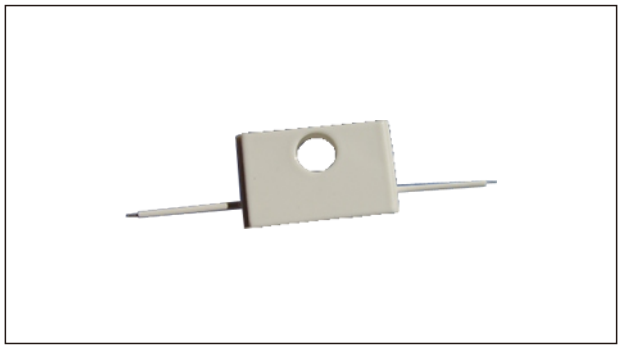
# HTA Heater Ceramic



## Features

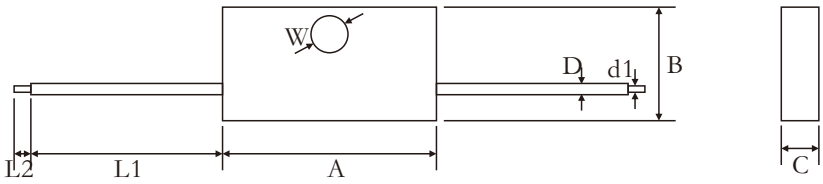
Ⅰ Compact type with safely design of non-flammabilily and insulation

Ⅱ High stability

Ⅲ Taking advantage of the heat when resistor works, then pass the continuous and stable heat to same specific object, the temperature can be set from 40℃ to 180℃, in this way the ambient temperature can be adjusted, currently it has been widely used in fragrance lamp, killer and , soluble wax machine, coffee warmer and some other fields.

Ⅳ Special products are available according to customers request, including dimension and heating temperature.

## Dimensions




| Type | Power (W) | Dimensions(mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A±0.5 | B±0.5 | C±0.3 | L1±1 | L2±1 | W±0.5 | D±0.2 | d1±0.2 |
| HTA | 10W | 40 | 24 | 10 | 30 | 6 | 10 | 9 | 0.75 |

## Ordering Information

Example:

| HTA | 10 | J | 9K5 | 110V | 105 |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| Series Name | Power Rating | Resistance Tolerance | Resistance | Voltage | Temperature |

(1)Type: HTA SERIES

(2)Power Rating: 10=10W

(3)Tolerance: F=±1%、G=±2%、H=±3%、J=±5%

(4)Resistance Value:9K5=9.5KΩ

(5)Voltage:110=110V , 220=220V

(6)Temperature:105=105℃(±10℃),130=130℃(±10℃)

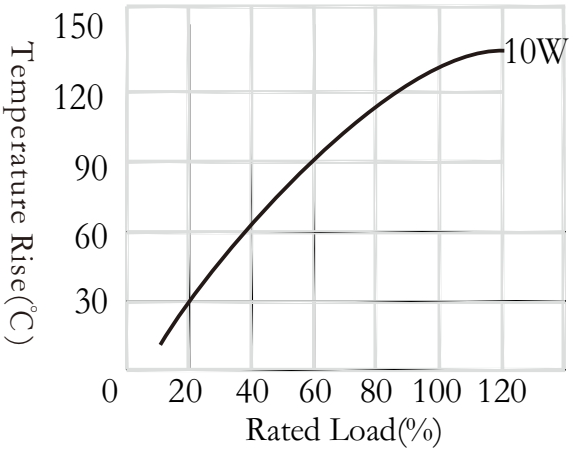
## Reference Standards

JISC 5201-1

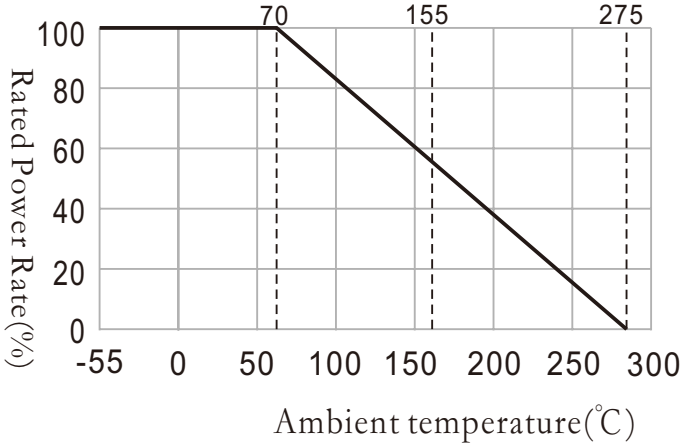
## Applications And Ratings

| Type | Power Rating (W) | Resistance Range (Ω) | Max Working Voltage | Max Overload Voltage | Dielectric Withstanding Voltage | Surface Temperature |
|---|---|---|---|---|---|---|
| HTA | 10W | 100~100K | $\sqrt{P.R}$ | $2.5\sqrt{P.R}$ | 1000V | 65℃~180℃ |

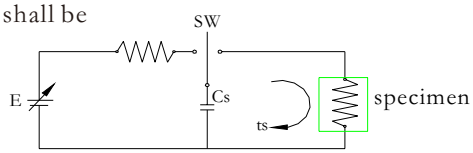
## Surface Temperature Rise




## Derating Curve




## Electronics Performance

| NO. | Item | Test Method | Performance |
|---|---|---|---|
| I | Resistance | Resistance Value measured at the test voltage specified. | Resistance Value must be Within the specified tolerance |
| II | Withstand Voltage | Resistor shall be covered with a conductive material which conforms to resistor surface so that 90% of the outer periphery is contacted a potential of AC1000V shall be applied for 1 minute. | No abnormality such as arc. and breakdown change of resistance with ±(2%R+0.05Ω) |
| III | Insulation withstanding voltage (Dielectric Strength) | Lightly clamp the center of the resistor body to prevent move ment during test, in the trough of a 90ºV-block of such size the resistors ends do not estend beyond the ends of the block and at least 50% of the resistor body is within the v-trough,connect the resistor leads together and position them vertically apply a 500 V 60Hz test voltage between the leads and the V-block as follows increase the voltage at 100(T-t)R/Sec from zero to the specified voltage, maintain this voltage for 60±1seconds. | Insulation resistance1000M<br>The insulation shall with-stand the voltage application with no evidence of mechanical damage, arcing of breakdown. |
| IV | Short Time Overload | Resistors shall be subjected to a voltage 5 times(Metal oxide film)or 10 times (Wire wound)rated wattage. But not to exceed 6000 volts DC or pead AC for 5 seconds | Resistor shall not arc,burn or char.<br>Permanent not exceed ±(2%R+0.05Ω) |
| V | Surge test | Wire wound type only applied this specification requested by Toshiba. As in the figure the resistor is subjected to 35000 discharges. From a capacitor that has been charge 25s.At nominal temperature, Impedance of discharge circuit expect the specimen is 0.1(Applied maximum load shall be satisfied with N≤k/t R.C. and E, shall be<br>  <br><br>N: Magnification of resistor power rating N<350V<br>k:constant4.0<br>t: Discharge time constant<0.2s | |
| VI | TCR | Temp coefficient is measured between those points of (25±3℃)→(125±3℃)<br>TCR= $\frac{R_2-R_1}{R_{1x}(T_2-T_1)}$ x10⁶ | ≥10 Ohm within±300ppm/℃<br><10 Ohm within±600ppm/℃ |
| VII | Intermittent overload | Apply 4 times of voltage 1s,On and 24s.Off for 10000cycles. | Change of resistance within±(1%R+0.05Ω) |
| VIII | Rated load | The resistors arrayed are put in normal room temp .then applying the rated wattage on it for 30 minutes ,the Max temp.shall be limited under 275,then remove power and take the resistors back to normal temp. for 2 hours. | The resistance change between pre-and-post test shall be within ±(2%R+0.05Ω) |
| IX | Over load | 10 times rated power for 5 min. | Without resulting a fire or burning. |

## Mechanical Performance

| NO. | Item | Test Method | Performance |
|---|---|---|---|
| I | Tensile strength | Measure the DC resistance ,suspend the resistor vertically by one end of the body and apply 3kgs axial pullon two lead, maintain for 4 to 6 seconds and then test each lead. | There shall be no fracture or damage of the leads or cracking from the body and the resistance shall not have changed more than ±(1%R+0.05Ω) |
| II | Drop test | Set a resistor on the board (155x115x1.6mm)and drop off from 50cm to the concrete floor. | Inclination of ±5degrees. |
| III | Robustness of fal | Set a resistor on the board and weight 0.5N for 60s. | Inclination of ±5 degrees. |
| IV | Robustness of body | Hold both side in 3mm to hold the resistor put 10Kg weight on the center of resistor with 10mm stick | No abnormality |
| V | Vibration | Set a resistor at the vibration table and vibrate10Hz--55 Hz 10Hz/s.with 1.5mm amplitude in 1min.when the change of frequency shall be completed uniformly. The vibration shall apply to 3 directions, vertical and horizontal to the axis of resistor each for 2h. | No mechanical damage change of resistance within ±(1%R+0.05Ω) |
| VI | Resistance to soldering heat | Measure the DC resistance. Immerse each lead, separately into a 260℃ ±5℃ soldering and catch 4±0.8mm length from the body of resistor at the outside hold steady 10±1 seconds | The resistance change rate is ±(1%R+0.05Ω).with no evidence of mechanical damage. |
| VII | Solderability | Temperature:260±5 Immersion time: 10±1s | Over 95% of soldered part shall be covered with new solder. |
| VIII | Incombusti-bility test | 16 times of rated wattage for 1.5 min. | The resistor will not be flamed. |

## Environmental Performance

| NO. | Item | Test Method | Performance |
|---|---|---|---|
| I | Humidity test | Resistors shall be subjected to a relative humidity of 90-95% at a temperature of 40℃ and voltage give 1/10 of the rated wattage using a duty cycle of 1.5 hours ON and 0.5 hours OFF, Additional details are as below: Resistance changes humidity exposure of 500±12 hours followed by 30 minutes at standard test conditions . | The resistance change rate is ±(5%R+0.05Ω) with no evidence of mechanical damage. |
| II | Rated load life | Resistors shall be rated load at the 70℃ ambient temperature at which full load applies , using duty cycle of 1.5 hours ON and 0.5hours OFF for a period of 1000cycles. | the resistance change Metal Oxide Film shall not exceed ⩽±5%, Wire Wound shall not exceed ⩽±10%, |
| III | Temperature cycling | Cycle as below: put the resistors in a -25℃ ±3℃ ambient temp,30 minutes allow recovering to room temp, 10-15minutes later, rising the temp. to 85℃ ±2℃ last for 30 minutes ,recover to room temp. 10-15 minutes. | the resistance change rate is ±(2%R+0.05Ω) and no evidence of mechanical damage. |

Operating temp range :-55℃ to +125℃
Storage temp range :-40℃ to+85℃