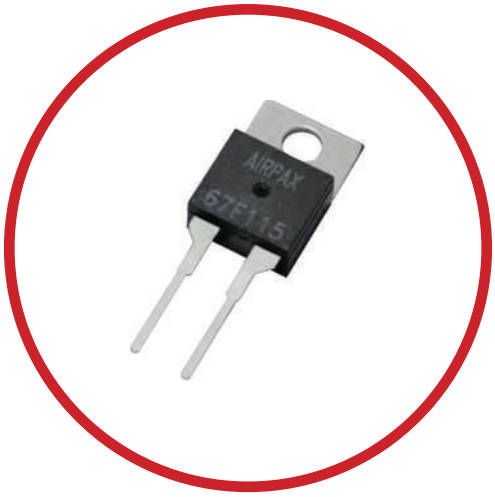
| 6700 SERIES

TO-220, Subminiature Bimetal Disc Thermostat

Introduction

The Airpax® 6700 series is a RoHS compliant, positive snap action, single pole / single throw, sub-miniature bimetallic thermostat which provides accurate and reliable sensing and switching in a single device.

The 6700 series thermostat dimensionally conforms to the international product package standard Y220 / TO220. Thus, the 6700 may be automatically placed and soldered onto PC boards with high speed automated equipment, eliminating the need for the expensive hand placement and termination required today for most power supply thermostats.
The 6700 provides fast, positive response with excellent repeatability. The thermostat has a switch capability of up to 0.5 amp for 48 VDC, and achieves low-level switching down to 0.010A at 5 VDC for 100,000 cycles. Temperature is pre-set at the factory and is non-adjustable in the field.



Applications include computers and computer peripherals, aircraft, automotive and test equipment. Typical uses include turning on an indicator light, sounding an audible alarm, switch on a control circuit to send a message to a display screen or even switching a circuit to shut down a system.

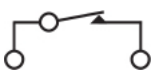
Thermal conductivity is mainly through the terminals and the mounting bracket making the unit ideal for both surface mount and ambient air sensing. The nickel-plated copper mounting bracket comes standard, or you can utilize the laminated plastic mounting bracket for increased dielectric strength and VDE approval.

Primarily developed for thermal management applications on power supplies, the Airpax® 6700 series is also ideally suited for use on crowded PC boards. Typical uses include turning on an indicator light, sounding an audible alarm, switch on a control circuit to send a message to a display screen or even switching a circuit to shut down a system. Applications include computers and computer peripherals, aircraft, automotive, medical devices and test equipment.

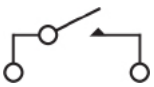
Features

- RoHS compliant per EU directive 2002 / 95 / EC
- TO-220 / Y-220 international electronic package standard
- Ideal for surface and air sensing on PC boards and heat sinks
- VDE approved with “P” bracket option
- Gold-plated contacts
- Up to 20,000 life cycles @ max standard amperage
- Up to 100,000 life cycles @ max gold contact amperage

OPERATION SCHEMATICS



Schematic for Open on Rise Operation



Schematic for Close on Rise Operation

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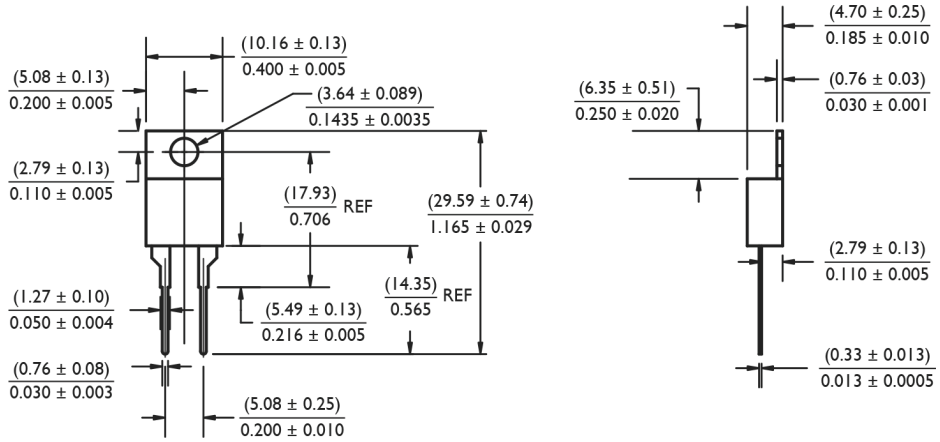
SPECIFICATIONS

Contact Resistance	50 milliohms max (before and after rated life)
Contact Ratings	VDE: 20,000 Cycles, 48 VDC, 0.5A (Resistive); 100,000 Cycles, 5 VDC, 0.01A (Resistive) UL: 30,000 Cycles, 48 VDC, 1A (Resistive); 30,000 Cycles, 120 VAC, 1A (Resistive); 100,000 Cycles, 5 VDC, 0.02A (Resistive); 6,000 Cycles, 24 VAC, 1A (pilot duty)
Contact Operations	Either close on rise (make) or open on rise (break)
Operating Temperature	40°C to 130°C (104°F to 266°F)
Temperature Tolerance	Standard of ±5°C (±9°F) with nominal operating temperature settings in 5°C increments
Short Term / Long Term Exposure Limit	Short = 260°C (500°F), 10 second duration; Long = -55°C to 160°C (-67°F to 320°F)
Dielectric Strength	Nickel-plated copper bracket has 1480 VAC 60Hz, 1 second duration terminals to case. Plastic bracket has 2000 VAC 60Hz, 1 second duration terminals to case.
Insulation Resistance	100 Mohms at 500 VDC
Contact Bounce	3 milliseconds max (make)
Vibration	Per Mil-Std-202, method 204D, test condition D, 10 to 2,000 Hz
Shock	Per Mil-Std-202, method 213, test condition C, 100 G's for 6 millisecond duration, ½ sine wave
Seal	High temperature epoxy sealed for wave soldering and cleaning, moisture proof per Sensata specification S-722 (unit will not leak while submerged in 9" of water for a minimum of two minutes)
Base Material	PPS (Polyphenylene Sulfide), 94 VO rated
Terminal Material	65% Copper, 18% Nickel
Contact Material	Gold-plated or overlay, silver crossbar
Mounting Bracket Material	Nickel-plated copper bracket has 1480 VAC 60Hz, 1 second duration terminals to case. Plastic bracket has 2000 VAC 60Hz, 1 second duration terminals to case.
Chemical Resistance	Unit is resistance to water, salt, alcohol, ammonia, trichlorethane and most other organic solvents
Solderability	Terminal material is selectively striped with lead-free solder for improved solderability
Soldering Heat Resistance	Per Mil-Std-202G, method 210F, test condition C & K, test condition K validated at 260°C for 25 seconds
Weight	Approximately 1.64g (metal mounting bracket) and 1g (plastic mounting bracket)
Agency Approvals	cЯUus recognized E36687 VDE approval 40028976 RoHS Compliant per EU Directive 2002/95/EC

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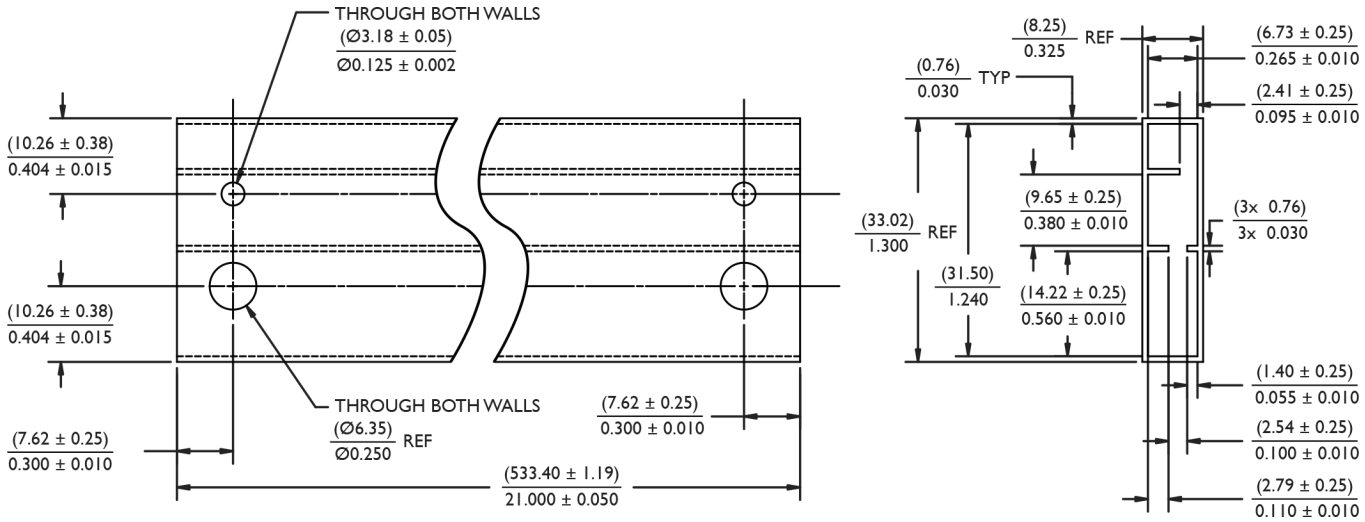
DIMENSIONS

Dimensions in inches [mm]



STANDARD PACKAGING

All samples and production orders will be shipped in plastic, industry standard shipping tubes.



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STANDARD TEMPERATURE CALIBRATION TABLE

Each thermostat part number consists of functional "building blocks" to enable the user to specify the desired characteristics. Select the proper code in each category, then transfer it to the box indicated. Unless a special requirement is indicated, the part number will be complete when the proper temperature is selected. If you have a special requirement, please call Sensata for a factory assigned number to complete the part number.

Example 1:

A 67F090 thermostat will close (make contact) on a rising temperature from 85°C to 95°C and will reset open (break contact) on a falling temperature within a window of no greater than 6°C lower than the actual close temperature and no less than 60°C ambient temperature.

Example 2:

A 67L060P thermostat has a plastic mounting bracket with 2000 VAC dielectric strength and VDE approval.The thermostat will open (break contact) on a rising temperature from 55°C to 65°C and will reset close (make contact) on a falling temperature within a window of no greater than 4°C lower than the actual open temperature and no less than 40°C ambient temperature.

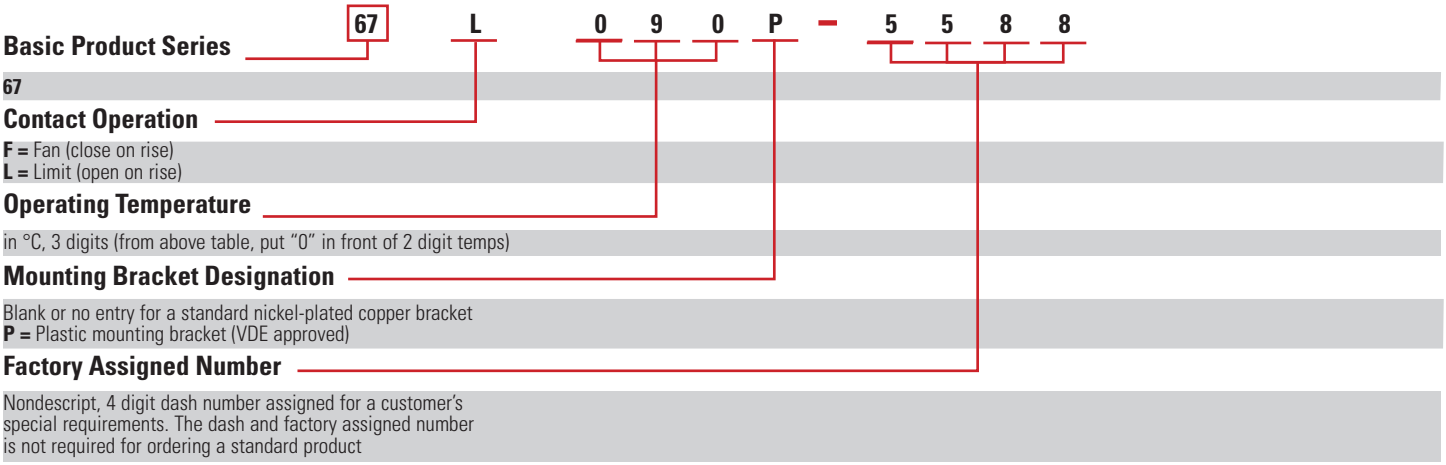
The mounting bracket designation and the 4 digit manufacturing dash number are used for ordering special features and may not appear as part of the marking on the thermostat.

Temperature set point calibration is checked at Sensata Technologies with precision test equipment and proven methods. Because customer checking methods may differ, a typical variance allowed for correlation is ±1°C.

OPERATE (±5°C)	MIN DIFFERENTIAL (°C)	MIN RESET (°C)
40	4	20
45	4	20
50	4	30
55	4	30
60	4	40
65	4	40
70	4	50
75	4	50
80	6	55
85	6	55
90	6	60
95	6	60
100	6	70
105	6	70
110	6	80
115	6	80
120	9	85
125	9	85
130	9	90

ORDERING OPTIONS

Example : 67L090P-5588



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AGENCY APPROVALS & CERTIFICATIONS

cRUus recognized
E36687

VDE approval
40028976

RoHS Compliant
per EU Directive
2002/95/EC

WARNINGS



RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

Failure to follow these instructions can result in serious injury, or equipment damage.



HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

Failure to follow these instructions can result in death or serious injury.

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