# 10EV Series

## High Voltage Fuses – Rated 500 V DC

## Description

10EV fuses comes in six configurations. Each version of the cylindrical low-voltage, high-current fuse employs diffusion pill technology to provide time-delayed protection to circuits in EVs and hybrid passenger vehicles. Ask Littelfuse which configuration best meets your needs.

## Features & Benefits

- Interrupting Rating of 20 kA @ 500 V DC
- Operates from -40 °C to +125 °C
- Voltage Rating of 500 V DC
- Typical weight of 9.5 g
- Mounting Torque M5 of 4.5 ±1 Nm (ISO prescription for ZXISO and ZXBDP versions)
- Melamine body with UL 94 flammability ratings of V-0
- Terminal in tin plated copper alloy
- End caps in nickel plated brass
- Refers to ISO 8820-8
- Available in cartridge version

## Applications

- All EV and Hybrid passenger vehicles

See Disclaimer Notice

## Additional Information

Resources

Samples

## Specifications

| | |
|---|---|
| **Voltage Rating:** | 500 V DC |
| **Interrupting Rating:** | 20 kA @ 500 V DC |
| **Recommended Environmental Temperature:** | –40 ˚C to +125 ˚C |
| **Terminals Material:** | Tin-plated copper alloy |
| **Housing Material:** | Melamine body (UL 94 Flammability rating of V-0) |
| **End caps Material:** | Nickel plated brass |
| **Mounting Torque M5:** | 4.5 ±1 Nm (ISO prescription for ZXISO and ZXBDP versions) |
| **Typical Weight per Fuse:** | 9.5 g |
| **Comply With:** | ISO 8820-10:2020 |

## Ordering Information

| Part Number | Termination | Package Size |
|---|---|---|
| 10EVxxx.ZXC | CARTRIDGE | 320 |
| 10EVxxx.ZXISO | BOLT DOWN (ISO) | 320 |
| 10EVxxx.ZXPY | BLADE | 320 |
| 10EVxxx.ZXBDP | BOLT DOWN (AXIAL) | 320 |
| 10EVxxx.ZXPCB | PCB MOUNT | 320 |
| 10EVxxx.ZXPCBL | PCB MOUNT (LONG) | 320 |




Revised: 03/27/2024

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## Ratings

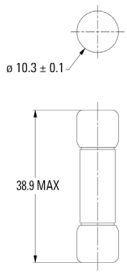
| Part Number | Current Rating (A) | Color Coding | Test Cable Size ($mm^2$) | Typ. Voltage Drop at 70% IR (mV) | Typ. Cold Resistance (mΩ) | Typ. $I^2t$ ($A^2s$) |
|---|---|---|---|---|---|---|
| 10EV010.xxx | 10 | | 1 | 114 | 12.8 | 310 |
| 10EV015.xxx | 15 | | 1.5 | 83 | 7.4 | 800 |
| 10EV020.xxx* | 20 | | 2.5 | Coming up | Coming up | Coming up |
| 10EV030.xxx | 30 | | 5 | 67 | 0.90 | 1500 |
| 10EV040.xxx | 40 | | 5 | 69 | 0.73 | 4450 |
| 10EV050.xxx | 50 | | 5 | 69 | 0.73 | 7800 |

***** Products in development - Final values for voltage drop, resistance, melting $I^2t$ and T/C curves will be generated from PV tests data.
Please contact Littelfuse® for more details regarding availability timing.
**Note:** The typical $I^2t$ is an average value calculated from the breaking capacity tests by using the melting time before the arcing occurs.

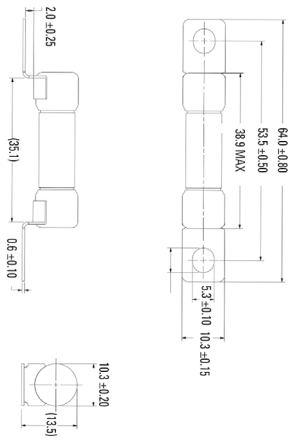
## Dimensions

Dimensions in mm. Please refer to the outline drawing for dimensions and tolerances.

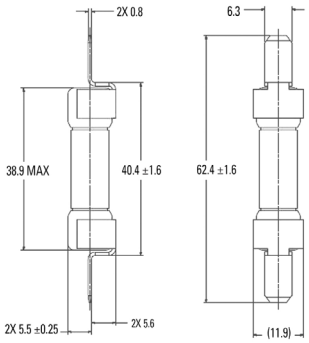
ZXC Cartridge



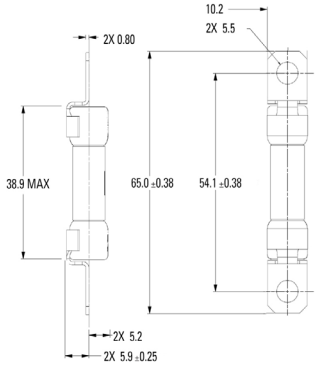

ZXISO Bolt Down (ISO)



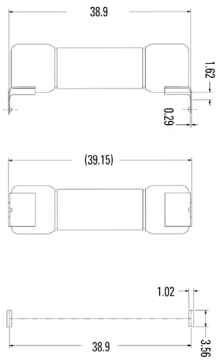

ZXPY Blade



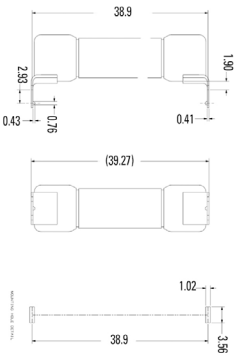

ZXBDP Bolt Down (Axial)




ZXPCB PCB Mount




ZXPCBL PCB Mount (Long)



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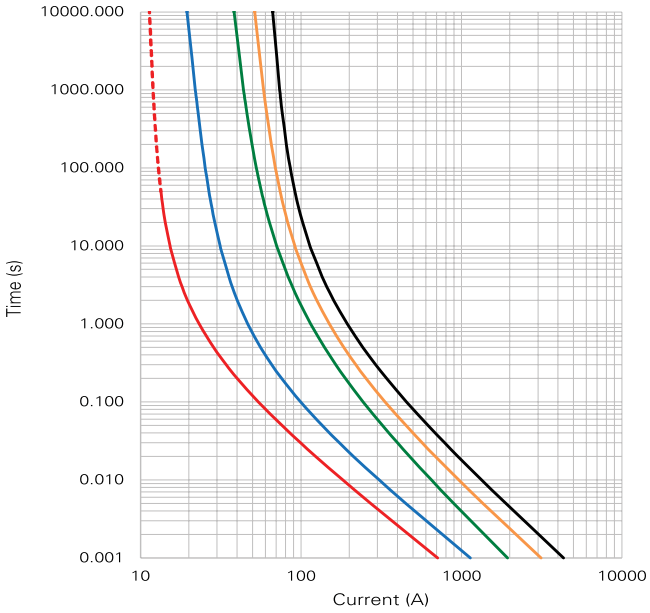
## High Voltage Fuses – Rated 500 V DC

## Time-Current Characteristic




| % of Rating | Opening Time Min. / Max. (s) |
|---|---|
| 110 | 14 400 / - |
| 135 | 150 / 3600 |
| 150 | 10 / 1000 |
| 200 | 0.5 / 100 |
| 300 | 0.1 / 15 |
| 500 | 0.05 / 1 |

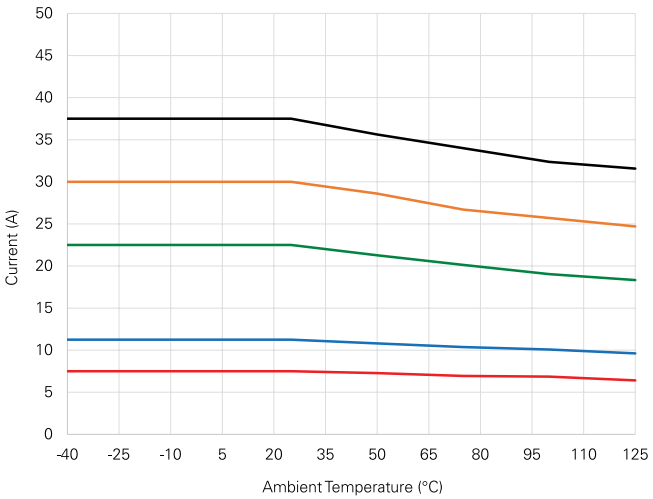
10 A
15 A
30 A
40 A
50 A

**Note:** Current recommendation may be impacted by the final condition of the application (terminals characteristics, wire size etc..). Please contact Littelfuse® for more information.

## Typical Rerating Curves

Temperature security margin is 20%.

Please contact Littelfuse® for Details Regarding Rerating Test Set Up.




| | Max. allowed current load (A) at ambient temperature based on typical derating | | | | | | |
|---|---|---|---|---|---|---|---|
| | -40 °C | 0 °C | 20 °C | 65 °C | 85 °C | 110 °C | 125 °C |
| **10 A** | 7.5 | 7.5 | 7.5 | 7.0 | 6.9 | 6.9 | 6.9 |
| **15 A** | 11.3 | 11.3 | 11.3 | 10.5 | 10 | 10 | 9.6 |
| **20 A** | Under development | | | | | | |
| **30 A** | 22.5 | 22.5 | 22.5 | 20.6 | 20 | 18.8 | 18.3 |
| **40 A** | 30 | 30 | 30 | 27 | 26 | 25.1 | 24.7 |
| **50 A** | 37.5 | 37.5 | 37.5 | 34.8 | 33.4 | 32 | 31.6 |

10 A
15 A
30 A
40 A
50 A

**Note:** Current recommendation may be impacted by the final condition of the application (terminals characteristics, wire size etc..). Please contact Littelfuse® for more information.