# CIRCUIT BREAKER 60-SIWAP

**Pyrotechnic circuit breaker
for low-voltage applications**

ASTOTEC
Automotive

- Prevents fires caused by short circuits
  and protects the electric system
- Provides irreversible secure separation over
  full current range
- Low internal resistance
- High insulation resistance after activation
- Lightweight design at small formfactor
- Waterproof housing
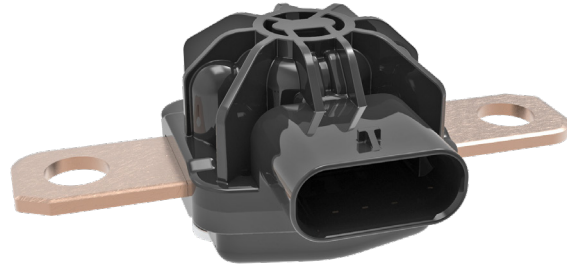
## Key functional parameters

| | |
|---|---|
| Separation capacity (voltage \| current \| inductance) | 60 V \| 2 kA \| 15 µH (higher/alternative values on request) |
| Separation time | < 2 ms (typical < 1 ms) |
| Operating temperature | -40 °C to +120 °C* |
| Ambient temperature | -40 °C to +85 °C |
| Product lifetime | 15 years** |
| Qualification | in accordance with LV 124 |
| Weight | ~ 50 g |

*for a limited time interval

**operating hours depending on temperature collective & activation energy

## HV connection (busbar)

| | |
|---|---|
| Busbar - igniter - insulation resistance | > 50 MΩ (before and after activation) |
| Busbar resistance | ≤ 90 µΩ (before activation) > 50 MΩ (after activation) |
| Busbar material | Copper, copper + Ni/Sn plating (alternatives on request) |
| Busbar cross-section area | 16 mm × 2 mm |
| Intended type of connection | screwing (M8) |
| Distance between screw holes | 64 mm |

## LV connection (igniter)

| | |
|---|---|
| Terminal type | Pin type (2 pins), gold-coated |
| Interface | 4 pins (2 pins igniter, 2 pins signal line) |
| Pyrotechnics | GTMS igniter (LV16 & USCAR-28), maximum pyrotechnic mass 48 mg |
| Igniter resistance | 2.1 Ω ± 0.4 Ω |
| Igniter parameter *"No fire"* | ≤ 0.4 A ≤ 5 A for ≤ 4 µs |
| Igniter parameter *"All fire"* | 1.75 A to 40 A for 0.5 ms ≥ 1.2 A for ≤ 2 ms |

## Current carrying capacity*

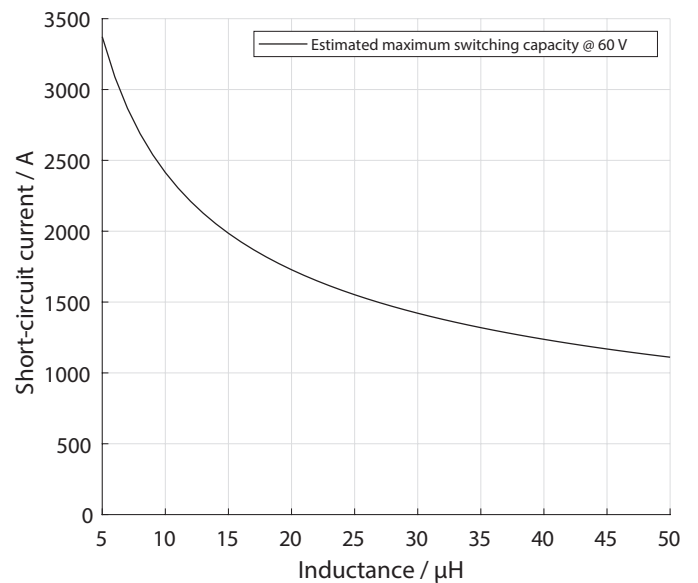| Ambient temperature | Current | Duration |
|---|---|---|
| +85 °C | 250 A | continuous |

*depending on cooling, convection, cross-section, contact surface etc. (thermal model upon request)

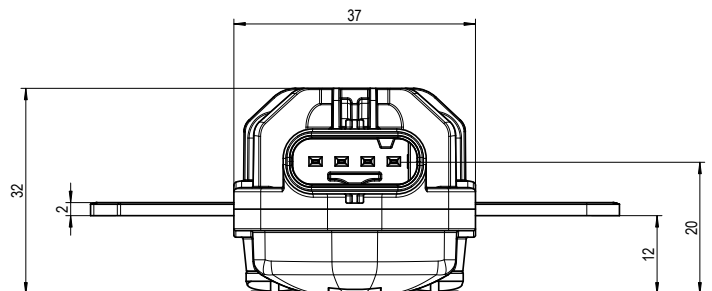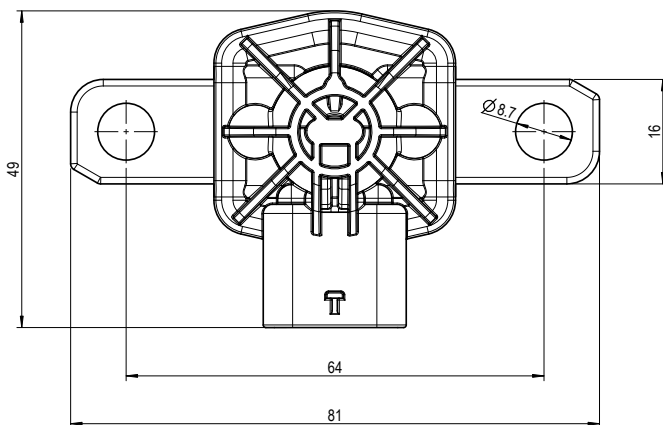## Typical curves

### Typical current *i* and voltage *u* curves



Legend:
14.5 µH | -40 °C :  current  voltage
14.5 µH | 105 °C :  current  voltage

### Estimated maximum switching capacity
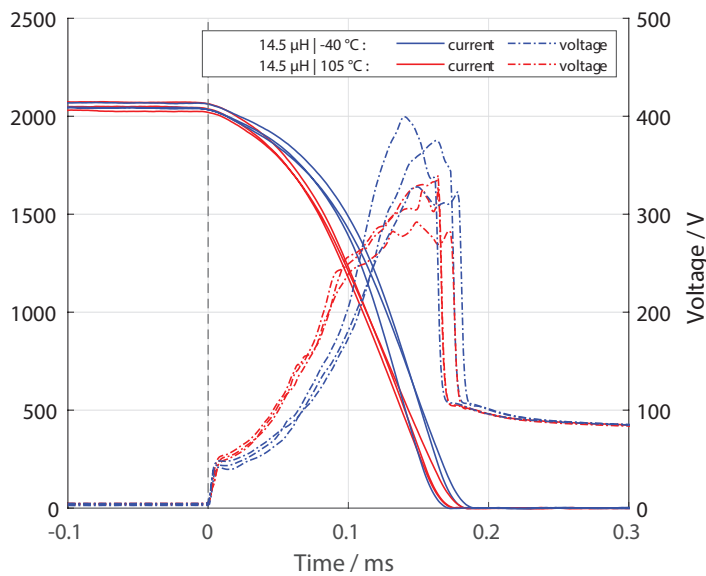


Estimated maximum switching capacity @ 60 V

## Outline dimensions*
*in mm