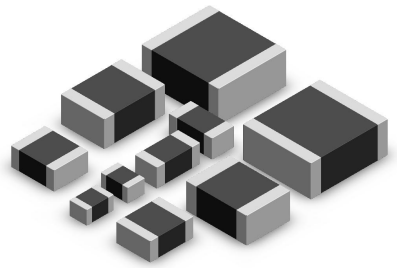
# Socay High Surge Micro Varistor

## SC1812H120G0B

### Features

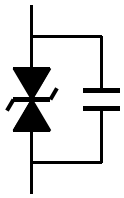
- RoHS Compliant.
- Meet IEC 61000-4-5 standard.
- SMD type zinc oxide based ceramic chip.
- Insulator overcoat keeps excellent low and stable leakage current.
- Quick response time (<0.5ns).
- High transient current capability.
- High reliability.
- Compact size for EIA 1812.



### Applications

- Protection against high working voltage applications Related transient over voltage.

### Equivalent Circuits



### Electrical Characteristics (25±5℃)

| Symbol | Minimum | Typical | Maximum | Units |
|---|---|---|---|---|
| $V_{RMS}$ | — | — | 75 | V |
| $V_{DC}$ | — | — | 100 | V |
| $V_V$ | 108 | — | 132 | V |
| $V_C$ | — | — | 200 | V |
| $C_P$ | — | 540 | — | pF |
| $I_{max}$ | — | — | 500 | A |

**Notes:**

$V_{RMS}$ - Maximum AC operating voltage the varistor can maintain and not exceed 10μA leakage current.

$V_{DC}$ - Maximum DC operating voltage the varistor can maintain and not exceed 10μA leakage current.

$V_V$ - Voltage across the device measure at 1mA DC current.
Equivalent to VB “breakdown voltage”.

$V_C$ - Maximum peak current across the varistor with 8/20μs waveform and 5A pulse current.

Cp - Device capacitance measured with zero volt bias 1Vrms at 1KHZ .

$I_{max}$ - Maximum peak current which may be applied with 8/20μs waveform without device failure.

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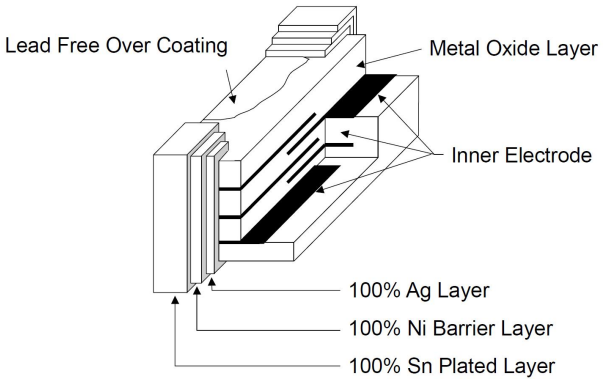
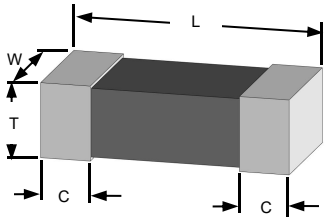
## Construction & Dimensions



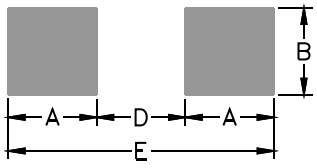

| Size EIA (EIAJ) | 1812 (4532) |
|---|---|
| Symbol | Millimeters |
| L | 4.50±0.40 |
| W | 3.20±0.30 |
| T | 2.5 Max |
| C | 0.60±0.30 |

## Pad Layouts & Precaution for handling of substrate

**Solder cream in reflow soldering**

Refer to the recommendable land pattern as printing mask pattern for solder cream.

(1) Print solder in a thickness of 150 to 200μm




| Size EIA (EIAJ) | 1812 (4532) |
|---|---|
| Symbol | Millimeters |
| A | 1.5 |
| B | 3.6 |
| D | 3.0 |
| E | 6.0 |

**Precaution for handling of substrate**

Do not exceed to bend the board after soldering thes product extremely. (reference examples)

- Mounting place must be as far as possible from the position, which is close to the break line of board or on the line of large holes of board.
- Do not bend extremely the board, in mounting another component. If necessary, use back-up pin (support pin) to prevent from bending extremely.
- Do not break the board by hand. We recommend to use the machine or the jig to break it.

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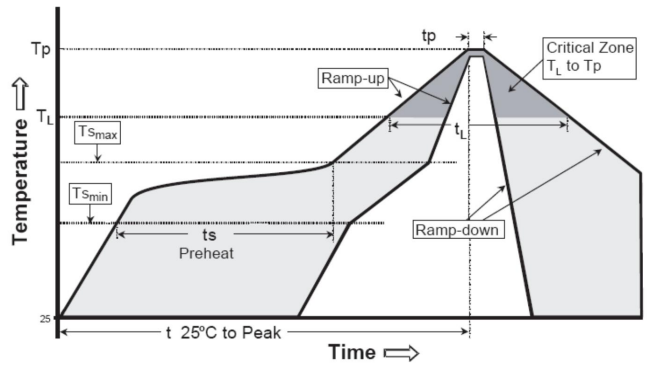
### Soldering Parameters




| | | |
|---|---|---|
| **Reflow Condition** | | Pb-Free assembly |
| **Pre Heat** | **-Temperature Min ($T_{s(min)}$)** | +150°C |
| | **-Temperature Max ($T_{s(max)}$)** | +200°C |
| | **-Time (min to max) ($t_S$)** | 60 -180 Seconds |
| **$T_{S(max)}$ to $T_P$ - Ramp-up Rate** | | 3°C/Second Max |
| **Reflow** | **- Temperature ($T_L$) (Liquidus)** | +217°C |
| | **- Time (min to max) ($t_L$)** | 60 -150 Seconds |
| **Peak Temperature ($T_P$)** | | 260 °C |
| **Time within 5°C of actual peak Temperature ($t_P$)** | | 20-40 Seconds |
| **Ramp-down Rate** | | 6°C/Second Max |
| **Time 25°C to peak Temperature ($T_P$)** | | 8 minutes Max |

### Precaution for Soldering

Note that this product will be easily damaged by rapid heating, rapid cooling or local heating.
Do not give heat shock over 100°C in the process of soldering.
We recommend to take preheating and gradual cooling

**Soldering gun procedure**

Note the follows, in case of using solder gun for replacement.
1) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30W
2) The soldering gun tip shall not touch this product directly.

**Soldering volume**

Note that excess of soldering volume will easily get crack the body of this product.

### General Technical Data

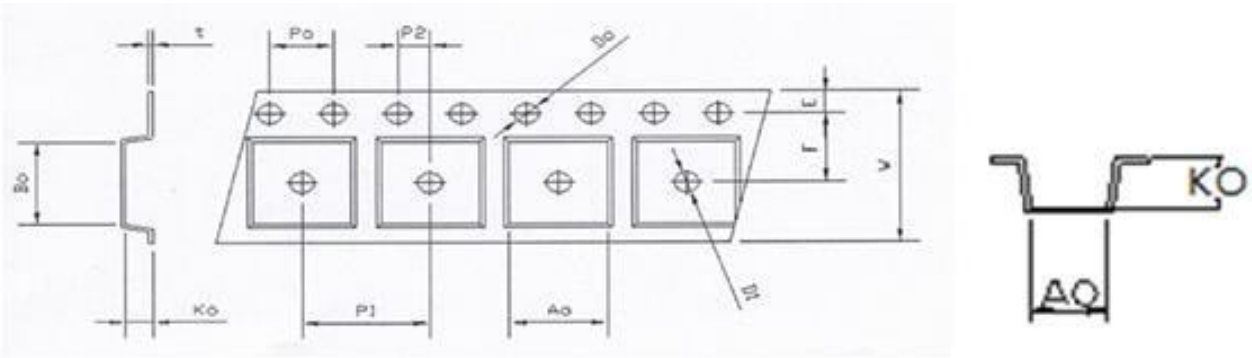
| | | |
|---|---|---|
| **Operating Temperature** | | -40 ~ +125ºC |
| **Storage Temperature** | | -40 ~ +125ºC |
| **Response Time** | | <1 ns |
| **Solderability** | | 245±5ºC,5 +0/-0.5sec |
| **Solder leach resistance** | | 260±5ºC, 10±1sec |
| **Taping Package Storage Condition** | **Storage Temperature** | 5 ~ 40ºC |
| | **Relative Humidity** | To 65% |
| | **Storage Time** | 12 Months max |

# Socay High Surge Micro Varistor

## SC1812H120G0B

## Packaging Information

### Carrier Tape Dimensions

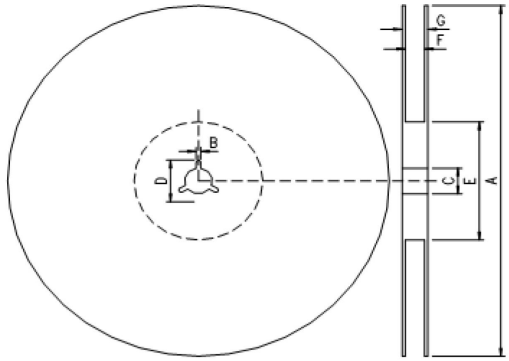



Unit: mm

| Symbol | W | E | F | D0 | D1 | P0 | P1 | P2 | 10Po |
|---|---|---|---|---|---|---|---|---|---|
| 1812 | 12.0±0.15 | 1.75±0.10 | 5.5±0.10 | 1.55±0.10 | 1.55±0.10 | 4.0±0.10 | 8.0±0.10 | 2.0±0.10 | 40.0±0.20 |
| Symbol | Bo | Ao | Ko | t | -- | -- | -- | -- | -- |
| 1812 | 4.9±0.10 | 3.5±0.10 | 2.2±0.10 | 0.25±0.5 | -- | -- | -- | -- | -- |

### Taping Reel Dimensions

Unit: mm




| Symbol | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1812 | 178.0±1.0 | 2.5±0.5 | 13.0±0.5 | 25.0±1.0 | 60.2±0.5 | 13.0±0.5 | 16.0±0.5 |

**Taping Specifications**

There Shall be the portion having no product in both the head and the end of taping, and there shall be the cover tape in the heat of taping.

### Quantity of products in the taping package

| SIZE EIA (EIAJ) | 1812 (4532) |
|---|---|
| Standard Packing Quantity (PCS / reel) | 1,000 |