L99BM2P

Data brief

Industrial single channel pyro-fuse driver

Product status link
L99BM2P

Order code	Package	Packing
L99BM2P-FN-TR	VFQFN32	Tape & reel
L99BM2P-FP-TR	TQFP32L	Tape & reel

Product label
SUSTAINABLE TECHNOLOGY

Features

- Very low power consumption:
  - Less than 10 µA in deep-sleep mode (only trigger detection enabled)
  - Less than 4 mA in low-power mode (trigger detection enabled, ER boost recharge active, cyclic diagnostics every 100 ms)
- Boost regulator to charge Energy Reserve (ER) with bang-bang control to reduce consumption
- FENH/FENL digital input triggers, compatible to level or PWM signals (16 kHz and 125 kHz), with line integrity check feature
- Autonomous cyclic diagnostic routine to ensure detection of all failures which may prevent safe deployment and/or cause inadvertent deployment
- Programmable deployment profile: current value and time duration can be adapted to different pyro-fuse igniters
- Firing strategy supporting multiple retry attempts based on user-selectabl
- FIRE_GOOD signal
- Embedded NVM for configuration parameters storage and runtime configuration integrity check
- Easy integration with L99BM2C companion CSA, implementing many of the safety mechanisms, thus allowing easy L99BM2P plug and play in the system
- Pyro-fuse deployment available down to a minimum operating battery voltage of 6 V
- 24-bit peripheral SPI for direct MCU/L99BM2P interface
- Compatible with pyro-fuses certified according LV-16 and USCAR-28

Applications

- Backup energy storage systems and UPS

Description

L99BM2P is a single channel pyro-fuse driver capable to break high voltage battery line quickly and reliably in case of short circuit.

To accomplish this function, the device features a dual FET output stage made of a HS and a LS powerMOS. The stage is equipped with a closed loop current feedback and can be configured to deliver controlled firing profiles programming both current value and time duration.

Moreover, the power stage is able to perform a defined number of auto-retry attempts based on the success or not of the deployment.

The device embeds a programmable firing logic allowing to generate the trigger signal from two SPI commands or from two digital inputs (FENH/FENL).

The digital input triggers are compatible with both level and PWM encoding, supporting 16 kHz and 125 kHz encoded signals.

The device supports the charging of an external capacitor to be used as tank capacitor or as energy reserve (ER) in case of battery loss. An internal boost regulator can be used to control the ER cap voltage around a programmable setpoint. Boosting the input battery voltage allows using smaller ER capacitor values to store the energy needed for firing, even in case of ECU battery loss.

The device has been designed to deliver maximum safety and performance while still being energy efficient. A low-power operation strategy allows minimizing the idle consumption, keeping the device in an ultra low power state while still performing all the diagnostic.

The periodicity of the diagnostic sweeps can be programmed in order to comply with any FTTI. During such ultra low power state, the device is still sensitive to wake-up/trigger sources in order to be ready to fire.

Operation in conjunction with L99BM2C companion chip allows simplifying the software development, as many safety mechanisms are already implemented by L99BM2C.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
31-Oct-2025	1	Initial release.

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