Model SW Breaker (Surface Mount Thermal Cutoff Device)

Features
- Miniature Thermal Cutoff (TCO) device
- Bourns’ smallest automatically resettable surface mount mini-breaker device
- Overtemperature and overcurrent protection
- Controls abnormal, excessive current virtually instantaneously, up to rated limits
- High corrosion resistance

**RoHS COMPLIANT & HALOGEN FREE**

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**RoHS COMPLIANT**

Additional Information
Click these links for more information:

Agency Recognition

<table>
<thead>
<tr>
<th>Description</th>
<th>UL, cUL</th>
<th>TUV</th>
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How to Order

<table>
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<tr>
<th>Series Designator</th>
<th>Trip Temperature (+5 °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>70</td>
</tr>
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</table>

Arm Material

A = Cu alloy, high current type

Body Material

A = PPS

Body Thickness

B = 0.94 ± 0.05 mm

Ratings

<table>
<thead>
<tr>
<th>Specification</th>
<th>SW70AAB</th>
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</thead>
<tbody>
<tr>
<td>Trip Temperature</td>
<td>70 °C ± 5 °C</td>
</tr>
<tr>
<td>Reset Temperature</td>
<td>49 °C ± 9 °C</td>
</tr>
<tr>
<td>Contact Rating</td>
<td>AC 128 kHz 100 V peak (to -100 V peak) 1 A rms, 6000 cycles (up to 100 °C ambient)</td>
</tr>
<tr>
<td>Maximum Breaking Current</td>
<td>AC 128 kHz 50 V peak (to -50 V peak) 2.5 A rms, 1000 cycles (up to 100 °C ambient)</td>
</tr>
<tr>
<td>Maximum Voltage</td>
<td>AC 128 kHz 100 V peak (to -100 V peak) 1.5 A rms, 1000 cycles (up to 100 °C ambient)</td>
</tr>
<tr>
<td>Hold Current</td>
<td>3 A (60 °C ambient)</td>
</tr>
<tr>
<td>Resistance</td>
<td>5 milliohms max.</td>
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</tbody>
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Product Structure

![Product Structure Diagram]

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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Model SW Breaker (Surface Mount Thermal Cutoff Device)

Product Dimensions

Pin Locations

Symbols and Pins

Mounting Cautions

Application Temperature Range

Environmental Specifications

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Surface Mount Recommendations

The Model SW breaker is designed for reflow and hand soldering. It is not designed or warranted for flow soldering. The following conditions must be adhered to:

Reflow Soldering:
The recommended reflow soldering conditions are as follows:

- 130 ~ 200 °C .......... 90 ~ 110 seconds
- ≤217 °C ...................... 50 ~ 60 seconds
- 235 ~ 240 °C .................. Peak

Process breaker in a reflow furnace using the profile shown above three times, followed by positioning the breaker in ambient temperature of +25 °C for 8 hours.

Do not expose the breaker to temperatures exceeding +240 °C.

Typical Part Marking

DATE CODE:
- MONTH (1-9, X, Y, Z)
- DATE
- YEAR (A = 2021, B = 2022, C = 2023, ...)

MACHINE NO:
- ROMAN NUMERAL (I, II, III, etc.) OR ARABIC NUMERAL (1, 2, 3, etc.) = OKAYAMA FACTORY
- ALPHABET = SHIGA FACTORY

SERIES DESIGNATOR
MANUFACTURER'S INTERNAL CODE
(ALPHANUMERIC CHARACTER)

THICKNESS
(B = 0.94 ± 0.05 mm)

RESIN TYPE
(A = PPS)

ARM MATERIAL
(A = Cu ALLOY HIGH CURRENT TYPE)

TRIP TEMPERATURE – °C
(70)
Model SW Breaker (Surface Mount Thermal Cutoff Device)

Standard Packaging Specifications

- **Reel (13 inch)**: 5,000 pcs. (fixed)
- **Outer Box (690 mm x 344 mm x 136 mm)**: 50,000 pcs. (fixed)

Marking:
A label will be attached on the reel and outer box which includes the following items, at a minimum:
- Part name, part number, quantity, lot number, safety approval mark (UL, etc.),
- company name (Bourns KK) and any other items required by the customer.

REEL

**DIMENSIONS:**

**MM** | **TOLERANCES:** 0.1
---|---
**INCHES** | **(0.004)** | **UNLESS OTHERWISE NOTED**

**NOTES:**
1. The corner and ridge radii (R) of inside cavity are 0.3 mm / (.012 in.) max.
2. Cumulative tolerance of 10 pitches of the sprocket hole is ±0.2 mm / (.008 in.).
3. Measuring of cavity positioning is based on cavity center in accordance with JIS/IEC standard.

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Storage Conditions

1) The breaker must be stored in the standard packaging with the following conditions: ambient temperature of -10 to +40 °C, RH <75 % with no radical temperature change, direct sunshine, excessive vibration or shock.

2) Avoid storage locations where there is a possibility of generating corrosive gas such as from salt breeze, chlorine, hydrogen sulfide, ammonium, sulfide-oxidation, hydrogen chloride, acetate, etc.

3) Storage period should be no longer than 24 months from date of shipment.

Caution when using Breaker

Before using the breaker, please fully read the DESIGN AND HANDLING CAUTIONS stated below to avoid breaker performance deterioration and/or damage to the breaker body or terminal.

DESIGN AND HANDLING CAUTIONS

1. Use within the electrical ratings specified in this data sheet. If used over the rating of voltage or current, ON-OFF life might be impacted and contact may deteriorate due to breaker arm damage.

2. If used over the maximum electrical rating specified in this data sheet, the circuit may not open safely or operate properly. Please test your device for any abnormalities and confirm that the breaker will open the circuit safely in your device. Any use over the maximum electrical rating is at the sole risk of the user.

3. Mount the breaker on your device where heat is the highest in order to transfer it effectively to the breaker.

4. If the breaker is affixed with an adhesive (resin, etc.), before proceeding, fully test, evaluate and verify that the adhesive presents no negative effects on the breaker before proceeding.

5. After the breaker is mounted, affix it so that the breaker body and terminals will not move. If not affixed properly, breaker resistance could increase or contact could open due to stress during handling or vibration/shock during transportation.

6. If breaker is to be resin-molded, test and evaluate the application to determine whether the breaker can be used effectively.

7. The breaker cannot be used as a repetitive ON-OFF thermostat.

8. The breaker is not washable. Do not wash.

9. Do not let a solder iron touch the breaker body.

10. Do not attach solder to the breaker body.

11. When mounting and after mounting the breaker, do not apply supersonic vibration. Vibration and heat may cause breaker resistance to increase or may cause body damage. If you plan to apply supersonic vibration after mounting the breaker, you will need to evaluate whether the breaker is suitable for your specific application. The breaker is not designed or warranted to withstand supersonic vibration.

12. Do not use the breaker in the following environments:

   a) Water, oil, chemical or organic solutions
   b) Direct sunlight, outdoor exposure, dust
   c) Dew condensation, where the breaker could get wet
   d) Salt breeze, chlorine, hydrogen sulfide, ammonium, sulfide-oxidation, hydrogen chloride, acetate and anywhere there is a possibility of generating corrosive gas such as sulfurous acid gas
   e) Strong static electric charge or electromagnetic wave

13. The breaker is not designed or tested for, and should not be used in, aerospace, airplane, nuclear, military, life-saving, life-critical or life-sustaining medical and other related applications where failure or malfunction may result in personal injury, death or severe property or environmental damage.

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Caution when using Breaker (Continued)

HANDLING CAUTIONS

1. Since the breaker body is composed of plastic parts, do not clamp or dent with tools as this could cause a resistance increase or body damage.

2. Breaker terminals are thin copper-alloy with right angle edges. Handle carefully to avoid injury to fingers. Handling while wearing finger cots and using tweezers is recommended.

3. When mounting the breaker on a cell or PCM board, be careful to avoid placing excessive stress on the breaker body and terminals. Excessive stress may cause a resistance increase or body damage. Please refer to the following cautions:
   a) Do not apply more than 5 N (AAB) moment to the breaker body (refer to Figure 1)
   b) Do not apply more than 1.5 cN-m (AAB) twist torque to the breaker body (refer to Figure 2)
   c) Do not apply more than 15 N (AAB) bending force to the breaker body (refer to Figure 3)

Due to possible updates to safety standards and other reasons, there may be changes in specifications for this data sheet without prior notification. Therefore, before design-in for your application, please contact us for the most up-to-date specifications.
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