# Miga Technologies, LLC

## Technical Data Sheet

S125 Linear Shape Memory Alloy Wire Actuator

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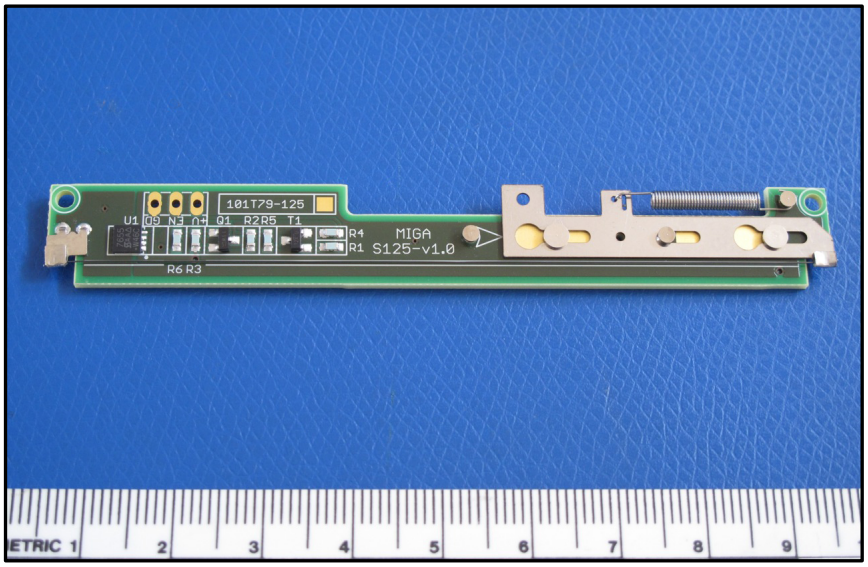



## Specifications:

- Force: 1.25 lbf (6N)
- Stroke: 0.125” (3.2mm)
- 3-9 volt operation
- Operating Temp Range: -10 to 55˚C
- Actuation: 0.25s @ 3.7v to 0.15s @ 5.0v

The ***S125*** is a volume-ready Shape Memory Alloy wire actuator, with MOSFET switching & protection circuitry directly onboard the PCB: allowing for a simple 3-wire interface. The ideal uses are as latch- or trigger- release mechanisms for portable or hand-held battery-powered devices.

The ***Miga-S125*** is a short-stroke latch-release or trigger-release mechanism featuring silent operation and low profile typical of Miga’s constant-force Shape Memory Alloy actuators.

The ***S125*** is optimized for LiPo battery-powered operation at 3.7 volts, but operates from 3.0 to over 9.0 volts. Actuation speed is a function of voltage as shown below.

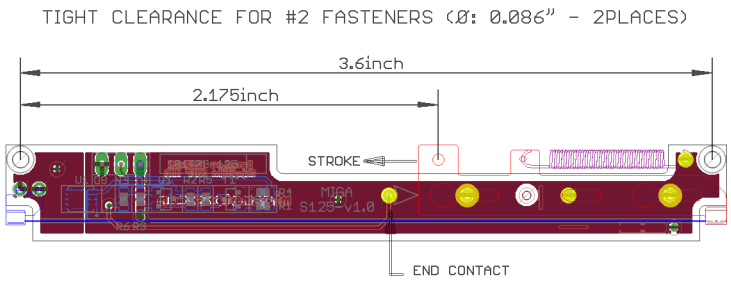
The ***S125*** has an on-board MOSFET switching & protection circuit, which cuts power to the SMA wire when the output stage reaches the End-of-Stroke Contact. The **S125** can ‘HOLD’ the end position at full load. Holding power is typically ~10% of actuation power – allowing the ***S125*** to maintain long-duration HOLD while consuming minimal power.

The ***S125*** has a 3-wire interface: Voltage (+V), Enable (EN), and Ground (GD). The Enable voltage range is 2.5 volts to +V, but is typically a logic signal from a microprocessor. The actuator is energized whenever the Enable is raised ‘high’.

The ***S125*** weighs less than 0.17 oz. (4.75 grams), providing a Force-to-Weight ratio of over 140:1, and the overall envelope is 3.75 x 0.5 x 0.12” (95.25 x 12.5 x 3.18mm).

The ***S125*** has a low-force bias spring to maintain tension in the SMA wire at all times.

Contact us for STEP files of the ***S125*** actuator in both Default and Energized states.

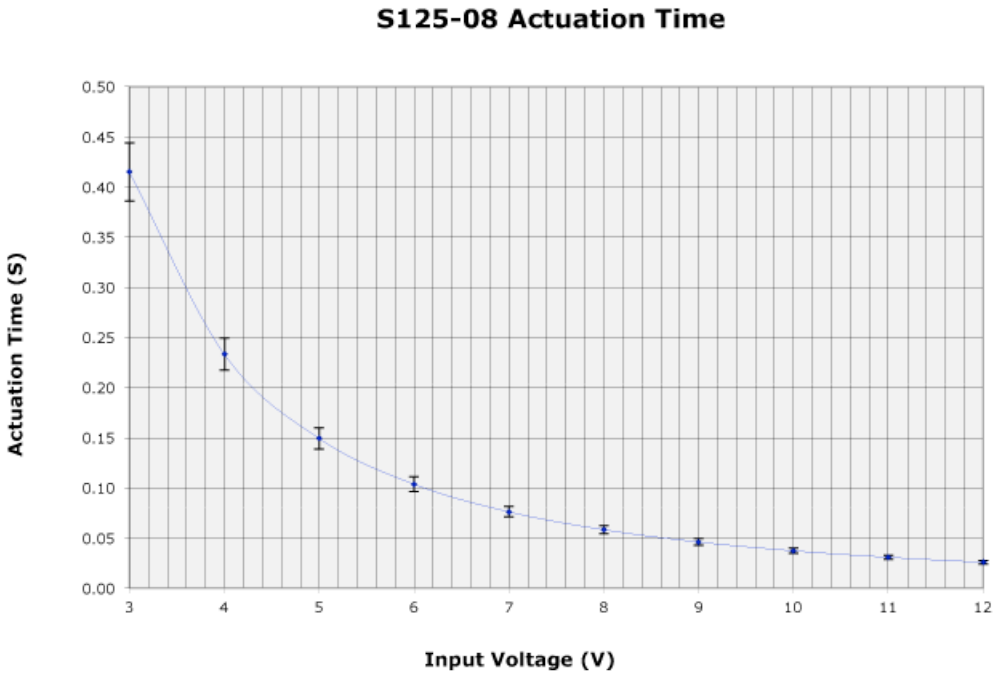



The S125 has a Ø:0.063" hole in the output shaft to attach a linkage. We recommend allowing the actuator to return to the starting position following actuation so that the SMA wire remains taut when cooling.

**Technical Specifications**

| | | |
|---|---|---|
| Resistance: | 2.75 | Ω |
| Current (@ 3.7 volts): | 1.35 | Amps |
| Actuation Power: | 4.98 | Watts |
| Holding Power: | 0.60 | Watts |
| Still Air Cooling Time: | 2.3 | Seconds |
| Cycles per charge: | 979 | 150mA*hr LiPo |

**Figure 1: Typical specifications for S125-008 actuators.**




*Rev: 22 Oct 2018*