

# Single Value Wirebondable Thin Film Chip Resistors



Actual Size

## FEATURES

- Small size 20 mil square
- Resistance range 10 Ω to 1 MΩ
- Resistor material: self-passivating tantalum nitride
- Silicon substrate for good power dissipation
- Wirebondable
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



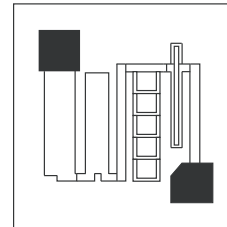
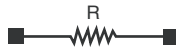
**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

## LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

Thin film resistors are often an excellent solution for analog design problems where space is limited and high packing density is required. Due to their Tantalum Nitride resistive layer these resistors are stable 0.07 % (2000 h, rated power at +70 °C) and moisture resistant.

## SCHEMATIC AND PATTERN



## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL | SIZE | RESISTANCE RANGE<br>Ω | RATED POWER<br>$P_{70\text{ °C}}$<br>W | LIMITING ELEMENT<br>VOLTAGE<br>V | TOLERANCE<br>± % | TEMPERATURE<br>COEFFICIENT<br>± ppm/°C |
|-------|------|-----------------------|--|----------------------------------|------------------|--|
| TA22  | 0202 | 10 to 1M              | 0.05                                   | 100                              | 0.5, 1.0, 2.0    | 50 <sup>(1)</sup> , 100                |

### Note

<sup>(1)</sup> On request

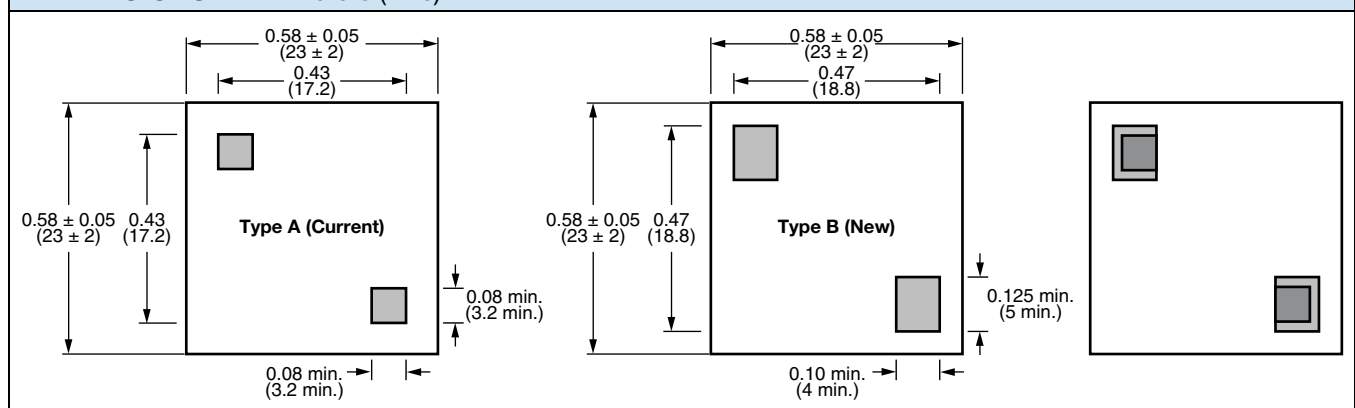
## CLIMATIC SPECIFICATIONS

|                             |                   |
|-----------------------------|-------------------|
| Operating temperature range | -55 °C to +155 °C |
| Storage temperature range   | -55 °C to +155 °C |

## MECHANICAL SPECIFICATIONS

|                    |                                      |
|--------------------|--------------------------------------|
| Resistive element  | Tantalum nitride                     |
| Passivation        | Tantalum pentoxide (autopassivation) |
| Substrate material | Standard silicon                     |
| Bonding pads       | Aluminum                             |

## DIMENSIONS in millimeters (mils)



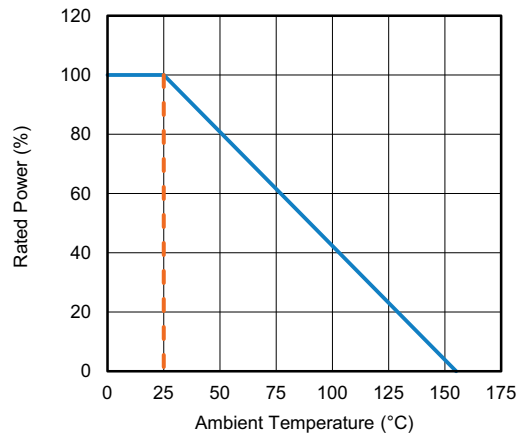
### Note

- Customer can get one or the other part, but positions of pads are similar

**DIMENSIONS** in millimeters (mils)

**TECHNICAL SPECIFICATIONS**

| TEST                 | SPECIFICATIONS                                     | CONDITIONS                         |
|----------------------|--|------------------------------------|
| <b>MATERIAL</b>      | <b>TANTALUM NITRIDE</b>                            |                                    |
| Power dissipation    | 100 mW at 25 °C, 50 mW at +70 °C, 25 mW at +125 °C |                                    |
| Stability            | ± 0.07 % typical, ± 0.1 maximum                    | 2000 h at +70 °C at P <sub>n</sub> |
| Voltage coefficient  | < 0.1 ppm/V  |                                    |
| Noise                | < -35 dB typical                                   | MIL-STD-202 method 308             |
| Thermal EMF          | < 0.01 μV/°C                                       |                                    |
| Shelf life stability | 100 ppm  | 1 year at +25 °C                   |

**DERATING**

**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: TA22-100KD0016 (preferred part number format)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T | A | 2 | 2 | - | 1 | 0 | 0 | K | D | 0 | 0 | 1 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

GLOBAL MODEL

VALUE

 Decimal  
R, K, or M

TOLERANCE

**D** = ± 0.5 %  
**F** = ± 1.0 %  
**G** = ± 2.0 %

OPTION

 Leave blank  
if no option

Historical Part Number Example: TA22 10K 0.5 % R0016 (will continue to be accepted)

TA22

HISTORICAL MODEL

10K

VALUE

0.5 %

TOLERANCE

R0016

OPTION



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