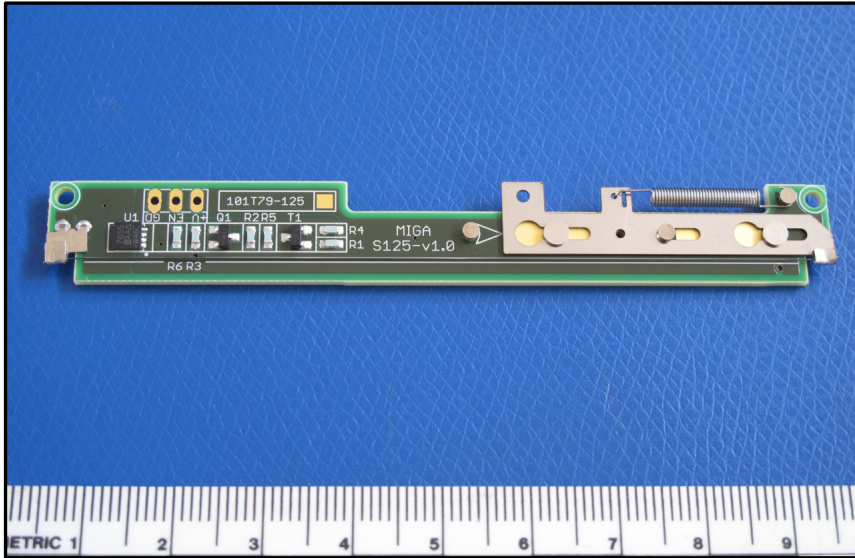


Miga Technologies, LLC

Technical Data Sheet

S125 Linear Shape Memory Alloy Wire Actuator



Features:

- 0.125" stroke
- 1.25 lbf
- 3.75 x 0.50 x 0.15"
- Silent
- Compact
- Lightweight
- Actuation time: 0.25s @ 3.7v to 0.15s @ 5.0v
- Optimized for 3.7v LiPo battery operation

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 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 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.

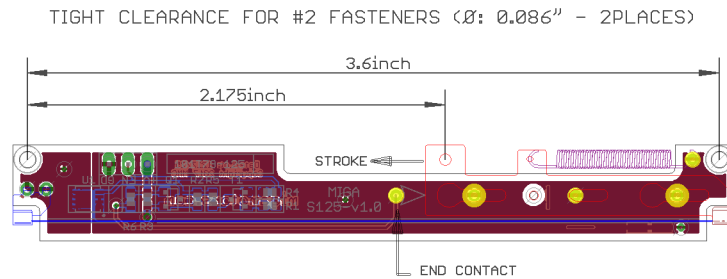
The **S125** has an on-board MOSFET switching & protection circuit, which momentarily removes power to the SMA wire when the output stage reaches the End-of-Stroke Contact. This allows the S125 to 'HOLD' the end position at full load. Holding power is typically 8-12% of actuation power – allowing the **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.

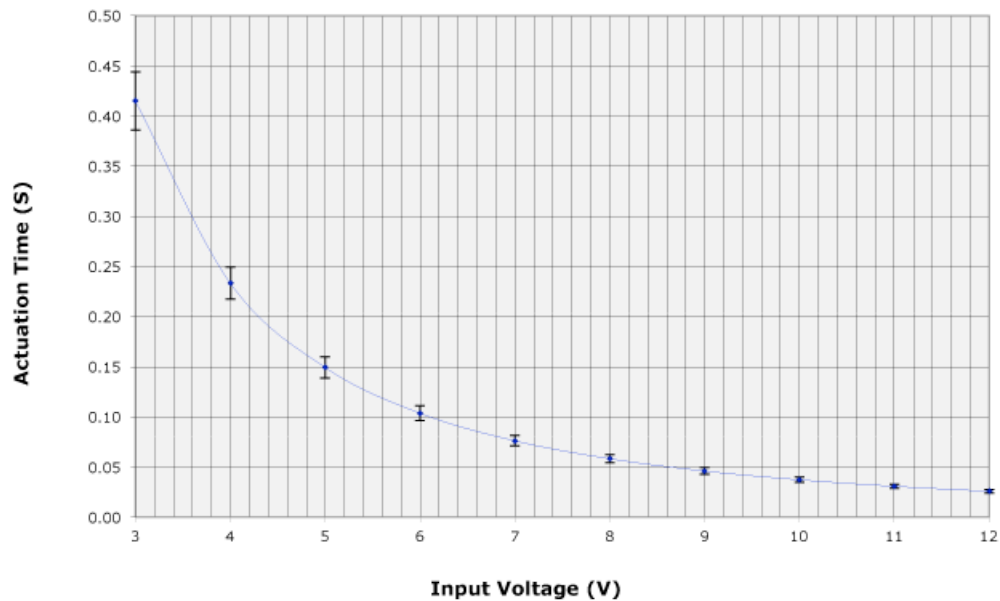


The S125 has a $\varnothing 0.063$ " hole in the output shaft to attach linkages, but we recommend contacting the load only with the leading edge of the shaft, so the actuator wire remains under tension while cooling following actuation.

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.

S125-08 Actuation Time



Rev: 4 Sept 2018