

# NEW PRODUCT BRIEF



## Bourns® Mini-Breaker Thermal Cutoff Device (TCO) Model SD and AD Series

### INTRODUCTION

With the introduction of its new Model SD and AD Series Thermal Cutoff devices (TCOs), Bourns is pushing the boundaries of overtemperature protection compared to traditional devices that have come before it.

These series deliver several industry **FIRSTS**:

- **First TCO** series that can be either surface-mountable (SD Series) or axial leaded/weldable (AD Series)
- **First TCO** series with trip temperature ranges from 55 °C up to 150 °C (previous models only supported from 72 °C up to 85 °C or 90 °C)
- **First TCO** series offering non-automatically resettable (self-hold function) or automatically resettable (non self-hold) function options
- **First TCO** series tested to AEC-Q200 equivalent test standards

The advanced technology and features in these versatile series significantly broaden their use in a new and wider range of markets and applications.

### APPLICATIONS

The versatility of the new Model SD and AD Series TCOs means the devices can be used in traditional notebook and tablet PC, smartphone and wearable device applications.

In addition, the Bourns® Model SD and AD series provide extended temperature operation support for a broad range of additional designs such as:

- Cosmetic and medical\* diagnostic equipment heaters

### FEATURES

- Resettable overtemperature and overcurrent protection
- Can be used as a resettable overtemperature sensor
- Trip temperature range of 55 °C up to 150 °C
- High trip temperature accuracy of just  $\pm 5$  °C
- Highly repeatable with ratings of up to 10,000 cycles
- Surface mount (SD Series) or axial leaded/weldable (AD Series)
- Option for either non-automatically resettable (self-hold function) or automatically resettable (non self-hold function)
- Very low resistance values of just 4 m $\Omega$  max.
- Tested to AEC-Q200 equivalent test standards
- RoHS compliant\*\*

### BENEFITS

- Meets extended temperature protection requirements
- Highly accurate resettable protection overcomes nuisance tripping circuit issues
- Ease of mounting directly onto the flexible film heater or on a PCB, enabling protection for FET devices
- Welded option for protection in non-SMD locations (e.g., battery packs or wired heaters)
- AEC-Q200 compliant
- Small package size for space-constrained designs

### PRODUCT FIT

Bourns' existing TCO products provide accurate overtemperature protection, but are best suited for lower temperature lithium-ion battery packs. In applications where a trip temperature greater than 90 °C is required, the Bourns® Model SD and AD Series help meet this requirement with a trip temperature range of 55 °C up to 150 °C. This capability is particularly useful in a variety of heater device applications that require either low trip temperatures or high trip temperatures.

Until now, protection in heater devices either did not exist and relied on the control circuitry, or, if a protection device was specified, it typically was a single-blow device or a very large traditional bimetal device.

The Bourns® Model SD Series can be surface mounted either directly onto commonly-used flexible film heaters or onto the PCB of the heater control unit. For wired heater assemblies, designers are able to attach wires directly to the Bourns® Model AD series making this series an optimal solution. An added value for these applications is that both series give designers a resettable overtemperature protection option they didn't have before.

### HOW TO ORDER

Series Designator SD 90 A B B

AD = Axial Leaded/Weldable  
SD = Surface Mount

Trip Temperature ( $\pm 5$  °C) \_\_\_\_\_  
(See Data Sheet Temp. Options Chart)

Function \_\_\_\_\_  
A = Self-hold  
W = No Self-hold

Reset Temperature \_\_\_\_\_  
B = 20 °C or 40 °C min.  
(See Data Sheet Temp. Options Chart)

Special Specification Code \_\_\_\_\_  
Resin Type, Mfg. Internal Code,  
Design Mark, etc.

*\*Bourns® products have not been designed for and are not intended for use in "lifesaving," "life-critical" or "life-sustaining" applications nor any other applications where failure or malfunction of the Bourns® product may result in personal injury or death. See Legal Disclaimer Notice: [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf)*

*\*\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.*



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### PRODUCT OVERVIEW

Product Structure	Circuit Diagram
<p><b>A-type</b></p> <p><b>W-type</b></p>	<p><b>A-type</b></p> <p><b>W-type</b></p>

### PRODUCT DIMENSIONS

SD Series	AD Series
<p>DIMENSIONS: <math>\frac{\text{MM}}{\text{(INCHES)}}</math></p> <p>GENERAL TOLERANCE: <math>\frac{\pm 0.1}{(\pm .004)}</math></p>	<p>DIMENSIONS: <math>\frac{\text{MM}}{\text{(INCHES)}}</math></p> <p>GENERAL TOLERANCE: <math>\frac{\pm 0.1}{(\pm .004)}</math></p>

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