KOA SPEER ELECTRONICS, INC.

# WF

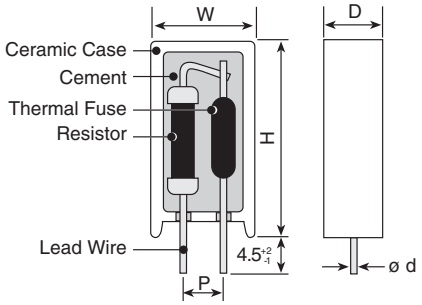
## thermal fuse built-in resistors

EU RoHS COMPLIANT

## features

- Marking: Ceramic body with alpha/numeric marking
- Products with lead-free terminations meet EU RoHS requirements. Pb located in glass material, electrode and resistor element is exempt per Annex 1, exemption 5 of EU directive 2005/95/EC

## dimensions and construction




| Type | Dimensions inches (mm) W | D | H | P | d (R. Lead) | d (Fuse Lead) |
|---|---|---|---|---|---|---|
| WF5N | .512±.039 (13.0±1.0) | .354±.039 (9.0±1.0) | 1.00±.059 (25.5±1.5) | .197 +.079 -.039 (5 +2 -1) | .031 (0.8) | 2A: 0.6<br>10A: 1.0 |
| WF7N | | | 1.52±.059 (38.5±1.5) | | | |
| WF10N | .630±.039 (16.0±1.0) | .472±.039 (12±1.0) | 1.38±.059 (35±1.5) | .295 +.079 -.039 (7.5 +2 -1) | | |

## ordering information

New Part #

| WF | 5N | C | 8 | G | 100 | K |
|---|---|---|---|---|---|---|
| Type | Style | Terminal Surface Temperature | Thermal Fuse Symbol | Resistor Material | Nominal Resistance | Resistance Tolerance |
| | 5N<br>7N<br>10N | C: SnCu | See table below | G: Glass core wire wound<br>S: Metal oxide film | 3 digits | J: ±5%<br>K: ±10% |

## applications and ratings

| Thermal Fuse Symbol | Thermal Fuse: Thermal Cut-off Temp. | Thermal Fuse: Current Rating | Thermal Fuse: Voltage Rating | Power Rating (W): 5N | 7N | 10N | Resistance Range/ Material (Ω): G: Glass Core Wirewound | S: Metal Oxide Film | Resistance Tolerance: G: Glass Core Wirewound | S: Metal Oxide Film | Maximum Working Voltage | Maximum Overload Voltage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 129±2 (STD) | 10A | 250V | 1.6 | 2.0 | 2.5 | 1 - 100 (E24) | 110 - 10k (E24) | J: ±5%<br>K: ±10% | J: ±5% | $E=\sqrt{P \cdot R}$ | $E=\sqrt{P \cdot R \cdot 6.25}$ |
| 10 | 152±2 | | | 1.6 | 2.0 | 2.5 | | | | | | |
| 12 | 188 +3 -1 | | | 2.0 | 2.4 | 3.5 | | | | | | |
| 14 | 226 +1 -3 | | | 2.0 | 2.4 | 3.5 | | | | | | |
| 32 | 110±2 | 2A | | 1.2 | 1.4 | — | | | | | | |
| 33 | 126±2 | | | 1.4 | 1.6 | — | | | | | | |
| 34 | 130±2 (STD) | | | 1.6 | 2.0 | — | | | | | | |
| 35 | 146 +3 -2 | | | 1.6 | 2.0 | — | | | | | | |

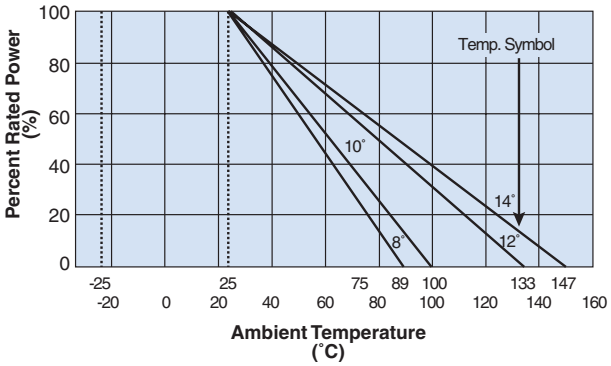
* Other combinations of thermal cut-off temperatures and resistance values are available on request

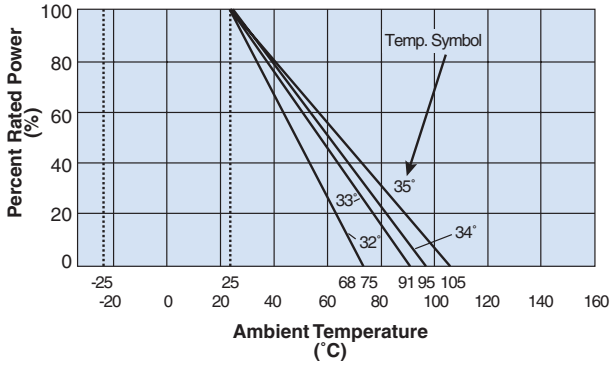


1/06/09

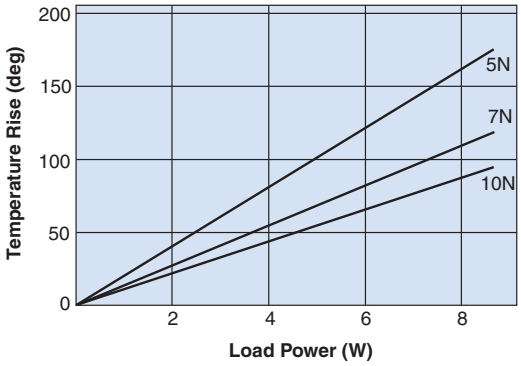
# environmental applications

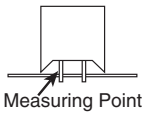
## Derating Curve




## Temperature Rise




For resistors operated at an ambient temperature of 25°C or above, a power rating shall be deleted in accordance with the above rating curves.

## Performance Characteristics

| Parameter | Requirement Δ R ±(%+0.05Ω) Limit | Typical | Test Method |
|---|---|---|---|
| Resistance | Within specified tolerance | — | 25°C |
| T.C.R. | ±250 x $10^{-6}$/K (G)<br>±300 x $10^{-6}$/K (S) | — | +25°C/-55°C and +25°C/+125°C |
| Overload (Short Time) | ±2% | ±1.8% | Rated voltage x 6.25 for 5 seconds |
| Resistance to Soldering Heat | ±1% | ±0.9% | 350°C ± 10°C, 3.5 seconds |
| Moisture Resistance | ±5% | ±4.5% | 40°C, 90% - 95% RH, 500 hours, No load |
| Load Life | ±5% | ±4.5% | Rated voltage, 25°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |