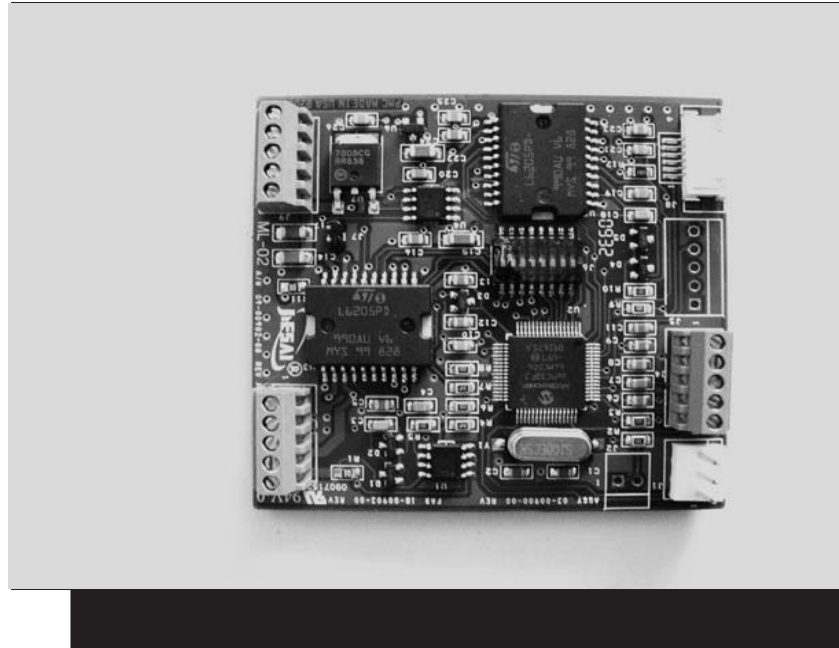


SD Microstepping Drive



The SD is a bipolar micro stepping drive, the output stage is pulse width modulated (PWM) switching at 20 KHz. The drive uses advanced DSP technology and H bridge power devices to achieve low cost while maintaining high reliability in a compact package. It regulates the current in the motor windings using three different techniques: charging, discharging and circulating, minimizing ripple current and motor heat caused by other type of PWM.

The drive requires a single DC voltage supply for operation. It can deliver up to 3 amps peak current at output. The current is set with a external single resistor. 14 different step resolutions and 5 harmonic current waveform selections are accessible from a dip switch.

The drive is intended for OEM users. Step, direction, disable inputs and a fault output makes this drive easy to interface to your control circuit. The drive has phase to phase and phase to ground short circuit protection to protect the drive against fault condition.

Features

- **12-24VDC single supply**
- **Microstepping smoothness motion**
- **Over current protection**
- **14 step size resolutions**
- **5 current waveform selections**
- **Power up open/ short check**
- **Auto-standby current reduction**
- **Dimension 2.4" X 2.4" X 0.5"**
- **Over temperature protection**
- **RoHS Compliant**

Drive Specifications

Performance

Repeatability: ± 5 arc-seconds (unidirectional), typical unloaded motor
 Accuracy: ± 5 arc-minutes (bidirectional), typical unloaded motor
 Step-to-Step Accuracy: ± 20 arc-seconds (unidirectional), unloaded motor
 Waveform Selection: pure sine, $\pm 2\%$, $\pm 4\%$ 3rd harmonic included
 Resolution: selectable 25600, 12800, 6400, 3200, 1600, 800, 400, 50000, 25000, 10000, 5000, 1000, 36000, 18000 microstep per revolution

Amplifier

Type: 2 phases 20Khz frequency, variable duty cycle PWM, current controlled H bridge MOSFET construction.
 Protection: current over 7 amp phase to phase and phase to ground . When condition(s) occur, the drive is shut down. Power must be recycled to resume operation.
 Auto standby: When the signal is high, motor current drops to 50% of preset value if no pulses are received for 1 second. Rated current is resumed upon receipt of next step pulse.
 Self test: dip switch selectable. The motor rotates 0.4 revolutions per second
 Step: CMOS input, 3.3V typical, Maximum 3.6V. minimum 250 nanosecond pulse width 50% duty cycle.
 Direction: CMOS input 3.3V typical, 5V tolerant, 100 usec minimum pulse.
 Disable: CMOS input, 3.3V typical, 5V tolerant, the drive is disabled when signal stays high, 1 msec minimum.
 Fault output: open collector, 3.3-5V typical, 4 mA maximum sink current. The signal is low what fault
 Current: P/N: SD, 0.5 -1.5 amp peak to peak. P/N: SD-H 0.5 - 3 amp for high power at 25 deg. C ambient . No external heat sink required. One external resistor sets current.
 Over temperature: junction temperature reaches 165 deg. C in the power device(s). The drive will shut down.

Motors

Type: 2 phase hybrid permanent magnet 1.8 degree stepping motors
 Size: NEMA 17-23 recommended
 Leads: 4, 6, 8 wires.

Environmental

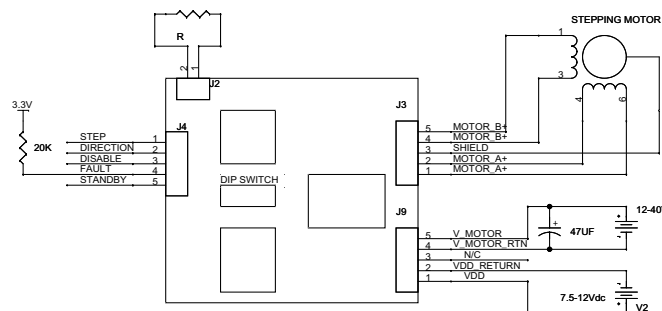
Operating : 0 to 70 °C, 0 to 95% humidity, non-condensing
 Storage: -40 to +80 °C, 0 to 95% humidity, non-condensing

Power : 12-24 VDC single supply or
 7.5V to 12V and 12-40V dual supplies
 See table on right for prodcts voltage and current rating

P/N	SD		SD-H	
Vmotor	24V	40V	24V	40V
VDD	24V	7.5-12V	24V	7.5-12V
Max. Current	1.5A	1.5A	3A	3A

Physical Dimension : 2.4" X 2.4" X 0.5"

Typical Connection:



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