

**Conformal, Radial Discrete Resistor**

The models CNS 020 and CNS 021 resistors incorporate an ultrastable thin film element into the RCK02 form factor thereby extending the existing range capability.

**FEATURES**

- Incorporates Ultrastable Thin Film Element

**TYPICAL PERFORMANCE**

| ▲ ABS |      |
|-------|------|
| TCR   | 5    |
| ABS   |      |
| TOL   | 0.02 |

**SCHEMATIC**

THROUGH HOLE

| STANDARD ELECTRICAL SPECIFICATIONS    |                                   |                   |
|---------------------------------------|-----------------------------------|-------------------|
| TEST                                  | SPECIFICATIONS                    | CONDITIONS        |
| <b>MATERIAL</b>                       | <b>PASSIVATED NICHROME</b>        |                   |
| <b>Resistance Range</b>               | 100K ohm (Min.) to 10M ohm (Max.) |                   |
| <b>Absolute TCR:</b> <i>*Standard</i> | ± 10ppm/°C                        | - 40°C to + 125°C |
| <i>On Request</i>                     | ± 5ppm/°C                         | 0° to + 70°C      |
| <b>Tolerance Absolute</b>             | ± 0.01% to ±1%                    |                   |
| <b>Power Rating:</b>                  | 0.5W                              | @ + 70°C          |
|                                       | 0.3W                              | @ + 125°C         |
| <b>Working Voltage (Max.)</b>         | 300V                              |                   |
| <b>Operating Temperature Range</b>    | - 55°C to + 155°C                 |                   |

\*15ppm/°C for R ≥ 1.5M

**DIMENSIONS AND IMPRINTING** in inches and millimeters

CNS 020



| DIMENSION | INCHES | MILLIMETERS |
|-----------|--------|-------------|
| A         | 0.318  | 8.10        |
| B         | 0.260  | 6.62        |
| C         | 0.020  | 0.51        |
| D         | 0.200  | 5.08        |
| E         | 0.120  | 3.17        |
| F         | 0.100  | 2.54        |
| G         | 0.010  | 0.25        |

In Clear: Model, Vishay Logo and Manufacturing Code.

On Back: Ohmic Value (in ohms), Tolerance (in %).

**DIMENSIONS AND IMPRINTING** in inches and millimeters

CNS 021



In Clear: Model, Vishay Logo and Manufacturing Code.  
On Back: Ohmic Value (in ohms), Tolerance (in %).

| DIMENSION | INCHES | MILLIMETERS |
|-----------|--------|-------------|
| A         | 0.318  | 8.10        |
| B         | 0.260  | 6.62        |
| C         | 0.020  | 0.51        |
| D         | 0.150  | 3.81        |
| E         | 0.120  | 3.17        |
| F         | 0.100  | 2.54        |
| G         | 0.010  | 0.25        |

**ENVIRONMENTAL TEST**

| TEST                      | REQUIREMENTS                                                |                   |                  | CONDITIONS                                                      |
|---------------------------|-------------------------------------------------------------|-------------------|------------------|-----------------------------------------------------------------|
|                           | NFC 83220<br>CECC40300                                      | MIL-PRF<br>55182E | DRIFTS<br>(MAX.) |                                                                 |
| Overload                  | ± 0.01%                                                     | ± 0.05%           | 0.01%            | 2.5Un/5s<br>U Max. < 2Un                                        |
| Temperature Cycling       | ± 0.01%                                                     | ± 0.05%           | 0.01%            | -55°C/+ 155°C 5 Cycles<br>CEI 68-2-14 Test No                   |
| Terminal Strength         | ± 0.01%                                                     | ± 0.02%           | 0.01%            | CEI 68-2-21<br>Test Ua (Pulling), Ub (Bending)<br>Uc (Twisting) |
| Resistance to Solder Heat | ± 0.01%                                                     | ± 0.02%           | ± 0.01%          | + 260°C/10s, CEI 68-2-20A<br>Test T6 (Met 1A)                   |
| Vibration                 | ± 0.01%                                                     | ± 0.02%           | 0.01%            | 10Hz to 500Hz<br>10g. 6 hrs. Met B4; CEI 68-2-6 Test Fc         |
| Climatic Sequence         | ± 0.05%<br>Insulation Resistance<br>> 10 <sup>2</sup> M ohm | —                 | 0.05%            | - 55°C/+ 155°C 6 Cycles 95% RH<br>RH 85mbar<br>CEI 68-1         |
| Moisture                  | ± 0.05%<br>Insulation Resistance<br>> 10 <sup>2</sup> M ohm | —                 | 0.02%            | 56 Days 95% RH<br>+ 40°C<br>CEI 68-2-3                          |
| High Temperature Storage  | ± 0.05%                                                     | —                 | 0.05%            | 1000 hrs./+ 155°C<br>CEI 68-2-20A; Test B                       |

**MECHANICAL SPECIFICATIONS**

|                    |                    |
|--------------------|--------------------|
| Resistive Material | Nichrome           |
| Substrate Material | Alumina            |
| Terminals          | SnPb on Cu Alloy   |
| Protection         | Gold Epoxy Coating |

**How to Order**

| Series | Model | Ohmic Value | Tolerance |
|--------|-------|-------------|-----------|
| CNS    | 020   | 100K ohm    | ±0.02%    |