

POSISTOR[®] for Heater



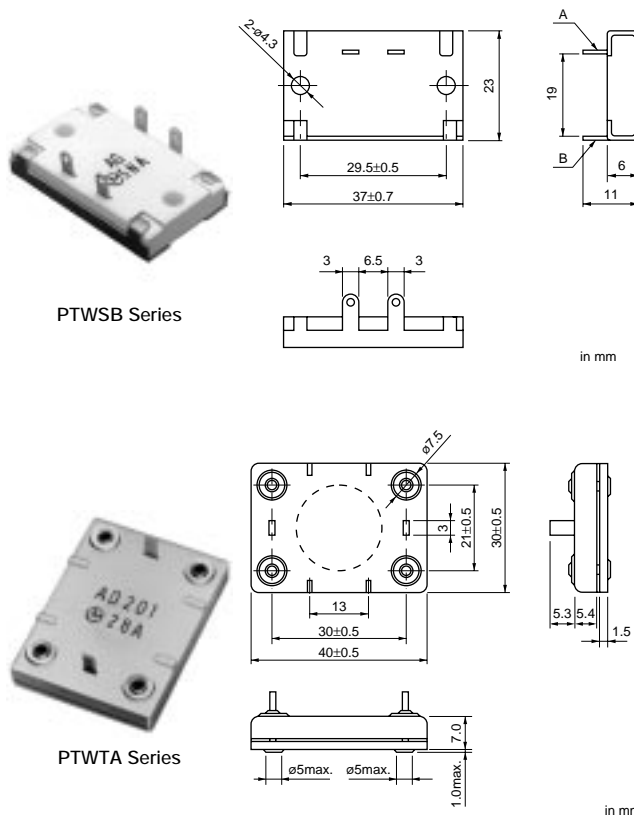
POSISOTR[®] for Constant Temperature Heating

These "POSISTOR" are designed for various applications for constant temperature heating purpose.

Wide range of temperature characteristic shall make easier to select most suited heater device matching to the application.

■ Features

1. The heater element itself regulate designated temperature range.
(Temperature can change depending on how to use it)
2. The temperature pulsation which is observed in case on-off temperature control system can be eliminated.
3. Out put wattage is decreased automatically when heat radiation is decreased.
(Over heating is very small compared to constant wattage heater)
4. Compact and flat surface shall realize easy to install for various set.
(PTWTA series has electrically insulated heating surface)
5. Depending on application, these PTC realize dual voltage use.
(Out put wattage do not change much between 100V through 260V)



■ Applications

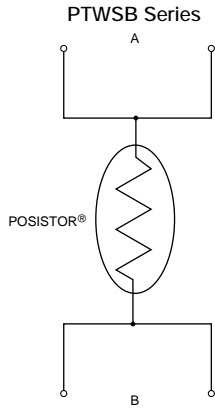
- Heated vessels (electronic jars, tea pots, etc.)
- Contact lens cleaner •Portable travel iron
- Massager •Fragrance
- Electric pot

| Part Number | Curie Point (°C) | Rated Volt. | Max. Volt. (Vrms) | Inrush Current (A) | Steady State Current (at 120Vrms) (mA) | Steady State Current (at 220Vrms) (mA) | Surface Temp. (Nominal Value) (°C) |
|---------------------------|------------------|--------------|-------------------|--------------------|--|--|------------------------------------|
| PTWSB1BC201T260A00 | 90 (BC) | 120/220Vrms. | 260 | 5.0 max. | 28 ±20% | 17 ±20% | 105 |
| PTWSB1AS201T260A00 | 135 (AS) | 120/220Vrms. | 260 | 5.0 max. | 33 ±20% | 21 ±20% | 130 |
| PTWSB2AH201T260A00 | 205 (AH) | 120/220Vrms. | 260 | 5.0 max. | 58 ±20% | 35 ±20% | 185 |
| PTWSB2AG201T260A00 | 225 (AG) | 120/220Vrms. | 260 | 5.0 max. | 65 ±20% | 39 ±20% | 200 |
| PTWTA1AD201T260A00 | 280 (AD) | 120/220Vrms. | 260 | 10.0 max. | - | 75 ±30% | 285 |

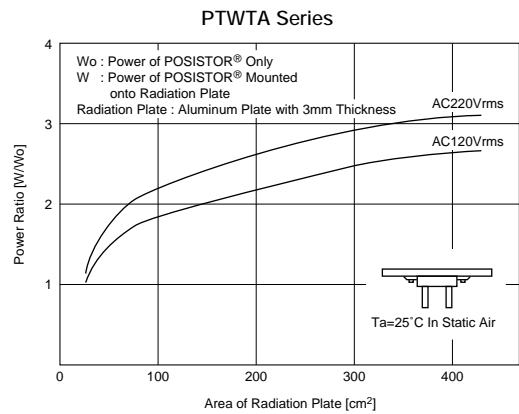
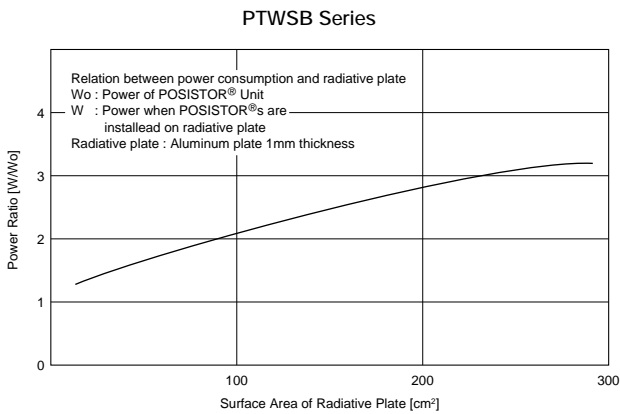
Inrush current based on 220Vrms.

Operating temperature range PTWSB1/PTWTA: 0 to +60(°C), PTWSB2: 0 to +85(°C)

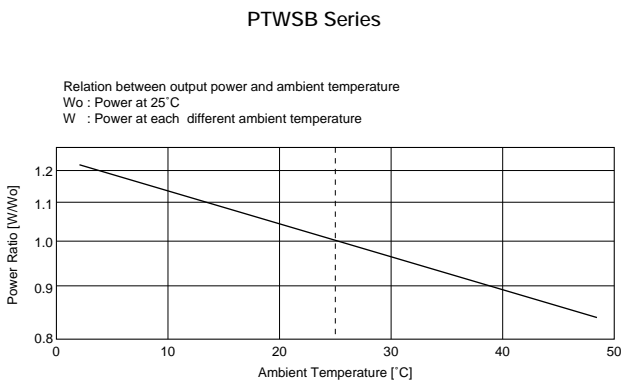
Terminal Connection



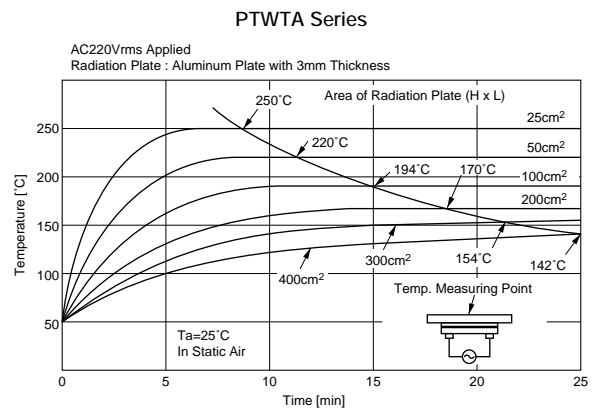
Power Consumption vs Radiative Plate



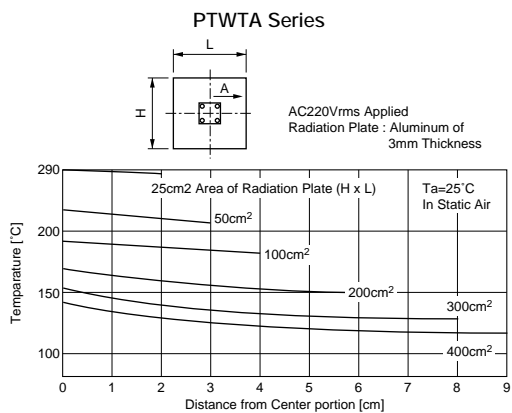
Output Power vs Ambient Temperature



Radiation Plate vs Steady State Temperature

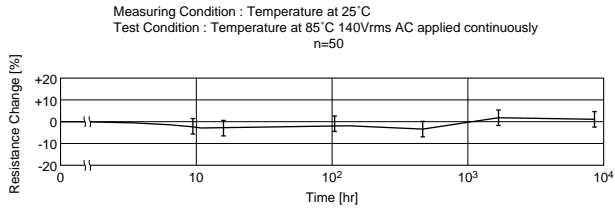


Area of Radiation Plate and Temp. Deviation



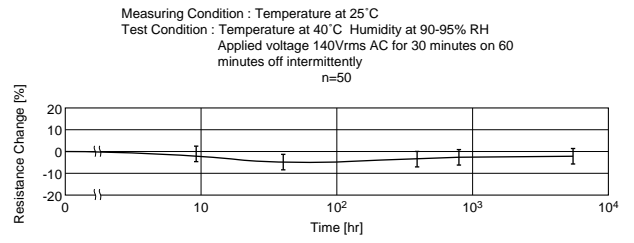
■ Continuous Load at High Temp.

PTWSB Series



■ Intermittent Load at High Humidity

PTWSB Series



Standard Type POSISTOR® ⚠ Caution/Notice

■ ⚠Caution(Soldering and Mounting)

- 1. Please do not fail to install the current fuse in series so that applied equipment is protected when "POSISTOR" get trouble by misuse or some other reason.
- 2. Please confirm safety of your products after installing "POSISTOR" by conducting suitable endurance test for the application.
- 3. Please provide proper insulation for PTWSB series because metallic plate is electrically hot too.

■ ⚠Caution(Storage and Operating Conditions)

This product is designed for the applications under ordinary environment (room temperature, normal humidity and atmospheric pressure).

Do not use under the following environments. Because all these factors can deteriorate the characteristics of product or can cause the failures and the burning-out.

- 1. Corrosive gas or deoxidizing gas.
(Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
- 2. Volatile or flammable gas

- 3. Dusty place
- 4. Under vacuum, reducing pressure or under high-pressure
- 5. Place with splashed water or under high humidity with dewing
- 6. Place with salt water, oils, chemical liquids or organic solvents
- 7. Place strongly vibrated
- 8. Other place, where is similar like the above-mentioned environments

■ ⚠Caution(Others)

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

■ Notice(Storage and Operating Conditions)

PTWSB Series

Store the product under the following condition to prevent from change of characteristic or discoloration of terminal.

- 1. Storage condition
Temperature:between -10 and +40(degree C)
Humidity :less than 75% RH (not dewing condition)
- 2. Term
Please use this product within 6 months after

- shipment by first-in first-out stocking system.
- 3. Handling after unpacking
After unpacking of the minimum package, reseal it promptly or store it inside a sealed container with a drying agent.
- 4. Place
Do not store this product in corrosive gas(SOx, Cl etc.) or under sun-light.

■ Notice(Storage and Operating Conditions)

PTWTA Series

Store the product under the following condition to prevent from change of characteristic or discoloration of terminal.

- 1. Storage condition
Temperature:between 0 and +40(degree C)
Humidity :less than 85% RH (not dewing condition)
- 2. Term
Please use this product within 6 months after

- shipment by first-in first-out stocking system.
- 3. Handling after unpacking
After unpacking of the minimum package, reseal it promptly or store it inside a sealed container with a drying agent.
- 4. Place
Do not store this product in corrosive gas (SOx, Cl etc.) or under sun-light.

Standard Type POSISTOR® Notice

■ Notice(Soldering and Mounting)

PTWSB Series

1. Design assembling position of "POSISTOR" with considering heatproof.
2. Make the heat resistance as small as possible, between the "POSISTOR" and the place it is connected. Do not use an insulating sheet which is poor in heat transmission. Install the "POSISTOR" in the flat surface to maximize the function.
Application of heat resisting grease (e.g.siliconegrease), into interfaces of "POSISTOR" substrate - insulator - material to be heated, will permit effective heat transmission.
3. When more than one "POSISTOR" are used, be sure to

- connect them in parallel. If "POSISTOR" are connected in series, they don't operate normally.
4. When lead wires are connected to "POSISTOR", use rosin type flux which includes less than 0.2wt% of chlorine. Also pay attention to connecting method in order to prevent "POSISTOR" from invasion of flux, and to heatproof of connecting materials (ex:solder etc).
 5. This product generates heat at operation, and direct touch to the surface can hart human finger or skin. Pay attention at the installation to prevent direct touch from outside.

■ Notice(Soldering and Mounting)

PTWTA Series

1. Heat resistance of the mounting part must be considered in designing.
2. Four mounting holes 1.0 to 1.5 mm in depth and 5 to 5.5 mm in diameter are required on the heated part contacting "POSISTOR".
3. Apply power with "POSISTOR" mounted into the part heated. If power is applied to "POSISTOR" alone, the alumina case may be broken.
4. When more than one "POSISTOR" are used, be sure to

- connect them in parallel. If "POSISTOR" are connected in series, they don't operate normally.
5. When lead wires are connected to "POSISTOR", spot welding method should be adopted. Recommendable material of lead wires is Nickel.
 6. This product generates heat at operation, and direct touch to the surface can hart human finger or skin. Pay attention at the installation to prevent direct touch from outside.

■ Notice(Rating)

Do not apply voltage the maximum voltage.

Because their characteristics might be worse and PTC element may be destroyed.

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 If you have any questions about details, inquire at your usual Murata sales office or distributor.

PTC Thermistors (POSISTOR®) for Heater

(Global Part Number)

| | | | | | | |
|----|------|----|-----|---|-----|-----|
| PT | WSB1 | AS | 201 | T | 260 | A00 |
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

① Product ID

| Product ID | |
|------------|-----------------|
| PT | PTC Thermistors |

② Series

| Code | Series |
|-------------|-----------------------------------|
| WSB1 | Heater Standard Type B1 Series |
| WSB2 | Heater Standard Type B2 Series |
| WTA1 | High-temperature Heater A1 Series |

③ Temperature Characteristics

| Code | Temperature Characteristics |
|-----------|-----------------------------|
| AD | Curie Point 280°C |
| AG | Curie Point 225°C |
| AH | Curie Point 205°C |
| AS | Curie Point 135°C |
| BC | Curie Point 90°C |

④ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code | Resistance |
|------------|--------------|
| 201 | 200 Ω |

⑤ Resistance Tolerance

| Code | Resistance Tolerance |
|----------|----------------------|
| Y | Special Tolerance |

⑥ Maximum Voltage

| Code | Maximum Voltage |
|------------|-----------------|
| 260 | 260V |

⑦ Individual Specifications

| Code | Individual Specifications |
|------------|---------------------------|
| A00 | Structure, others |

POSISTOR® and "POSISTOR" in this catalog are the trademarks of Murata Manufacturing Co., Ltd.

⚠ Note:

1. Export Control

⟨For customers outside Japan⟩

Murata products should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.

⟨For customers in Japan⟩

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2. Please contact our sales representatives or product engineers before using our products listed in this catalog for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property, or when intending to use one of our products for other applications than specified in this catalog.

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed in the above

3. Product specifications in this catalog are as of July 2001. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before your ordering. If there are any questions, please contact our sales representatives or product engineers.

4. Please read CAUTION and Notice in this catalog for safety. This catalog has only typical specifications. Therefore you are requested to approve our product specification or to transact the approval sheet for product specification, before your ordering.

5. Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or third party's intellectual property rights and other related rights in consideration of your using our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

6. None of ozone depleting substances (ODS) under the Montreal Protocol is used in manufacturing process of us.