FOR ENERGY EFFICIENT INNOVATIONS

THINK ON.

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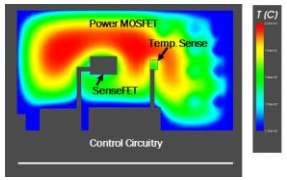
Industrial Relay Replacement
Motor Protection
High Current 48V Protection

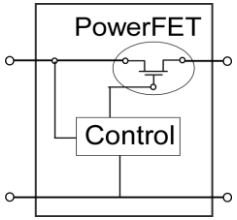
eFuse

eFuse – Electronic Fuses

What?

Integrated Overcurrent, thermal & Overvoltage protection solution



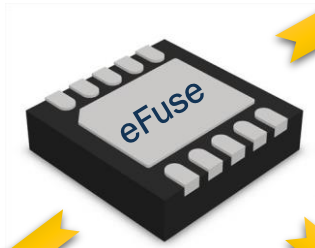


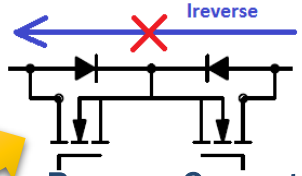
Why?

Prevent damage to connectors, PCB traces and downstream components

Where?

Any ***hot-swappable application*** and any system requiring inrush/outrush current limiting

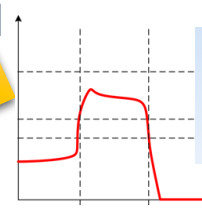




Polarity reversal protection
Reverse bleed prevention

Reverse Current Protection

Short to Ground Protection



Intimate thermal monitoring & unconditional safety

Overcurrent & thermal Protection

Current Monitor

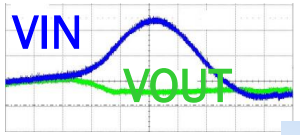
Load diagnostics

Short to Battery Protection

POWER GOOD

Load Control

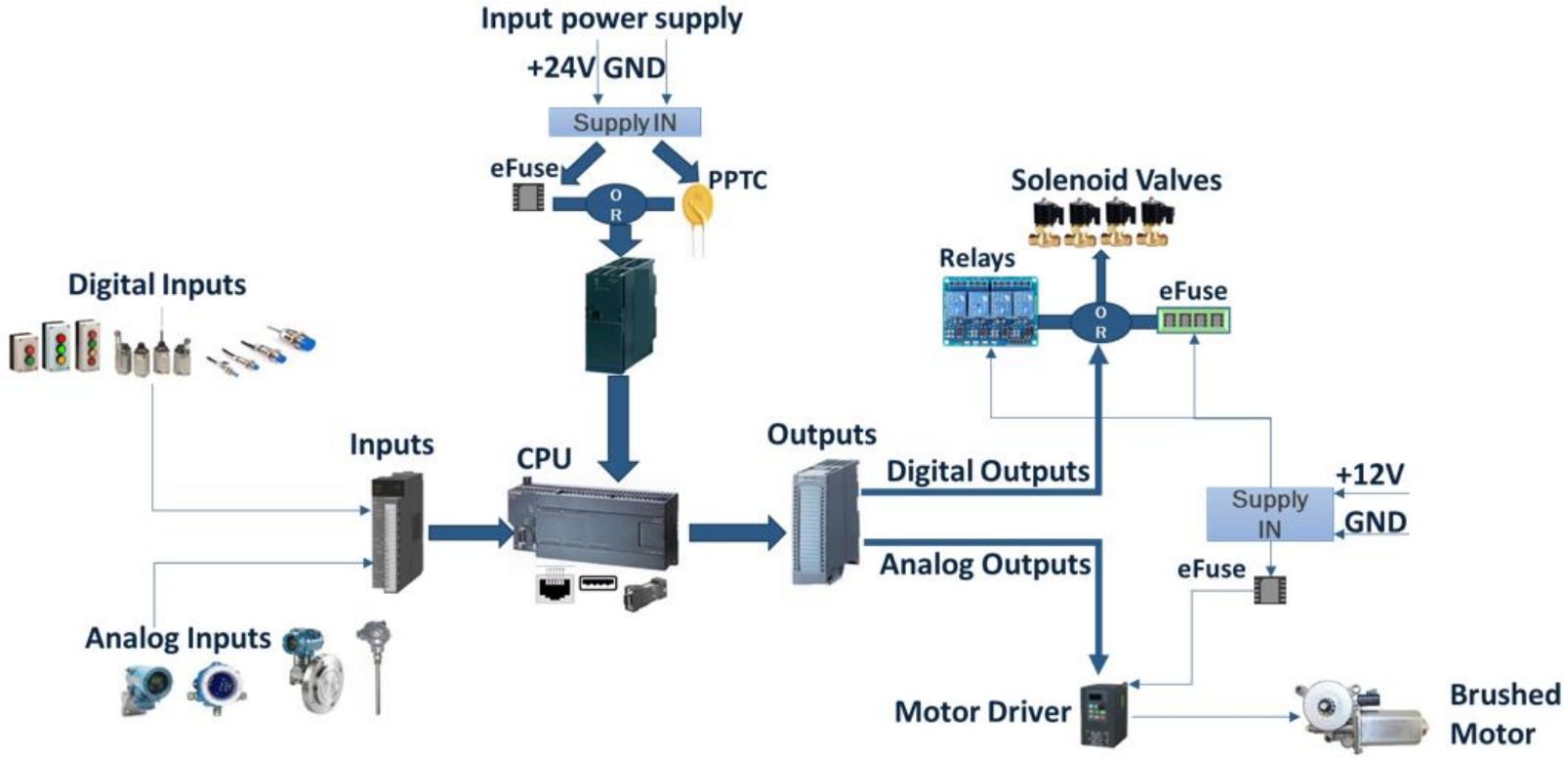
FAULT ENABLE



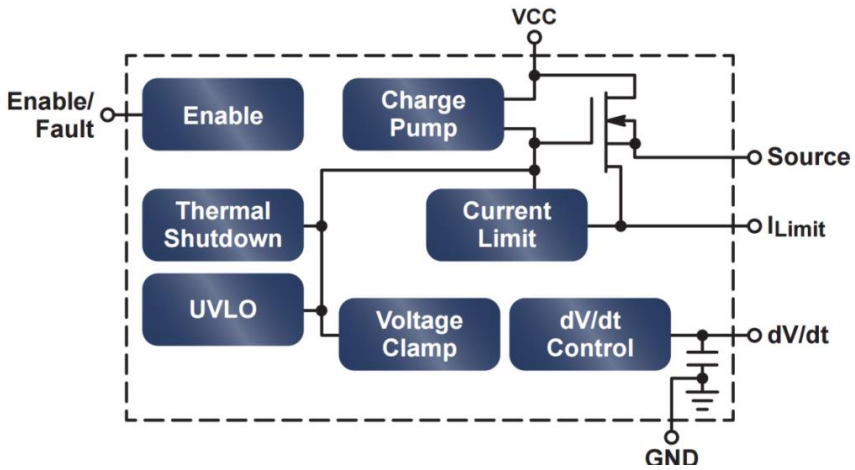
Overvoltage Protection

Immunity to power supply glitches/drift

Protected eRelay and eFuse



- ✓ Unconditional safety
- ✓ Programmability
- ✓ Fault reporting and diagnostics
- ✓ Easy installation
- ✓ Small footprint



Showcases three eFuses for industrial applications:

- NIS5020 – Relay Replacement
- NIS5021 – Motor Protection
- NIS4461 – Power Supply Protection

Demo description

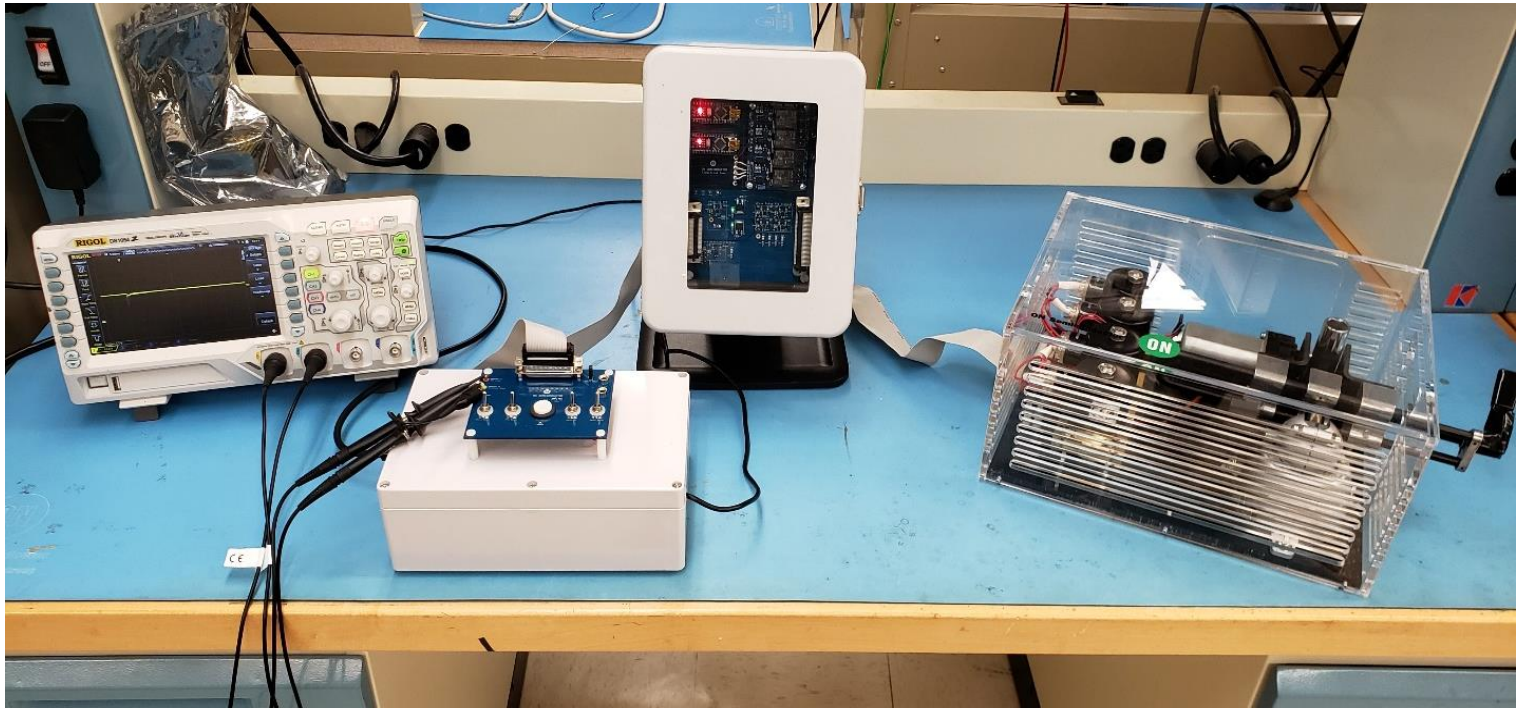
Innovation

Showcasing eFuse as replacement of traditional fuses as well as relays for industrial automation applications with inbuilt overcurrent, overvoltage, inrush current and over temperature protection in a smaller footprint with faster response and no SOA concerns.

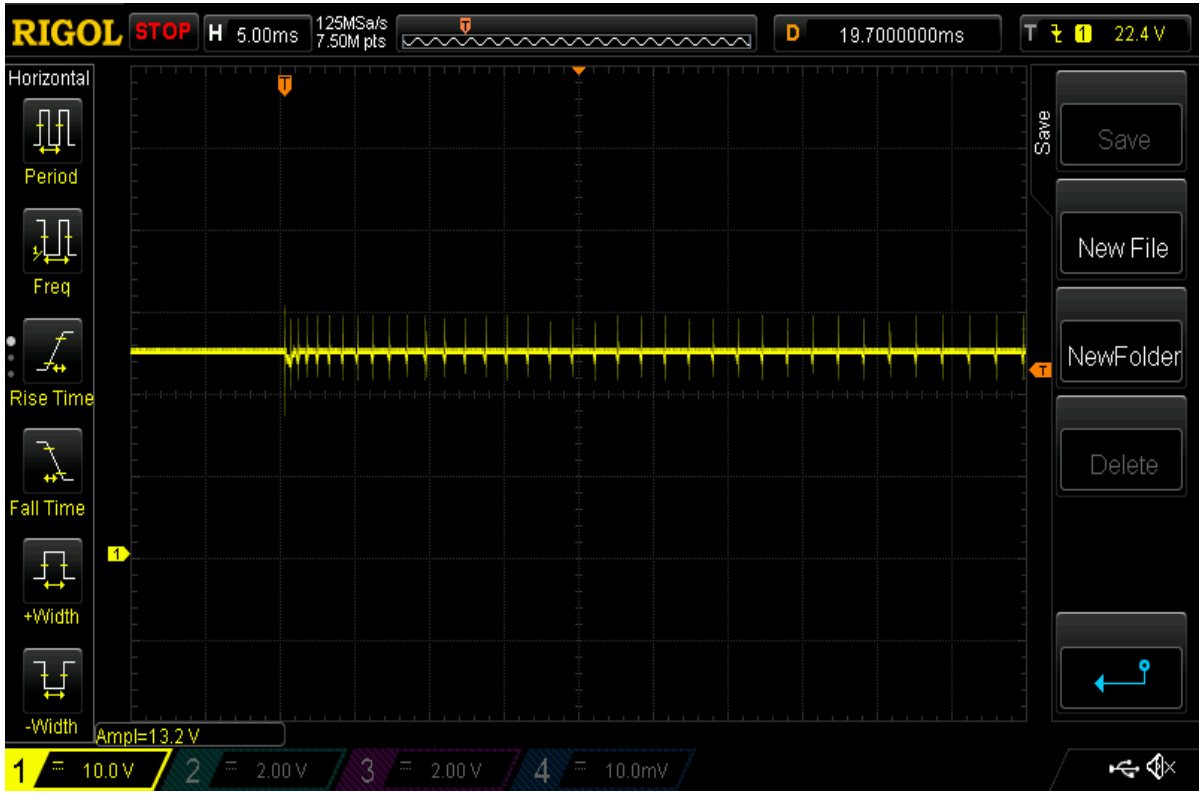
Value Proposition

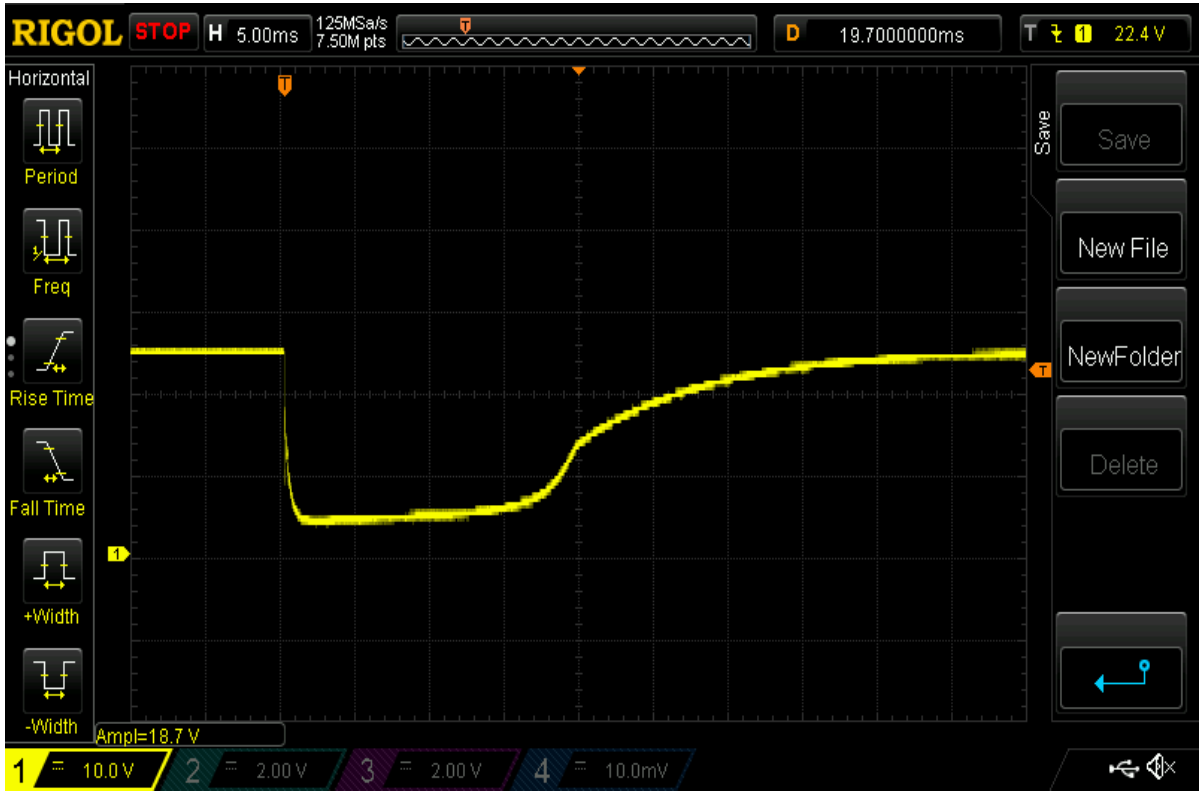
All the protection features along with programmability as well as fault reporting capability ensures unconditional safety with no SOA concerns.

- ✓ Unconditional safety
- ✓ Programmability
- ✓ Ultra fast response to faults
- ✓ Fault reporting and diagnostics
- ✓ Easy installation
- ✓ Small footprint
- ✓ Ability to synchronize or sequence power up/down



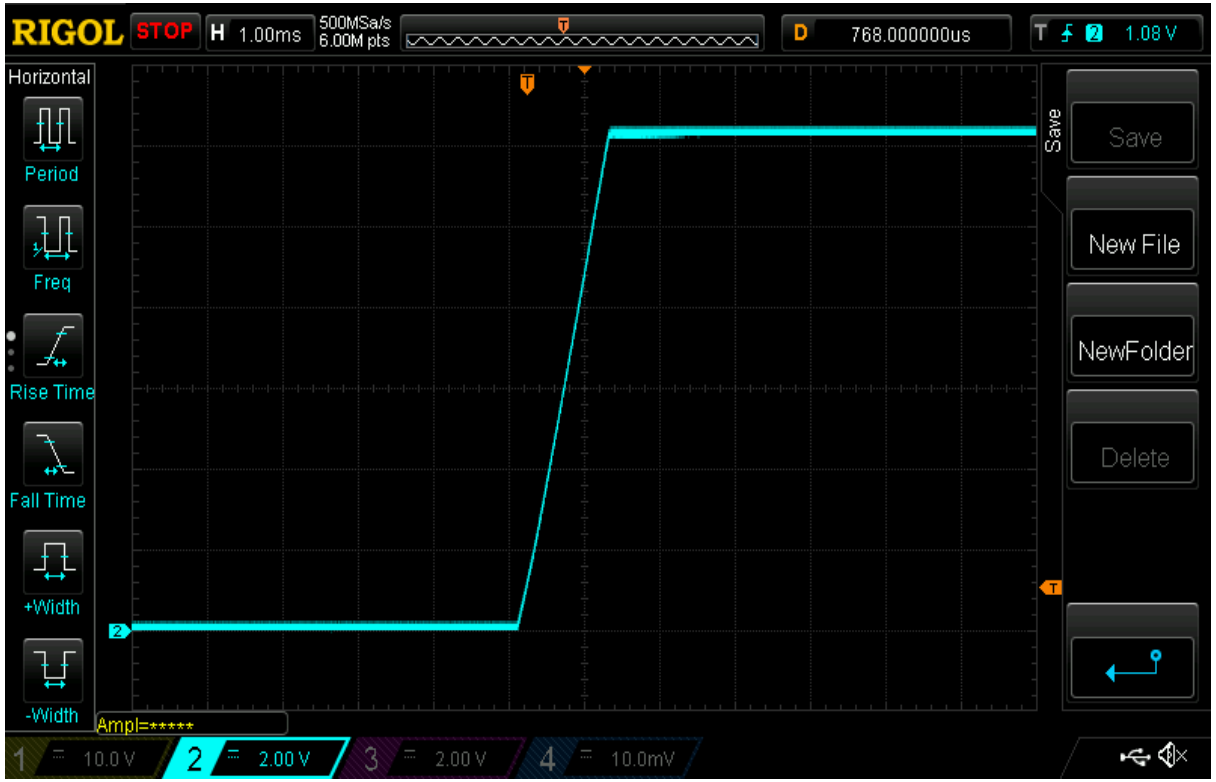
eFuse vs PTC Comparison

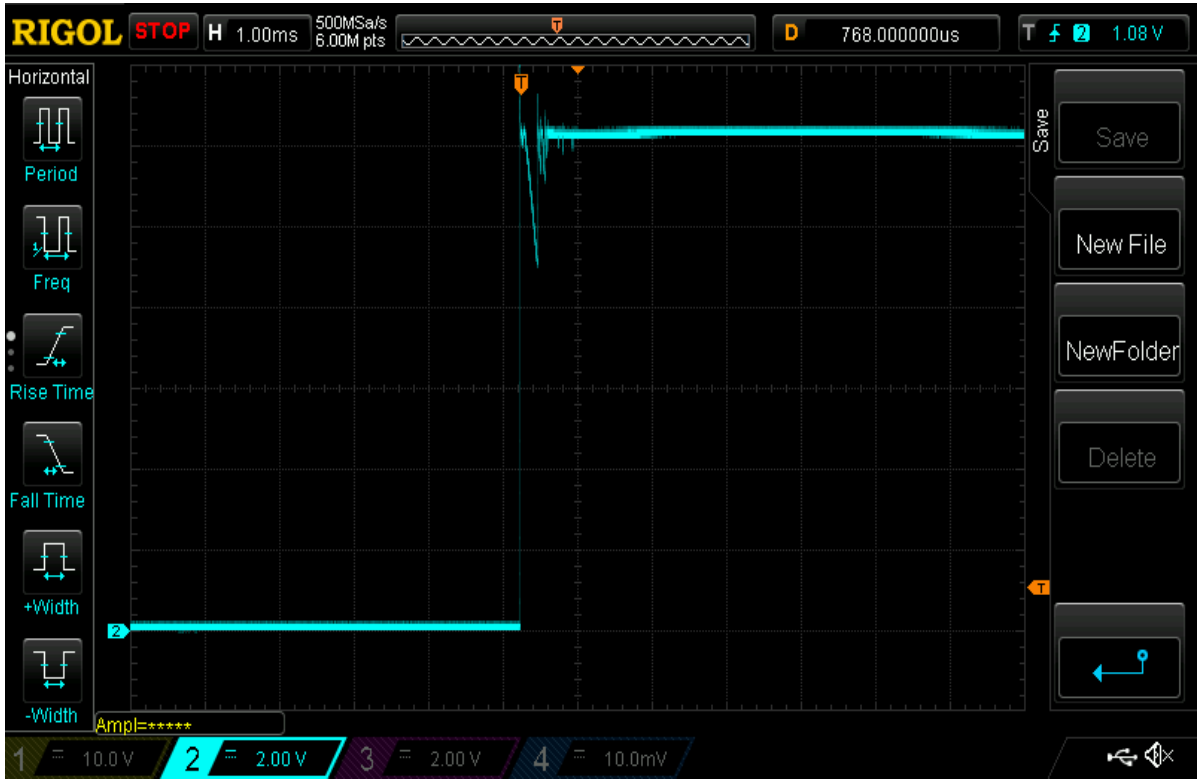




The eFuse (left) responds much quicker then the PTC (right), preventing the input rail from sagging during a fault.

eFuse vs Relay Comparison

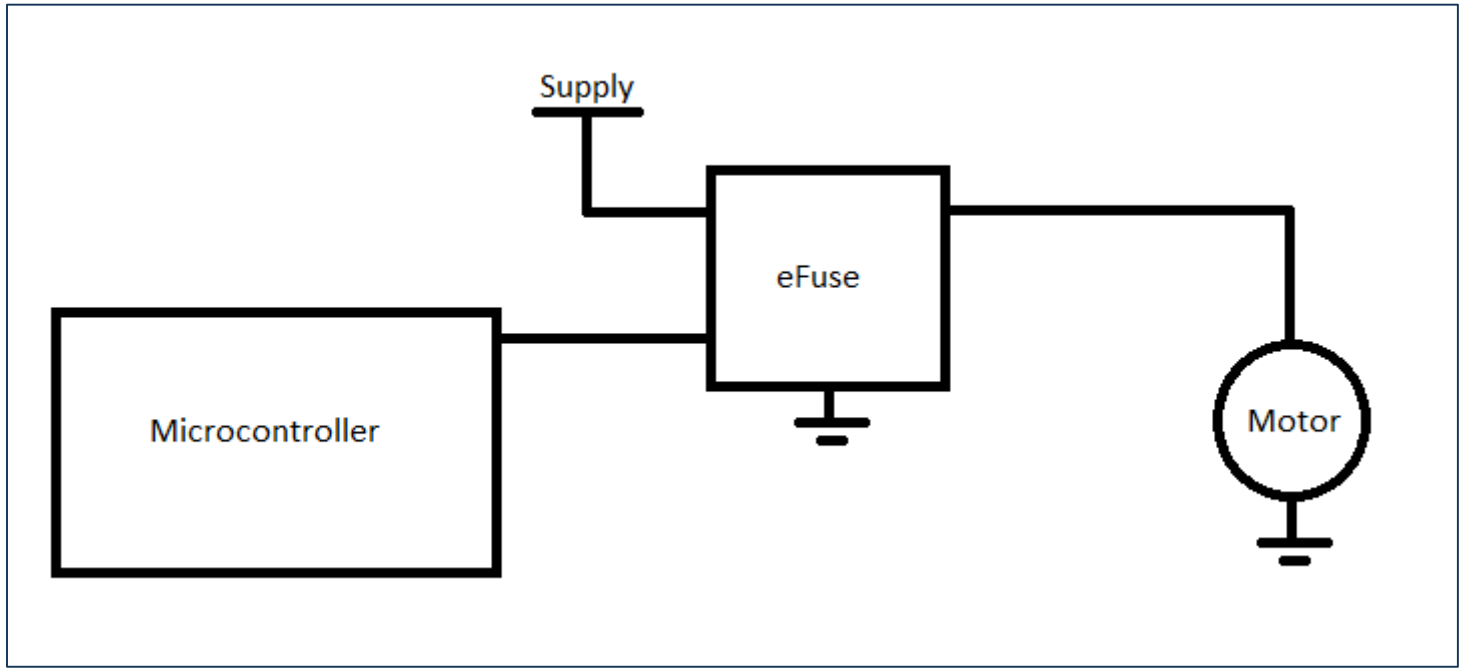




The eFuse (left) has a controlled and adjustable slew rate, reducing inrush current. The relay (right) produces noise and chatters, resulting in power loss.

eFuse in Motor Protection

- eFuses can be used for motor protection providing protections as well as diagnostics.
- In a locked rotor condition or with partially jammed shaft, the motor enters an overcurrent condition causing the eFuse to trip and shutdown the motor.
- A microcontroller is easily integrated to both read the status of the eFuse and control its output of eFuse.
- Once the fault or jam has been cleared, a signal can be sent to power the eFuse back on.



In additional to current limiting other protection features provided by the eFuse are:

- Over voltage clamping
- Under voltage lock out
- Fault reporting capabilities
- Diagnostics
- Controlled output slew