC |
| Logic signal current | 7 | 10 | 16 | mA |
| Pulse input frequency | 0 | - | 300 | kHz |
| Isolation resistance | 500 | | | MΩ |

Mechanical Specifications (Unit: mm, 1 inch=25.4 mm)

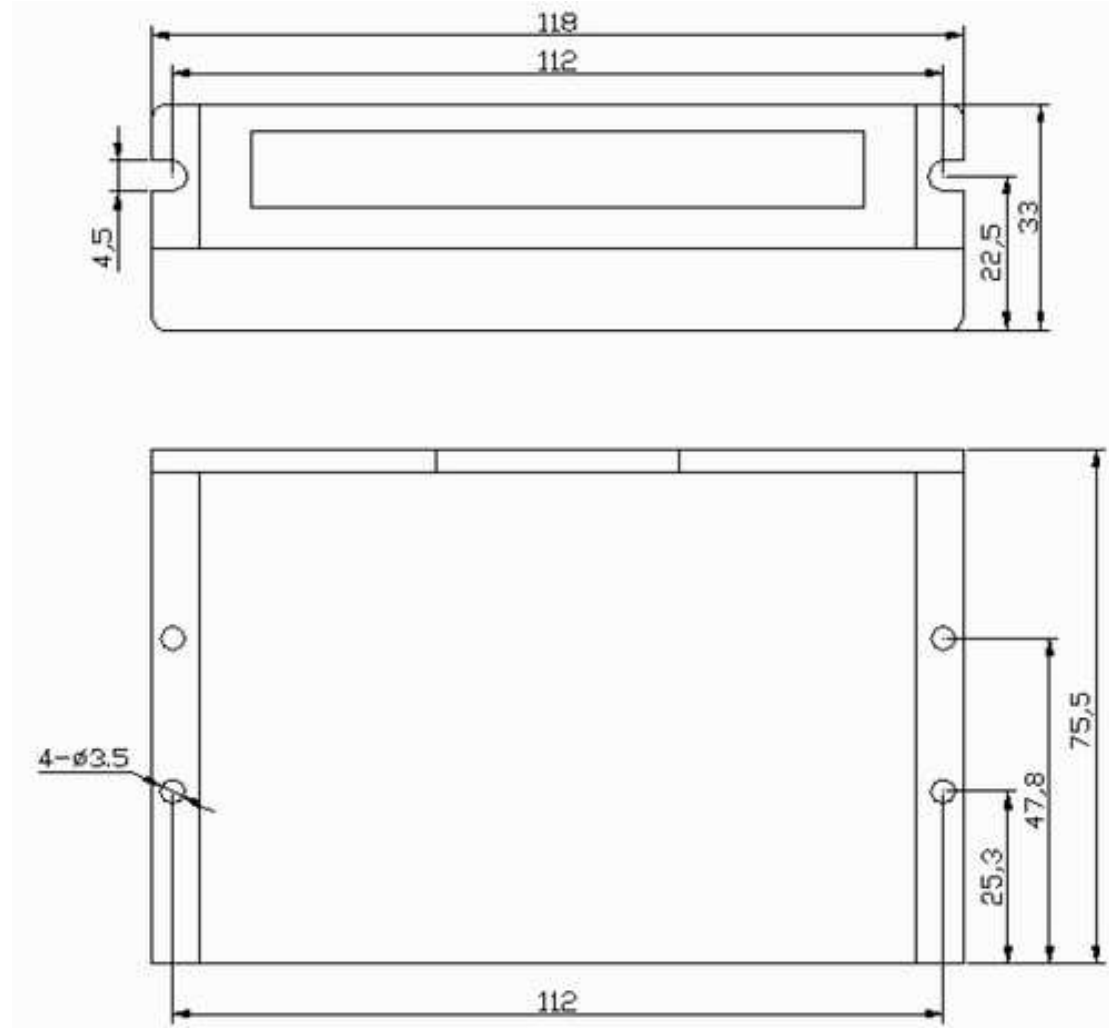


Figure 1: Mechanical Specifications

Pin Assignment and Description

Control Signal Connector P1 pins

| Pin Function | Details |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PUL+ | <p>Pulse signal: In single pulse (pulse/direction) mode, this input represents pulse signal, each rising or falling edge active (set by inside jumper J3); 4-5V when PUL-HIGH, 0-0.5V when PUL-LOW. In double pulse mode (pulse/pulse), this input represents clockwise (CW) pulse, active at high level or low level (set by inside jumper J3). For reliable response, pulse width should be longer than 1.5μs. Series connect resistors for current-limiting when +12V or +24V used. The same as DIR and ENA signals.</p> |
| PUL- | |
| DIR+ | <p>DIR signal: In single-pulse mode, this signal has low/high voltage levels, representing two directions of motor rotation: in double-pulse mode (set by inside jumper J1), this signal is counter-clock (CCW) pulse, active at high level or low level (set by inside jumper J3). For reliable motion response, DIR signal should be ahead of PUL signal by 5μs at least. 4-5V when DIR-HIGH, 0-0.5V when DIR-LOW. Please note that rotation direction is also related to motor-driver wiring match. Exchanging the connection of two wires for a coil to the driver will reverse motion direction. The default rotation direction can be reverse by inside jumper J2.</p> |
| DIR- | |
| ENA+ | <p>Enable signal: This signal is used for enabling/disabling the driver. High level (NPN control signal, PNP and Differential control signals are on the contrary, namely Low level for enabling.) for enabling the driver and low level for disabling the driver. Usually left UNCONNECTED (ENABLED).</p> |
| ENA- | |

Power connector P2 pins

| Pin Function | Details |
|--------------|------------------------------------------------------------------------|
| +V | Power supply, 20-68VDC. Including voltage fluctuation and EMF voltage. |
| GND | Power Ground. |
| A+, A- | Motor Phase A |
| B+, B- | Motor Phase B |

Microstep Resolution Selection

Microstep resolution is specified by 5, 6, 7,8 DIP switches as shown in the following table:

| Microstep | Steps/rev.(for 1.8°motor) | SW5 | SW6 | SW7 | SW8 |
|-----------|---------------------------|-----|-----|-----|-----|
| 2 | 400 | ON | ON | ON | ON |
| 4 | 800 | OFF | ON | ON | ON |
| 8 | 1600 | OFF | OFF | ON | ON |
| 16 | 3200 | ON | OFF | ON | ON |
| 32 | 6400 | ON | ON | OFF | ON |
| 64 | 12800 | OFF | ON | OFF | ON |
| 128 | 25600 | OFF | OFF | OFF | ON |
| 256 | 51200 | ON | OFF | OFF | ON |
| 5 | 1000 | ON | ON | ON | OFF |
| 10 | 2000 | OFF | ON | ON | OFF |
| 20 | 4000 | OFF | OFF | ON | OFF |
| 25 | 5000 | ON | OFF | ON | OFF |
| 40 | 8000 | ON | ON | OFF | OFF |
| 50 | 10000 | OFF | ON | OFF | OFF |
| 100 | 20000 | ON | OFF | OFF | OFF |
| 200 | 40000 | OFF | OFF | OFF | OFF |

Current Setting

| Peak Current | RMS Current | SW1 | SW2 | SW3 |
|--------------|-------------|-----|-----|-----|
| 1.26A | 0.90A | ON | ON | ON |
| 1.80A | 1.29A | OFF | ON | ON |
| 2.36A | 1.68A | ON | OFF | ON |
| 2.92A | 2.09A | OFF | OFF | ON |
| 3.51A | 2.51A | ON | ON | OFF |
| 4.09A | 2.92A | OFF | ON | OFF |
| 4.64A | 3.32A | ON | OFF | OFF |
| 5.20A | 3.71A | OFF | OFF | OFF |

Typical Connections

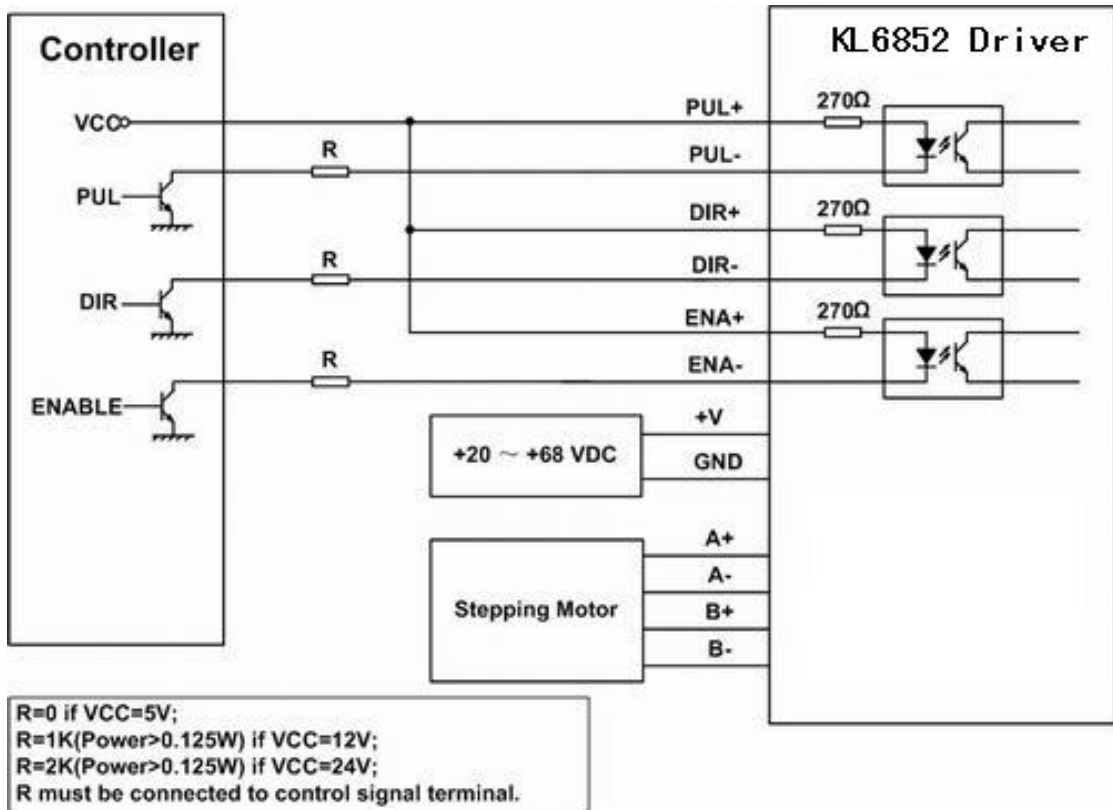


Figure 2: Typical Connections