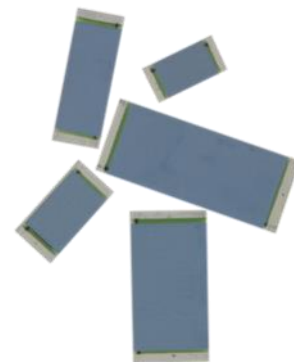


### Advantages

- Highest voltage ratings available in a surface mount resistor (up to 20,000 Volts).
- Replace leaded thru-hole resistors with surface mount resistors saving assembly and board space costs.
- Replace multiple resistor arrays with a single resistor.



Our patented Micropen® precision printing technology provides a superior surface mount resistor with the highest voltage ratings available in the industry. These ultra high voltage resistors also meet Ohmcraft's superior electrical

- Voltage Ratings to 20,000 Volts
- Resistance Values to 50 Gigohms
- Ultra High Stability
- Very Low Noise
- Tolerances to 1%
- TCR to 100 ppm/°C

### Electrical Specifications—Minimum Ohmic Value for Specified Voltage Rating

| Case Size   | Voltage Rating (volts) |                   |        |        |        |        |          |          |          |
|-------------|------------------------|-------------------|--------|--------|--------|--------|----------|----------|----------|
|             | 3,000                  | 4,000             | 6,000  | 8,000  | 10,000 | 12,000 | 14,000   | 16,000   | 20,000   |
| <b>2010</b> | ≥ 90M                  | ≥ 160M            | ≥ 360M | NA     | NA     | NA     | NA       | NA       | NA       |
| <b>2512</b> | Note <sup>1</sup>      | ≥ 120M            | ≥ 250M | ≥ 450M | ≥ 700M | NA     | NA       | NA       | NA       |
| <b>3512</b> | Note <sup>1</sup>      | ≥ 85M             | ≥ 200M | ≥ 330M | ≥ 525M | ≥ 750M | ≥ 1,000M | NA       | NA       |
| <b>4020</b> | Note <sup>1</sup>      | Note <sup>1</sup> | ≥ 150M | ≥ 250M | ≥ 400M | ≥ 575M | ≥ 775M   | ≥ 1,000M | NA       |
| <b>5020</b> | Note <sup>1</sup>      | Note <sup>1</sup> | ≥ 90M  | ≥ 160M | ≥ 250M | ≥ 360M | ≥ 490M   | ≥ 640M   | ≥ 1,000M |

Note <sup>1</sup>: For these values and package size, refer to our standard HVC series.

Due to the high voltage ratings, these resistors must be potted upon assembly.

For other configurations or requirements, contact [ohmcraftsales@exxelia.com](mailto:ohmcraftsales@exxelia.com).

### How to Order

|                          |   |                  |   |              |   |  |   |                    |   |   |
|--------------------------|---|------------------|---|--------------|---|--|---|--------------------|---|---|
| <b>UHVC</b>              | + |                  | + |              | + |  | + |                    | + |   |
| <b>Type</b>              |   | <b>Case Size</b> |   | <b>TCR</b>   |   | <b>Value</b>   |   | <b>Tolerance</b>   |   | <b>Termination</b>  |
| Ultra High-Voltage Chips |   | 2010             |   | K ±100ppm/°C |   | Resistance value expressed as a four digit number, where the first three numbers are the significant value, and the fourth number is the number of zeroes. |   | F ±1.0%            |   | <b>T</b> Solderable wraparound matte tin Sn99.9 on Ni barrier, RoHS |
|                          |   | 2512             |   | L ±200ppm/°C |   |  |   | G ±2.0%            |   | <b>B</b> Solderable wraparound Sn63Pb37 solder over Ni barrier      |
|                          |   | 3512             |   |              |   |  |   | J ±5.0%            |   |   |
|                          |   | 4020             |   |              |   |  |   | K ±10% (untrimmed) |   |   |
|                          |   | 5020             |   |              |   |  |   | L ±20% (untrimmed) |   |   |

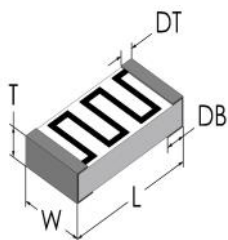
Packaging options: Bulk, Tape & Reel or Flat Pack



## Chip Dimensions

### Wrap-around

B and T Terminations



| Case Size | Length             | Width        | Thickness (Max.) | DT           | DB           | Units  |
|-----------|--------------------|--------------|------------------|--------------|--------------|--------|
| 2010      | 0.200 +0.01/-0.005 | 0.100 ±0.005 | 0.030            | 0.018 ±0.010 | 0.020 ±0.010 | inches |
|           | 5.08 +0.25/-0.13   | 2.54 ±0.13   | 0.76             | 0.46 ±0.25   | 0.51 ±0.25   | mm     |
| 2512      | 0.250 +0.01/-0.005 | 0.125 ±0.005 | 0.030            | 0.020 ±0.010 | 0.024 ±0.010 | inches |
|           | 6.35 +0.25/-0.13   | 3.18 ±0.13   | 0.76             | 0.51 ±0.25   | 0.61 ±0.25   | mm     |
| 3512      | 0.350 +0.01/-0.005 | 0.125 ±0.005 | 0.030            | 0.020 ±0.010 | 0.024 ±0.010 | inches |
|           | 8.89 +0.25/-0.13   | 3.18 ±0.13   | 0.76             | 0.51 ±0.25   | 0.61 ±0.25   | mm     |
| 4020      | 0.400 +0.01/-0.005 | 0.200 ±0.005 | 0.030            | 0.025 ±0.010 | 0.030 ±0.010 | inches |
|           | 10.16 +0.25/-0.13  | 5.08 ±0.13   | 0.76             | 0.64 ±0.25   | 0.76 ±0.25   | mm     |
| 5020      | 0.500 +0.01/-0.005 | 0.200 ±0.005 | 0.030            | 0.030 ±0.010 | 0.030 ±0.010 | inches |
|           | 12.70 +0.25/-0.13  | 5.08 ±0.13   | 0.76             | 0.76 ±0.25   | 0.76 ±0.25   | mm     |

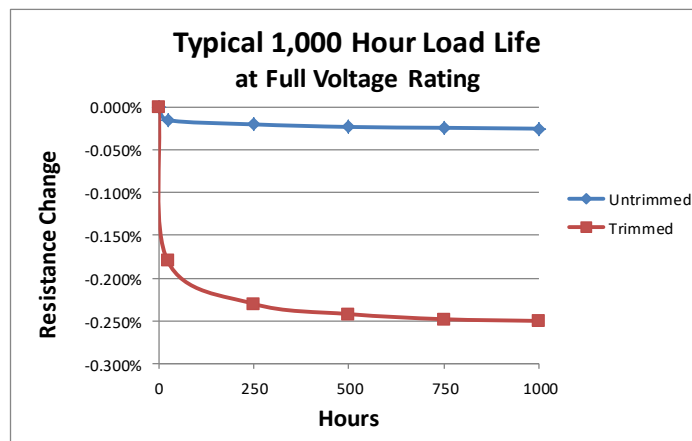
## Typical Performance Characteristics

| Test                            | Maximum ΔR |
|---------------------------------|------------|
| Short Time Overload             | 0.5%       |
| Load Life                       | 0.5%       |
| Temperature Cycle               | 0.5%       |
| Moisture Resistance             | 0.5%       |
| Shock                           | 0.25%      |
| Vibration                       | 0.25%      |
| Dielectric Withstanding Voltage | 0.25%      |
| Resistance to Soldering Heat    | 0.25%      |

| Parameter             | Typical  |
|-----------------------|--|
| Operating Temperature | -55°C to 150°C   |
| TCR                   | Measured from 25°C to 75°C                                       |
| Resistance Value      | Measured at 1000 VDC<br>for custom test voltages consult factory |

## Tape and Reel Specifications

Parts are packaged in accordance with EIA-481 tape and reel specifications.



## Material Construction

|                          |   |
|--------------------------|---|
| <b>Resistive Element</b> | Thick Film  |
| <b>Substrate</b>         | 96% Alumina   |
| <b>Encapsulation</b>     | Epoxy   |
| <b>Termination</b>       | Tin over nickel barrier, lead solder over nickel barrier. |

## Custom Configurations Available Upon Request

Please consult with our knowledgeable sales staff for help specifying custom parts to meet your needs:

E: [ohmcraftsales@exxelia.com](mailto:ohmcraftsales@exxelia.com)

P: 585.624.2610

[www.ohmcraft.com](http://www.ohmcraft.com)

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