

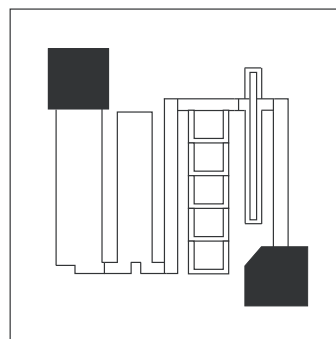
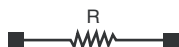
# Single Value Wirebondable Thin Film Chip Resistors



■ Actual Size

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



## FEATURES

- Small size 20 mil square
- Resistance range 10  $\Omega$  to 1 M $\Omega$
- 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  
**GREEN**  
(5-2008)

## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL | SIZE | RESISTANCE RANGE $\Omega$ | RATED POWER $P_{70^\circ\text{C}}$ W | LIMITING ELEMENT VOLTAGE V | TOLERANCE $\pm$ % | TEMPERATURE COEFFICIENT $\pm$ ppm/ $^\circ\text{C}$ |
|-------|------|---------------------------|--------------------------------------|----------------------------|-------------------|-----------------------------------------------------|
| 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

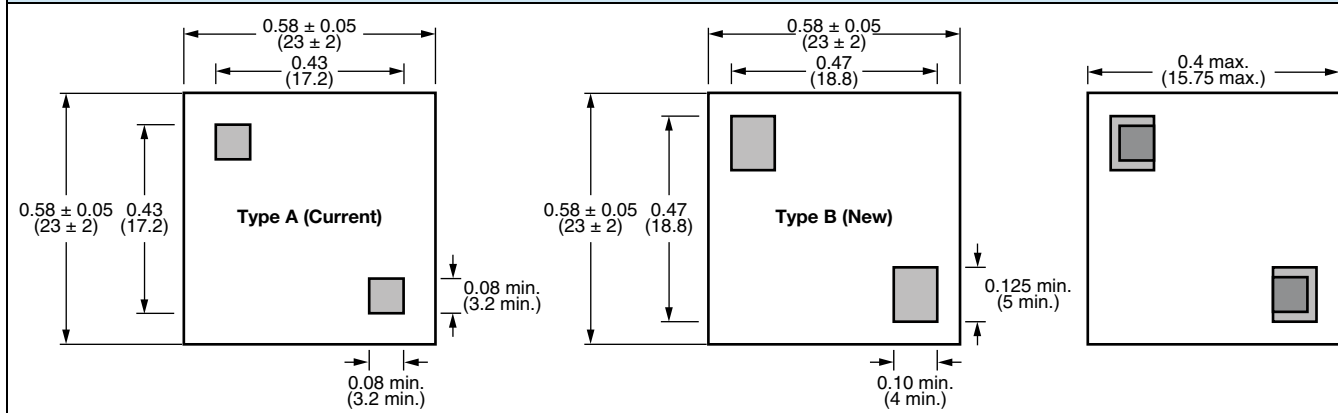
|                             |                                                 |
|-----------------------------|-------------------------------------------------|
| Operating temperature range | - 55 $^\circ\text{C}$ to + 155 $^\circ\text{C}$ |
| Storage temperature range   | - 55 $^\circ\text{C}$ to + 155 $^\circ\text{C}$ |

## MECHANICAL SPECIFICATIONS

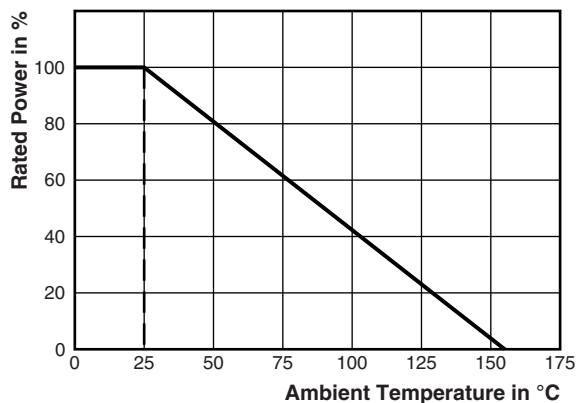
|                    |                                      |
|--------------------|--------------------------------------|
| Resistive element  | Tantalum Nitride                     |
| Passivation        | Tantalum Pentoxide (Autopassivation) |
| Substrate material | Standard Silicon                     |
| Bonding pads       | Aluminum                             |

## TECHNICAL SPECIFICATIONS

| TEST                 | SPECIFICATIONS                                                                                   | CONDITIONS                            |
|----------------------|--------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>MATERIAL</b>      | <b>TANTALUM NITRIDE</b>                                                                          |                                       |
| Power dissipation    | 100 mW at 25 $^\circ\text{C}$ , 50 mW at + 70 $^\circ\text{C}$ , 25 mW at + 125 $^\circ\text{C}$ |                                       |
| Stability            | $\pm$ 0.07 % typical, $\pm$ 0.1 maximum                                                          | 2000 h at + 70 $^\circ\text{C}$ at Pn |
| Voltage coefficient  | < 0.1 ppm/V                                                                                      |                                       |
| Noise                | < - 35 dB typical                                                                                | MIL-STD-202 method 308                |
| Thermal EMF          | < 0.01 $\mu\text{V}/^\circ\text{C}$                                                              |                                       |
| Shelf life stability | 100 ppm                                                                                          | 1 year at + 25 $^\circ\text{C}$       |

**DIMENSIONS** in millimeters (inches)

**Note**

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

**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                |   |   |   | TOLERANCE                                 |   |   |   | OPTION                      |   |
|              |   |   |   | Decimal<br>R, K or M |   |   |   | D = ± 0.5 %<br>F = ± 1.0 %<br>G = ± 2.0 % |   |   |   | Leave blank<br>if no option |   |

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

|                  |       |           |        |
|------------------|-------|-----------|--------|
| TA22             | 10K   | 0.5 %     | R0016  |
| HISTORICAL MODEL | VALUE | TOLERANCE | OPTION |



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