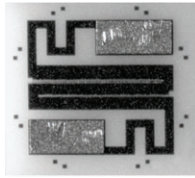


## Thin Film 0202 Size Resistor on Alumina



Product may not be to scale

The SFC series resistor chips offer a combination of low shunt capacitance and small size. The SFCs tantalum nitride resistor material offers excellent resistance to high moisture environments.

The SFCs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology.

The SFCs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

### FEATURES

- Wire bondable
- Small size: 0.020 inches square
- Case: 0202
- Resistance range: 10  $\Omega$  to 10 k $\Omega$
- Alumina substrate
- Low shunt capacitance: < 0.2 pF
- Resistor material: tantalum nitride
- Moisture resistant
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



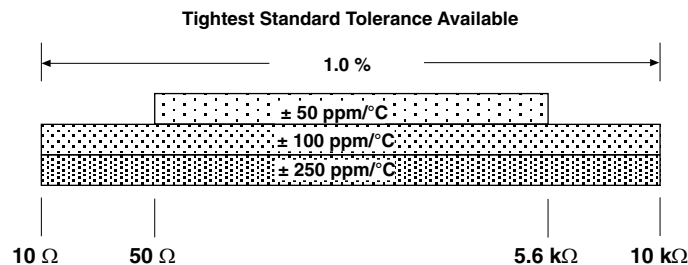
### APPLICATIONS

Vishay EFI SFC chip resistors provide excellent high-frequency response and are ideally suited for prototyping.

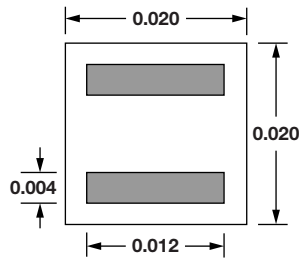
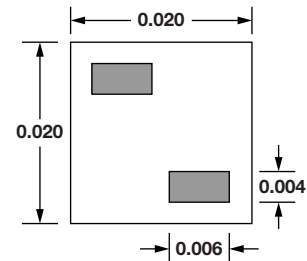
Typical application areas are:

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters

| TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES |                            |                   |
|---|----------------------------|-------------------|
| PARAMETER   | VALUE                      | UNIT              |
| Total Resistance Range  | 10 to 10K                  | $\Omega$          |
| Standard Tolerances   | $\pm 1$                    | %                 |
| TCR   | $\pm 50, \pm 100, \pm 250$ | ppm/ $^{\circ}$ C |



| STANDARD ELECTRICAL SPECIFICATIONS   |                              |              |
|--|------------------------------|--------------|
| PARAMETER  | VALUE                        | UNIT         |
| Noise, MIL-STD-202, Method 308   | -20 typ.                     | dB           |
| Moisture Resistance, MIL-STD-202, Method 106                               | $\pm 0.5$ max. $\Delta R/R$  | %            |
| Stability, 1000 h, +125 $^{\circ}$ C, 25 mW                                | $\pm 0.5$ max. $\Delta R/R$  | %            |
| Operating Temperature Range  | -55 to +125                  | $^{\circ}$ C |
| Thermal Shock, MIL-STD-202, Method 107, Test Condition F                   | $\pm 0.25$ max. $\Delta R/R$ | %            |
| High Temperature Exposure, +150 $^{\circ}$ C, 100 h                        | $\pm 0.5$ max. $\Delta R/R$  | %            |
| Dielectric Voltage Breakdown   | 400                          | V            |
| Insulation Resistance  | $10^{12}$ min.               | $\Omega$     |
| Operating Voltage  | 100 max.                     | V            |
| DC Power Rating at +70 $^{\circ}$ C (Derated to zero at +150 $^{\circ}$ C) | 0.062 max.                   | W            |
| 5 x Rated Power Short-Time Overload, +25 $^{\circ}$ C, 5 s                 | $\pm 0.25$ max. $\Delta R/R$ | %            |

**DIMENSIONS** in inches

**TYPICAL RANGE**  
 10 Ω TO 49 Ω

**TYPICAL RANGE**  
 50 Ω TO 10 kΩ

**SCHEMATIC**


| MECHANICAL SPECIFICATIONS |   |
|---------------------------|---|
| PARAMETER                 | VALUE   |
| Chip Size                 | 0.020" x 0.020" ± 0.003" (0.5 mm x 0.5 mm ± 0.768 mm) |
| Chip Thickness            | 0.010" ± 0.002" (0.25 mm ± 0.05 mm)                   |
| Chip Substrate Material   | 99.6 % alumina, 2 μ" to 4 μ" finish                   |
| Resistor Material         | Tantalum nitride, self-passivating                    |
| Bonding Pad Size          | 0.004" x 0.006" (0.10 mm x 0.15 mm) minimum           |
| Number of Pads            | 2   |
| Pad Material              | 25 kÅ minimum gold standard (Al optional)             |
| Backing                   | None (Au optional)                                    |

| GLOBAL PART NUMBER INFORMATION  |  |  |   |   |   |                                |                                  |  |   |          |          |          |          |          |          |
|---|--|--|---|---|---|--------------------------------|----------------------------------|--|---|----------|----------|----------|----------|----------|----------|
| Global Part Number: <b>SFC12500KKSGNHWS</b>                                       |  |  |   |   |   |                                |                                  |  |   |          |          |          |          |          |          |
| Global Part Number Description: <b>SFC 1.25K 10 % 100 ppm/°C Std Au none H WS</b> |  |  |   |   |   |                                |                                  |  |   |          |          |          |          |          |          |
| <b>S</b>  | <b>F</b>   | <b>C</b>   | <b>1</b>  | <b>2</b>  | <b>5</b>  | <b>0</b>                       | <b>0</b>                         | <b>K</b>                                 | <b>K</b>  | <b>S</b> | <b>G</b> | <b>N</b> | <b>H</b> | <b>W</b> | <b>S</b> |
| MODEL   | RESISTANCE   | RESISTANCE MULTIPLIER CODE   | TOL. CODE (%)   | TCR (ppm/°C)  | TRIM STYLE  | TERMINATION                    | BACK METAL                       | VISUAL CLASS                             | PACKAGING CODE                                  |          |          |          |          |          |          |
| <b>SFC</b><br>20 x 20 size<br>Ta2N on alumina                                     | First 4 digits are significant figures of resistance | <b>B</b> = 0.01<br><b>A</b> = 0.1<br><b>0</b> = 1<br><b>1</b> = 10 | <b>F</b> = 1.0<br><b>G</b> = 2.0<br><b>J</b> = 5.0<br><b>K</b> = 10.0 | <b>C</b> = ± 50<br><b>K</b> = ± 100<br><b>M</b> = ± 250 | <b>E</b> = edge<br><b>S</b> = std<br><b>U</b> = usr | <b>G</b> = Au<br><b>A</b> = Al | <b>G</b> = Au<br><b>N</b> = none | <b>H</b> = class H<br><b>K</b> = class K | <b>WS</b> = waffle pack<br>100 min.,<br>1 mult. |          |          |          |          |          |          |



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