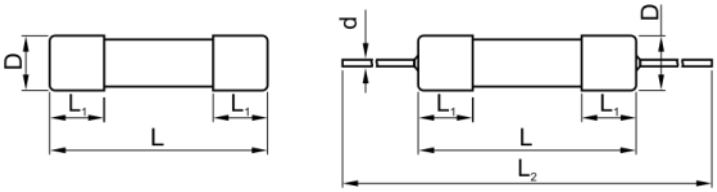
# Miniature Fuses
## (Cartridge Fuse-links)

## SCT520&SCT520P Series, Time-Lag, Ceramic Tube


## Dimensions (mm)




| L | $L_1$ | $L_2$ | D | d |
|---|---|---|---|---|
| 20.0 ± 0.5 | 5.1 ± 0.3 | 96 ± 2 | $\Phi 5.2^{+0.1}_{-0.2}$ | ≤6.3 A: Φ(0.65 ± 0.05)<br>>6.3 A to 10 A: Φ(0.80 ± 0.05)<br>>10 A to 20 A: (Φ1.00 ± 0.05)<br>25 A / 30 A: Φ(1.20 ± 0.05) |

## Description

Φ5 × 20 mm, Time-Lag, high breaking capacity cartridge fuse, designed to IEC & UL standards.

## Features

- Φ5 mm × 20 mm
- Time-Lag
- High Breaking Capacity
- Ceramic Tube, Nickel-plated Brass En dcap Construction
- Designed to UL248-14 / IEC 60127-2＆7
- Lead-free (Pb-free)
- RoHS & REACH Compliant

## Part Numbering System

SCT520T1.25A250V-001

**Other Options**

**Rated Voltage**
AC: 500/450/400/350/300/250
DC: 500/450/400/350/300/250

**Rated Current**

**Pre-Arcing Time/Current Characteristic**
T: Time-Lag

**Product Series**
SCT520: Cartridge Type
SCT520P: Axial Lead Type

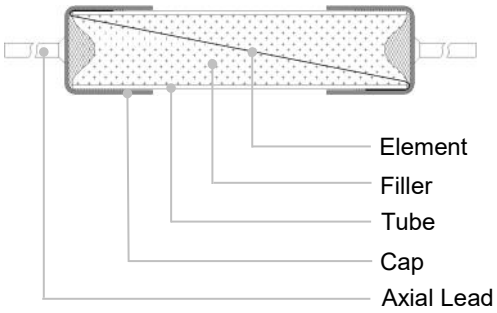
## Applications

- Power Supply
- Household Appliance
- General Lighting
- Smart Home
- Office Equipment
- Electric Tool
- Medical Equipment
- SPD

## Agency Approvals

| Agency Approvals | Agency File Number | Ampere Range |
|---|---|---|
| cULus | E345932 | 0.4 A to 30 A |
| CQC | CQC21012316337<br>CQC21012316630<br>CQC21012324758<br>CQC21012325082 | 0.4 A to 20 A |
| TÜVRheinland | R50575995<br>R50576001<br>R50538205<br>R50538319 | 0.8 A to 20 A |

## Structure Diagram






Miniature Fuses

## Glossary

| Item | Description |
|---|---|
| ***Fuse*** | An overcurrent protective device with a fusible link that operates and permanently opens the circuit on an overcurrent condition. |
| **Rated Current** | The rated current of a fuse identifies its current-carrying capacity based on a controllable set of test conditions. Each fuse is marked with its rated current. |
| **Rated Voltage** | A maximum open circuit voltage in which a fuse can be used, yet safely interrupt an over-current. Exceeding the voltage rating of a fuse impairs its ability to clear an overload or short circuit safely. |
| **Ampere Squared Seconds $I^2t$** | The melting, arcing, or clearing integral of a fuse, termed $I^2t$, is the thermal energy required to melt, arc, or clear a specific current. It can be expressed as melting $I^2t$, arcing $I^2t$ or the sum of them, clearing $I^2t$. |
| **Time-current Characteristics** | Under stated conditions of operation, the value of time as a function of the prospective current. |
| **Rated Breaking Capacity** | Value (r.m.s. for a.c.) of prospective current that a fuse-link is capable of breaking at a stated voltage under prescribed conditions of use and behaviour. |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## Specifications

| Series | Rated Current (A) | Rated Breaking Capacity | Average Typical Melting $I^2t$ [a] (A²sec) | Agency Approvals | | | Environmental | |
|---|---|---|---|---|---|---|---|---|
| | | | | CQC | TUV | cURus | RoHS | REACH |
| SCT520 SCT520P | 0.4 | UL (0.4 A-10 A): 10 kA@250 VAC / 300 A@400 VAC 200 A@500 VAC SCT520P 2 kA@300 VAC SCT520 1500 A@300 VAC 3 kA@300 VDC / 500 A@500 VDC UL (12.5 A-20 A): 1 kA@250 VAC SCT520P: 300 A@500 VAC SCT520: 500 A@400 VAC 500 A@300 VDC UL (25 A-30 A): SCT520P: 500 A@250 VAC SCT520: 500 A@300 VAC CQC/TUV (0.4 A to 10 A): 5 kA@250 VDC / 3 kA@300 VDC / 500 A@500 VDC / 1500 A@250 VAC / 300 A@400 VAC / 200 A@500 VAC CQC/TUV (12.5 A to 20 A): 500 A@300 VDC / 1 kA@250 VAC / 300 A@400 VAC | 0.06 | ● | | ● | ● | ● |
| SCT520 SCT520P | 0.5 | | 0.14 | ● | | ● | ● | ● |
| SCT520 SCT520P | 0.63 | | 0.23 | ● | | ● | ● | ● |
| SCT520 SCT520P | 0.8 | | 0.96 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 1 | | 2.2 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 1.25 | | 4.7 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 1.6 | | 10.2 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 2 | | 20 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 2.5 | | 31 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 3 | | 54 | | | ● | ● | ● |
| SCT520 SCT520P | 3.15 | | 74 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 4 | | 96 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 5 | | 75 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 6.3 | | 147 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 8 | | 237 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 10 | | 500 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 12.5 | | 820 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 15 | | 1100 | | | ● | ● | ● |
| SCT520 SCT520P | 16 | | 1300 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 20 | | 2100 | ● | ● | ● | ● | ● |
| SCT520 SCT520P | 25 | | 3100 | | | ● | ● | ● |
| SCT520 SCT520P | 30 | | 4500 | | | ● | ● | ● |

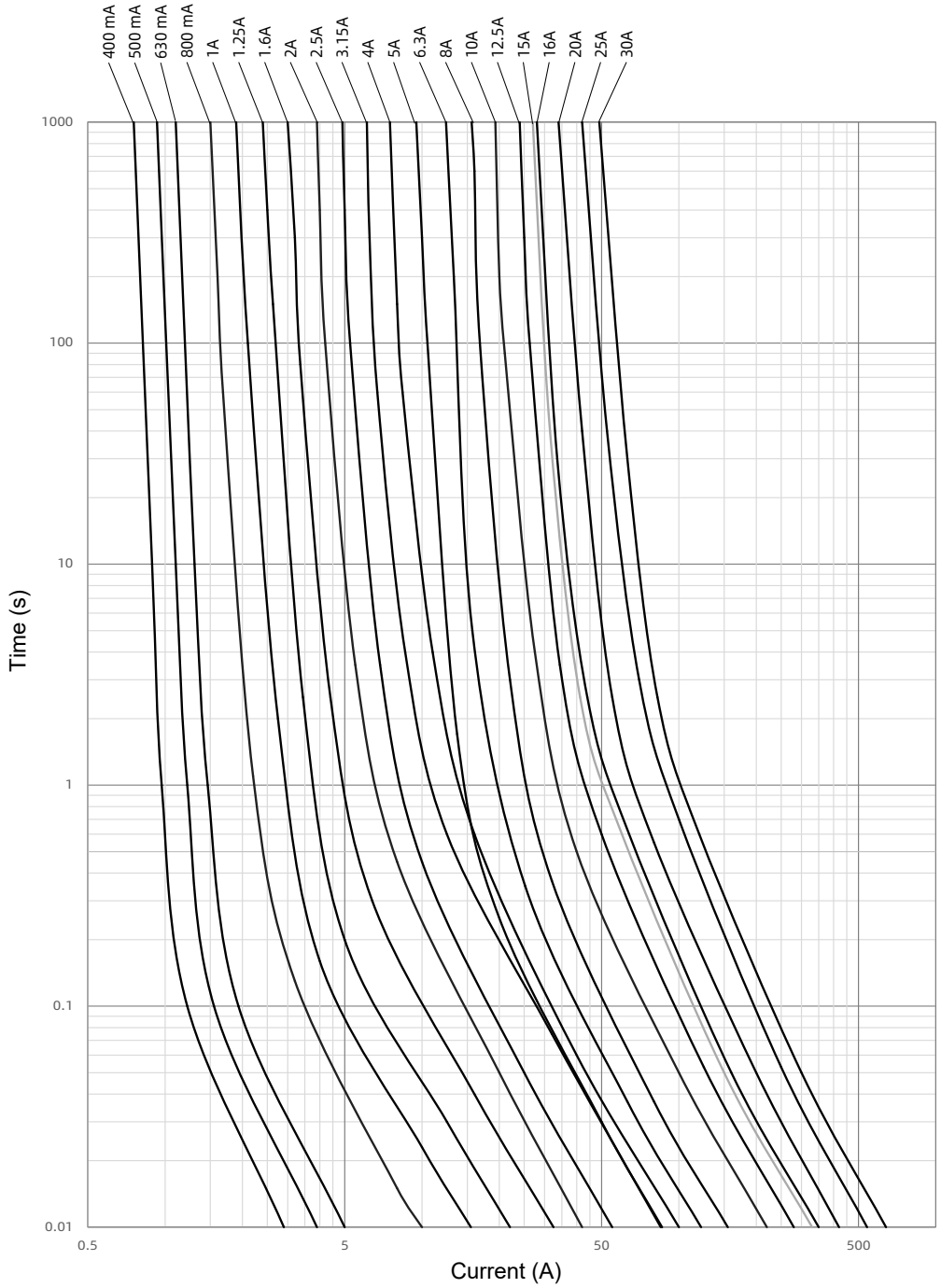
a: $I^2t$ value is measured at 10 $I_N$.

○: Pending

## Opening Time / Current Characteristic

| Rated Current (A) | $2.1I_N$ | $2.75I_N$ | | $4I_N$ | | $10I_N$ | |
|---|---|---|---|---|---|---|---|
| | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 0.4 to 0.8 | 30 minutes | 250 ms | 80 s | 50 ms | 5 s | 5 ms | 150 ms |
| 1 to 3.15 | 30 minutes | 750 ms | 80 s | 95 ms | 5 s | 10 ms | 150 ms |
| 4 to 10 | 30 minutes | 750 ms | 80 s | 150 ms | 5 s | 10 ms | 150 ms |
| 12 to 30 | 30 minutes | 750 ms | 80 s | 150 ms | 8 s | 10 ms | 150 ms |

## Time Current Curve ( For Reference Only)



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## Reliability Test

| No. | Items | Inspection Standards | Standards |
|---|---|---|---|
| 1 | High Temp. Test | Test Condition:<br>Temperature: (105 ± 2) °C<br>Time: 1000 hours<br><br>Test Requirement:<br>After the test, the voltage drop shall not have changed by more than 10% of the value measured before the test.<br>The clearing time of the fuse shall be in range. | MIL-STD-202(Test Method 108)<br>GJB360B(Test Method 108) |
| 2 | High Humidity Test | Test Condition:<br>Temperature: (40 ± 2) °C<br>Humidity: 90% to 95%<br>Time: 96 hours<br><br>Test Requirement:<br>After the test, the voltage drop shall not have changed by more than 10 % of the value measured before the test.<br>The clearing time of the fuse shall be in range. | MIL-STD-202(Test Method 103)<br>GJB360B(Test Method 103) |
| 3 | Thermal Shock Test | Test Condition:<br>Per Cycle:<br>-40 °C / 30 minutes, 85 °C / 30 minutes<br>Time: 10 Cycles<br><br>Test Requirement:<br>After the test, the voltage drop shall not have changed by more than 10 % of the value measured before the test.<br>The clearing time of the fuse shall be in range. | MIL-STD-202(Test Method 107)<br>GJB360B(Test Method 107) |

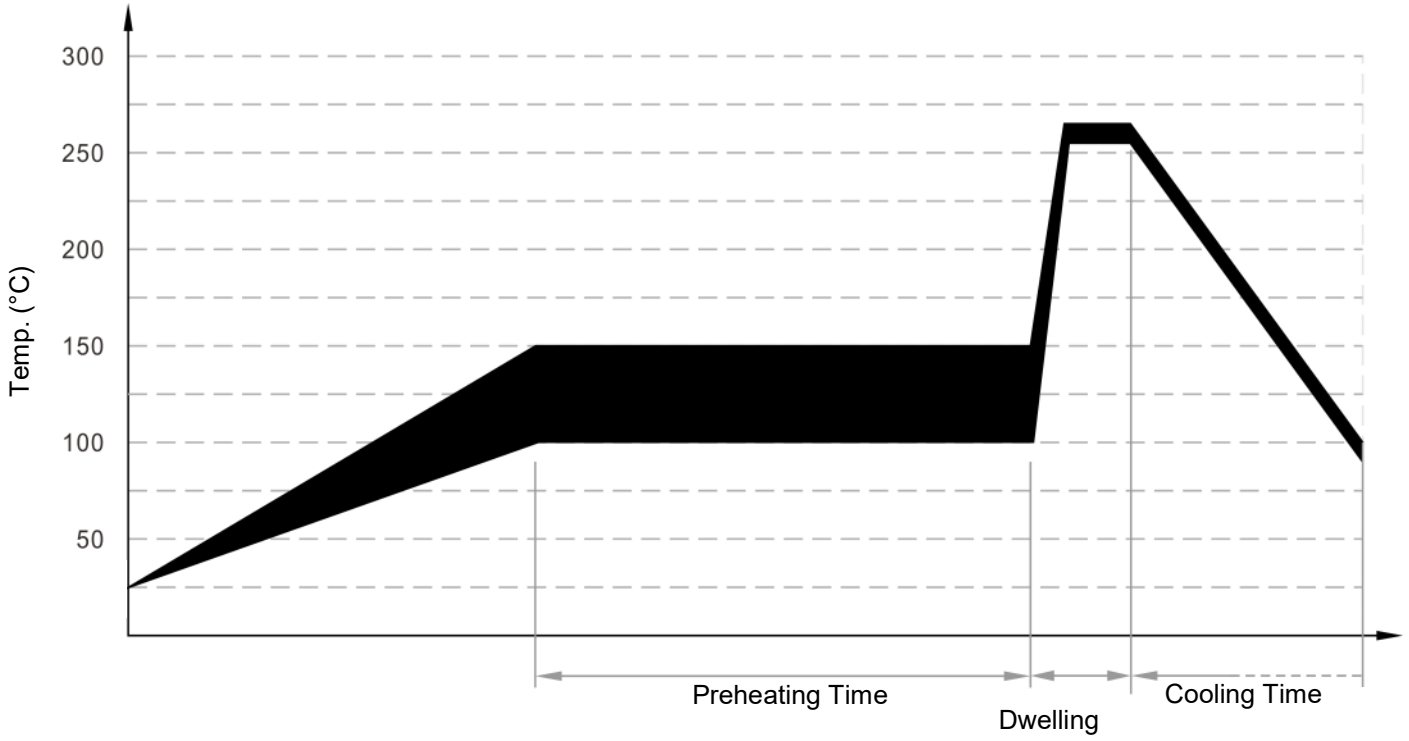

Miniature Fuses

## Installation

**Mechanical stress**

Do not apply mechanical stress to the fuse body during or after the installation.

**Wave soldering Parameters (For Reference Only)**




| Item | Temp. (°C) | Time (s) |
|---|---|---|
| Preheating | 100 to 150 | 60 to 180 |
| Dwelling | 260 ± 5 | 2 to 5 |

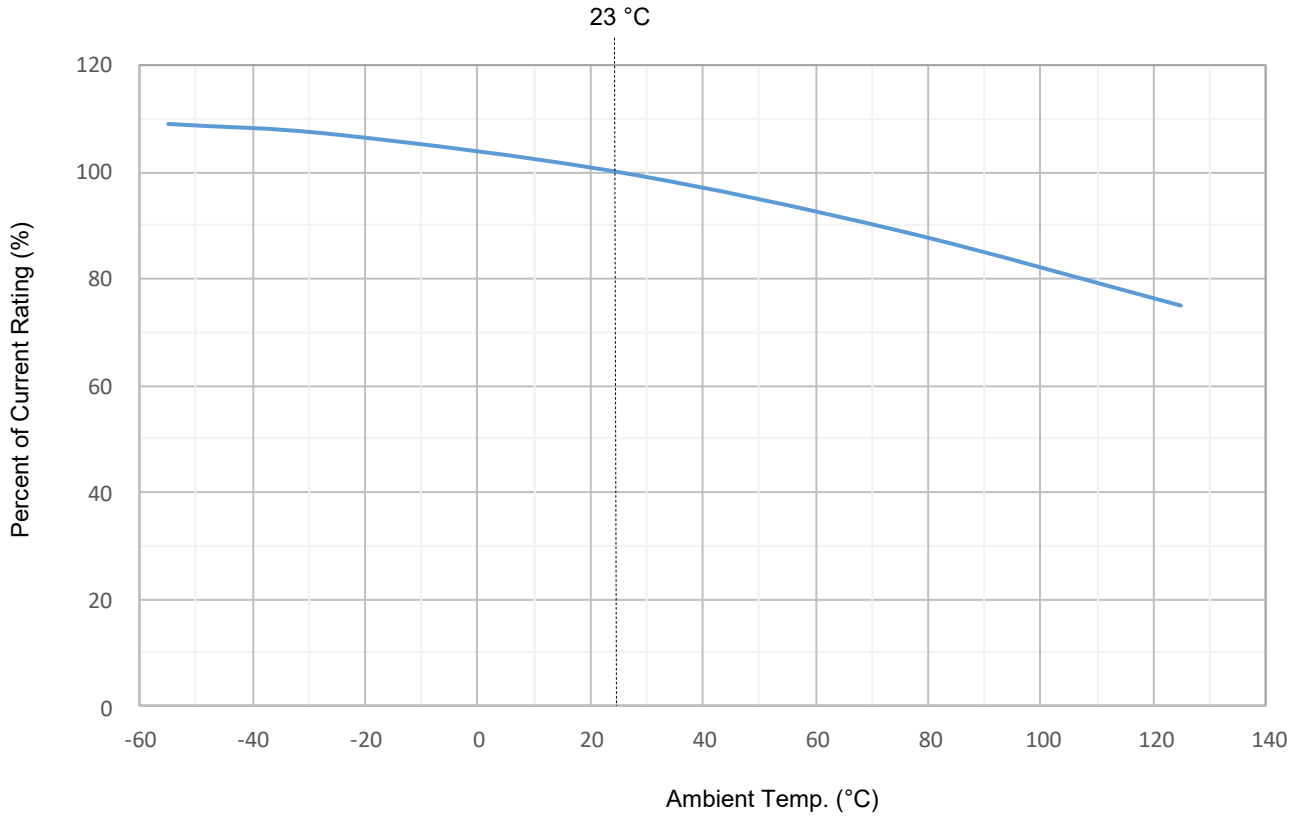
## Recommended Hand-Soldering Parameters

Solder Iron Temp.: (350 ± 5) °C

Heating Time: 5 seconds Max.

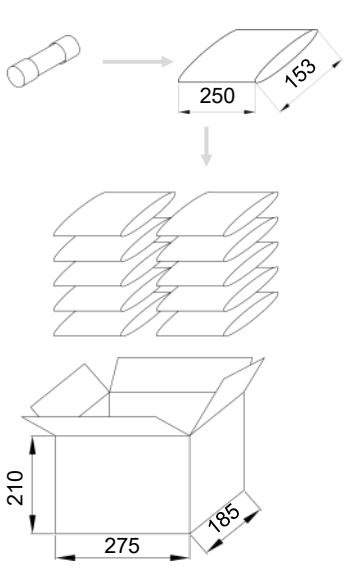

Miniature Fuses

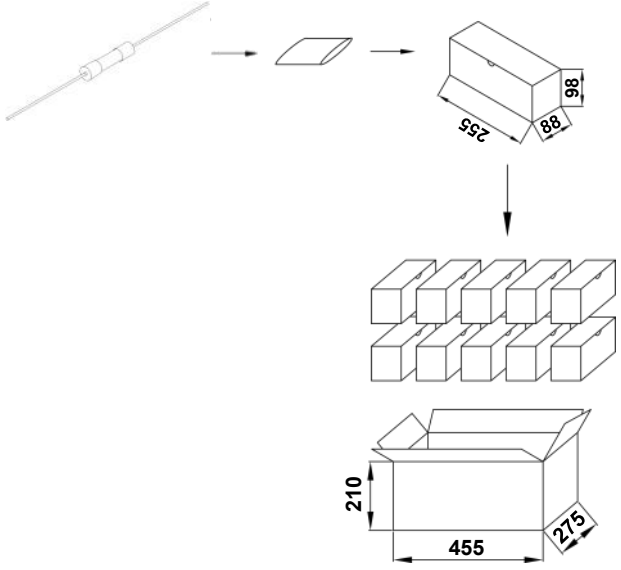
## Temperature Derating Curve




## Packaging Information

All dimensions in mm




| Cartridge Type | | |
|---|---|---|
| **Item** | **PE Bag** | **Carton** |
| **Quantity (PCS)** | 1,000 | 10,000 |
| **Gross Weight (kg)** | | 8.0×(1±10%) |

| Axial Lead Type | | | |
|---|---|---|---|
| **Item** | **PE Bag** | **Box** | **Carton** |
| **Quantity (PCS)** | 400 | 800 | 8,000 |
| **Gross Weight (kg)** | | 9.0×(1±10%) | |

ATTENTION



## Inspection

### Cold Resistance Test

a. Applied current shall be less than 10% of rated current, at ambient Temp. of (23±2) °C.

b. (4-Wire) Resistance Measurement.

Miniature Fuses

## Usage

a. Do not touch the fuse body or lead wire when power on, avoiding scald or electric shock.

b. Air pressure is 80 kPa to 106 kPa. These values represent an altitude of +2000 m to -500 m, respectively.

## Replacement

For safety reasons, the Fuse is the non-resettable product, please ensure that the alternative Fuse is the same type when replace it.

## Storage

Please store the fuse in the environment without high temperature, high humidity or corrosive gas, to avoid reducing the solderability of the lead wire. Please use them up within 1 year after receiving the goods.