

# EKM10

## 10 x 38 mm EV fuse



### Product features

- 10 x 38 mm fuse
- Current rating: 10 A to 30 A
- 1000 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 and PCB terminal options available

### 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

**EKM10-30-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 tag  
AT = Bolt down axial tag

## Electrical characteristics

| Amps (A) | Minimum (seconds) | Maximum (seconds) |
|----------|-------------------|-------------------|
| 1.0 In   | 14400             | -                 |
| 2.0 In   | 1.0               | 300               |
| 3.0 In   | 0.2               | 30                |
| 5.0 In   | 0.1               | 10                |

## Product specifications

| Part number | Rated voltage | Rated current (A) | Breaking capacity | Typical cold resistance <sup>1</sup> (mΩ) | Typical voltage drop (mV) |
|-------------|---------------|-------------------|-------------------|-------------------------------------------|---------------------------|
| EKM10-10    | 1000 Vdc      | 10                | 1000 Vdc/50 kA    | 12.5                                      | 180                       |
| EKM10-15    | 1000 Vdc      | 15                | 1000 Vdc/50 kA    | 7.2                                       | 160                       |
| EKM10-20    | 1000 Vdc      | 20                | 1000 Vdc/50 kA    | 5.2                                       | 150                       |
| EKM10-25    | 1000 Vdc      | 25                | 1000 Vdc/50 kA    | 4.0                                       | 160                       |
| EKM10-30    | 1000 Vdc      | 30                | 1000 Vdc/50 kA    | 3.1                                       | 160                       |

1. Cold resistance is measured at <10% In and +25 °C ambient temperature

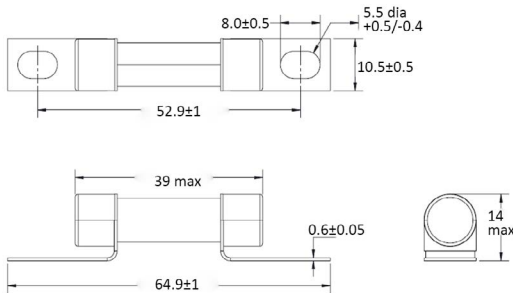
## Dimensions- mm

Tolerances unless otherwise specified

One place x.x = ± 0.3 mm

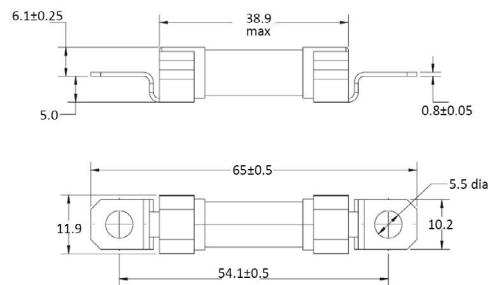
Two places x.xx = ± 0.13 mm

### SCT: Bolt-down single cap tag



Note: recommend tightening torque is 4.5 ±1.0 Nm for M5 Screw

### AT: Bolt down axial tag

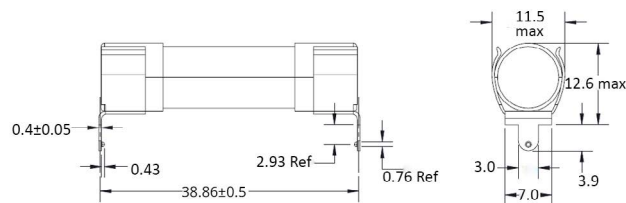


Note: recommend tightening torque is 4.5 ±1.0 Nm for M5 Screw

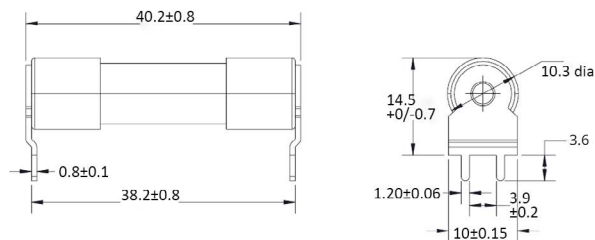
### Part marking

|         |               |
|---------|---------------|
| BUSS    | Trademark     |
| EKM10   | Family name   |
| 30A     | Rated current |
| 1000Vdc | Rated voltage |

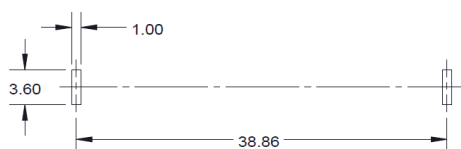
### 1P: 1 pin PCB terminal



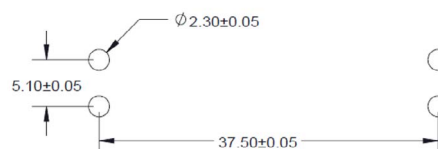
### 2P: 2 pin PCB terminal



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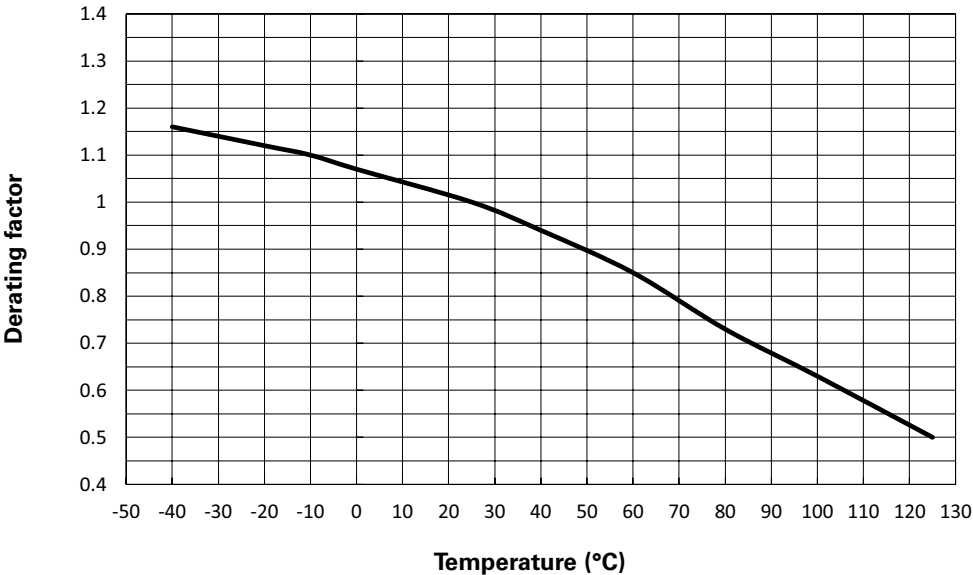
Lubricant & fuel oil resistance: GB/T31465.1-5.4, Wipe the marking with lubricant or oil 30 seconds

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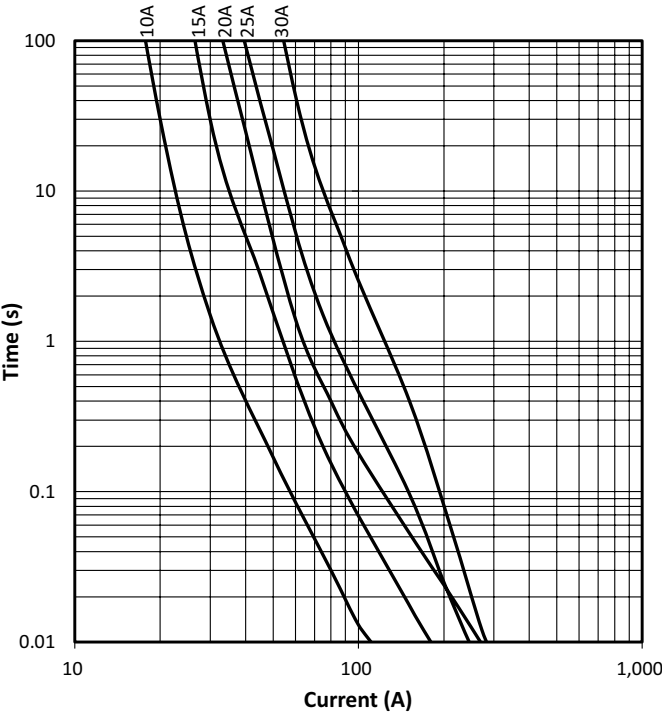
## Packaging information

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

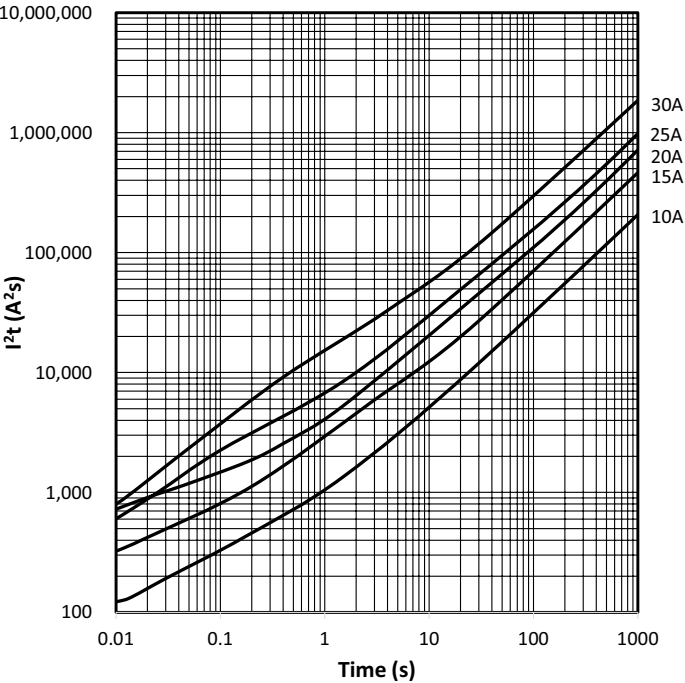
Temperature derating curve



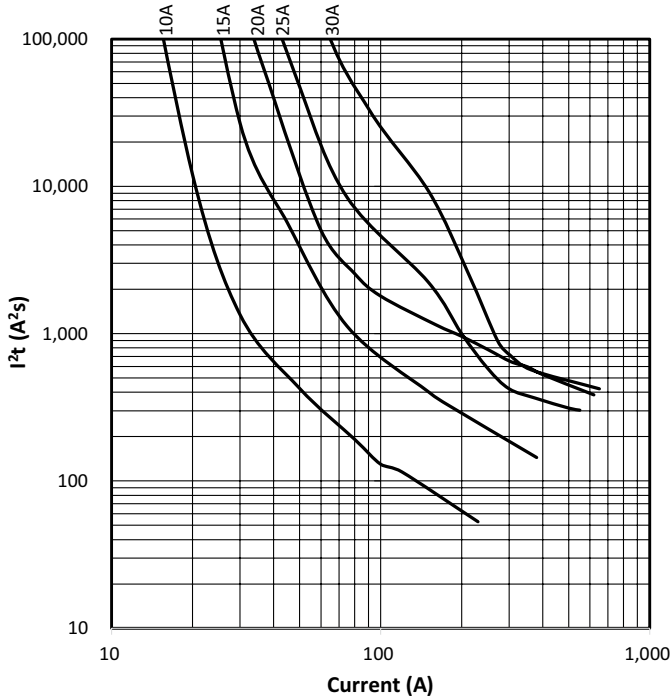
Current vs. time curve



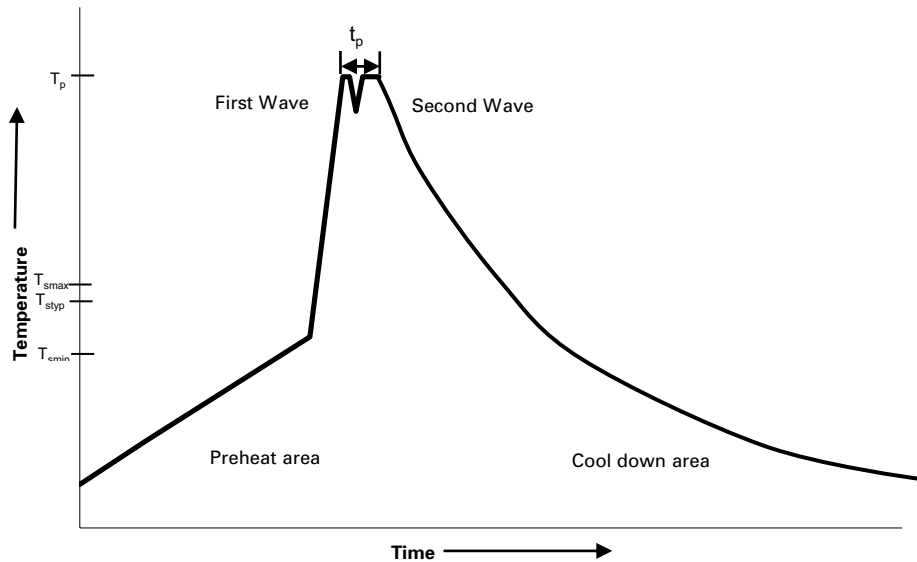
I²t vs. time curve



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<br>5 seconds max each wave | 10 seconds max<br>5 seconds max each wave |
| Ramp-down rate                                | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max | ~ 2 K/s min<br>~3.5 K/s typ<br>~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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