

# EVM10

## 10 x 38 mm EV fuse



### Product features

- 10 x 38 mm fuse
- Current rating: 5 A to 50 A
- 500 Vdc rating
- High breaking capacity for high energy applications
- Designed to JASO D622, ISO8820-8, GB/T31465
- Produced in a factory with ISO9001 & IATF16949 certification
- Minimum breaking capacity 300% In at rated DC voltage
- Bolt-down terminal and PCB terminal options

### Applications

- Automotive and commercial vehicle on-board chargers
- Uninterruptible power supplies (UPS)
- 3-phase EVSE and charging infrastructure
- Motor protection
- Rectifiers and inverters
- Energy storage systems
- On-board electric vehicle powertrain and distribution

### Environmental compliance



### Ordering part number

**EVM10-30-SCT**

Family code

Ampere rating (30 = 30 A)

Option code

### Option code

- 1P=1 pin PCB terminal
- 2P=2 pin PCB terminal
- SCT= Bolt down single cap

**Electrical characteristics**

Amps (A)	Minimum (seconds)	Maximum (seconds)
1.0 I <sub>n</sub>	14,400	-
3.0 I <sub>n</sub>	0.1	15

**Product specifications**

Part number	Rated voltage	Rated current (A)	Breaking capacity	Typical cold resistance <sup>1</sup> (mΩ)	Typical voltage drop (mV)
EVM10-5	500 Vdc	5	500 Vdc/20 kA	32.3	220
EVM10-10	500 Vdc	10	500 Vdc/20 kA	13.5	185
EVM10-20	500 Vdc	20	500 Vdc/20 kA	5.1	160
EVM10-30	500 Vdc	30	500 Vdc/20 kA	3.1	150
EVM10-40	500 Vdc	40	500 Vdc/20 kA	2.2	150
EVM10-50	500 Vdc	50	500 Vdc/20 kA	1.65	165

1. Cold resistance is measured at <10% I<sub>n</sub> and +25 °C ambient temperature

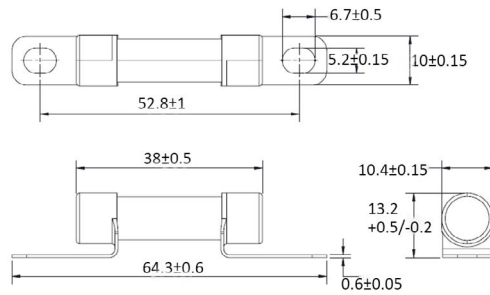
**Dimensions- mm**

Tolerances unless otherwise specified

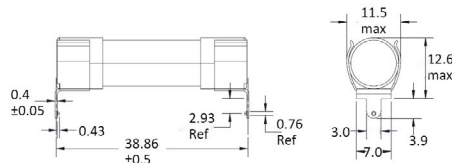
One place x.x = ± 0.3 mm

Two places x.xx = ± 0.13 mm

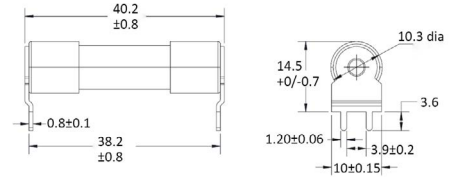
**SCT: Bolt-down single cap**



**1P: 1 pin PCB terminal**

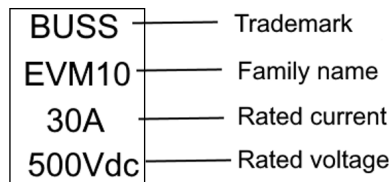


**2P: 2 pin PCB terminal**

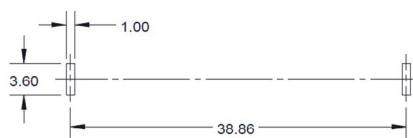


Note: recommended tightening torque is 4.5+/-1.0 Nm for M5 Screw

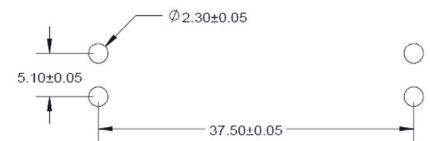
**Part marking**



**PCB layout 1P: 1 pin PCB terminal**



**PCB layout 2P: 2 pin PCB terminal**



## General specifications

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Operating temperature: -40 °C to +125 °C with proper derating factor applied

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Strength of terminals: JASO D622 6.3.9, mounting torque 4.5 +/-1 Nm, 3 times

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Temperature humidity cycling: JASO D622 6.3.4.1,

- a) maintain the samples at standard conditions for 4 hours
  - b) increase T to 55 +/-2 °C at 95% to 99% RH within 0.5 hours
  - c) maintain T at 55 +/-2 °C at 95% to 99% RH for 10 hours
  - d) decrease T to -40 +/-2 °C within 2.5 hours; the humidity is uncontrolled
  - e) maintain T at -40 +/-2 °C for 2 hours; the humidity is uncontrolled
  - f) increase T to 120 +/-2 °C within 1.5 hours from -40 +/-2 °C; the humidity is uncontrolled
  - g) maintain T at 120 +/-2 °C for 2 hours; the humidity is uncontrolled
  - h) allow to return to RT within 1.5 hours; the humidity is uncontrolled 10 cycles.
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Thermal shock: ISO8820-8 GB/T31465.6, 48 cycles; -40 °C to 100 °C, each cycle 60 minutes

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Vibration: JASO D622 6.3.3, 10-55 Hz, 3 directions, 2 hours each direction

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Transient current cycling: JASO D622 6.3.2 (reference), The transient current start from 2.0 In for 0.25 seconds, then drop to 0.5 In and keep this current to 15 seconds to finish one cycle, total 50000 cycles

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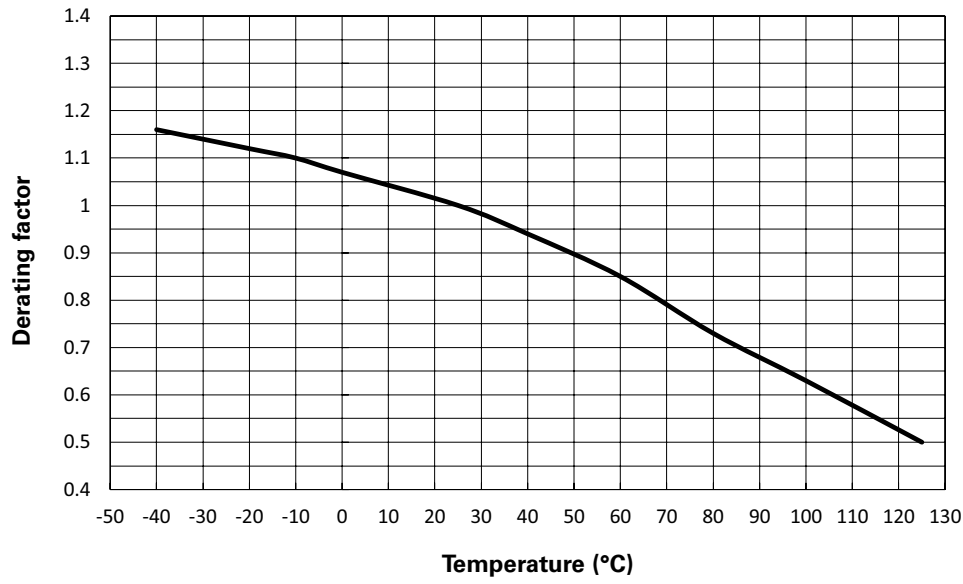
Lubricant & fuel oil resistance: GB/T31465.1-5.4, Wipe the marking with lubricant or oil 30 seconds

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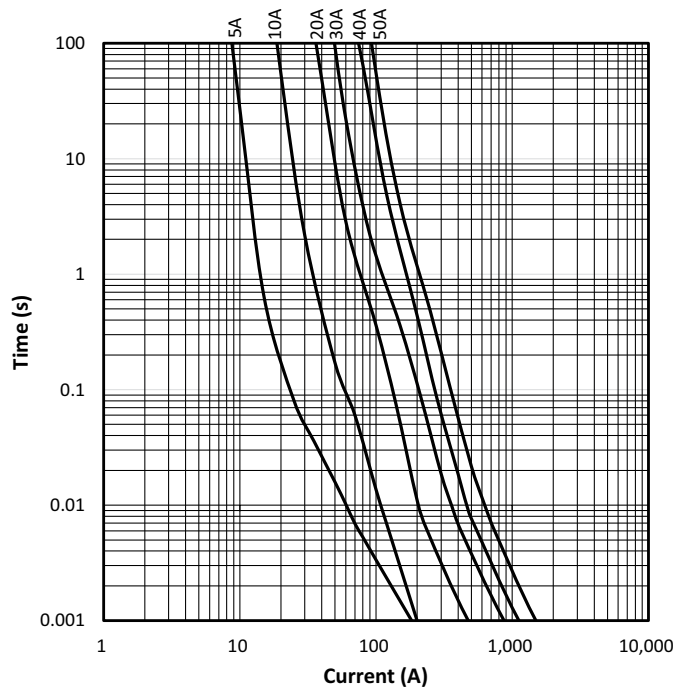
## Packaging information

Terminals	Inner package	Ship package
SCT	40 pieces/tray	400 pieces/box
1P	20 pieces/bag	540 pieces/box
2P	20 pieces/box	640 pieces/box

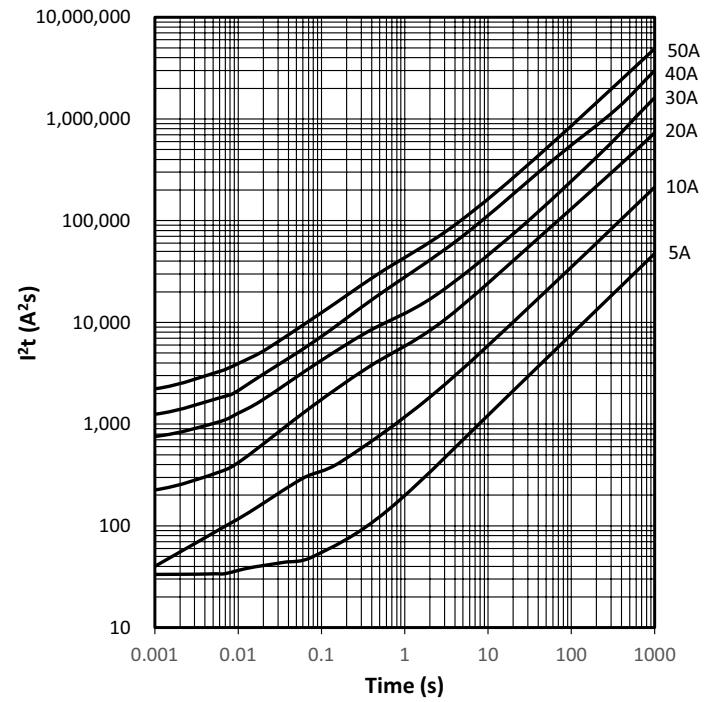
**Temperature derating curve**



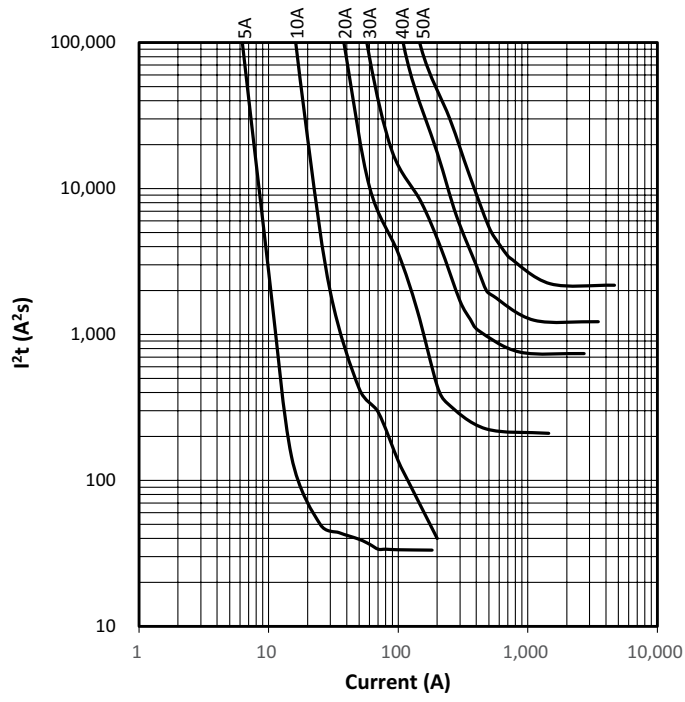
**Current vs. time curve**



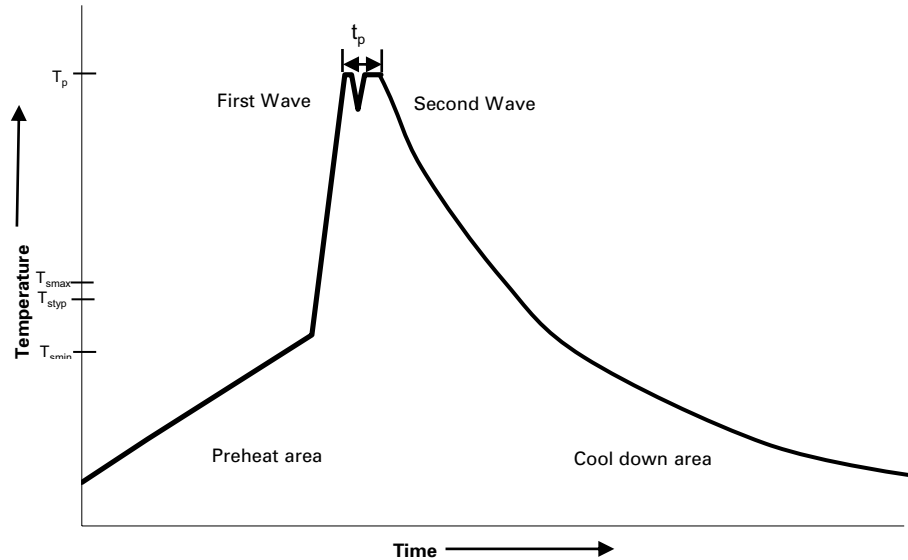
**I<sup>2</sup>T vs. time curve**



**I<sup>2</sup>t vs. current curve**



**Wave solder profile--PCB version only**



**Reference EN 61760-1:2006**

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat		
• Temperature min. ( $T_{smin}$ )	100 °C	100 °C
• Temperature typ. ( $T_{styp}$ )	120 °C	120 °C
• Temperature max. ( $T_{smax}$ )	130 °C	130 °C
• Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	70 seconds	70 seconds
$\Delta$ preheat to max Temperature	150 °C max.	150 °C max.
Peak temperature ( $T_p$ )*	235 °C – 260 °C	250 °C – 260 °C
Time at peak temperature ( $t_p$ )	10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C	4 minutes	4 minutes

**Manual solder**

+350 °C (4-5 seconds by soldering iron), generally manual/hand soldering is not recommended.

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