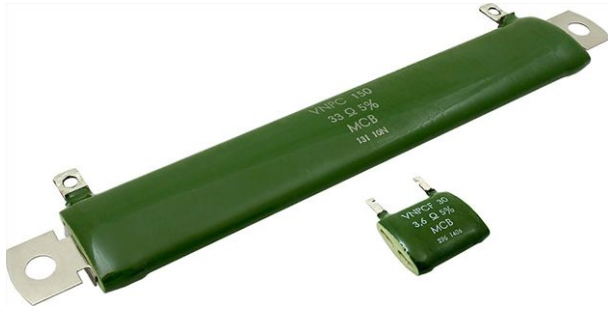


## Vitreous Wirewound Power Resistor, Flat



### FEATURES

- High dissipation
- Reduced space
- Embedded collars
- Insulated mounting
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### STANDARD ELECTRICAL SPECIFICATIONS

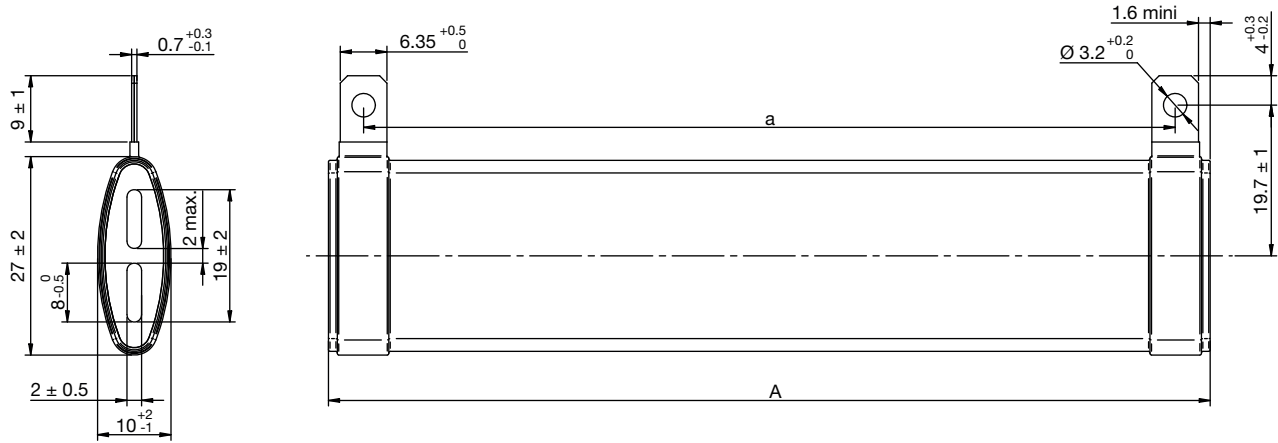
| GLOBAL MODEL | POWER RATING<br>W | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE<br>$\pm$ % | $U_{LIM.}$<br>V | MIL-R-26-D |
|--------------|-------------------|------------------------------|----------------------|-----------------|------------|
| VNPC 150     | 150               | 4.7 to 100K                  | 5                    | 1500            | RW 24 V    |
| VNPC 120     | 120               | 3.9 to 68K                   | 5                    | 1250            | -          |
| VNPC 90      | 90                | 2.7 to 47K                   | 5                    | 1000            | RW 22 V    |
| VNPC 50      | 50                | 1.8 to 22K                   | 5                    | 600             | -          |
| VNPC 30      | 30                | 1.0 to 8.2K                  | 5                    | 400             | RW 20 V    |

### TECHNICAL SPECIFICATIONS

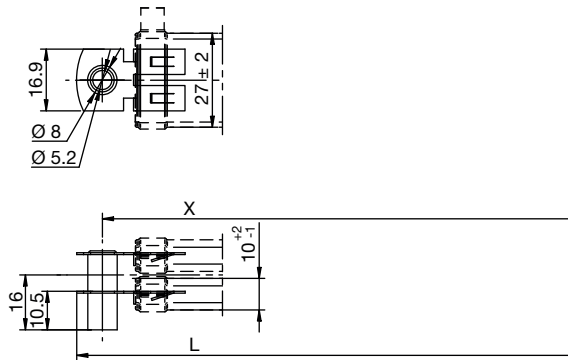
| PARAMETER                   | UNIT   | RESISTOR CHARACTERISTICS |
|-----------------------------|--------|--------------------------|
| Temperature coefficient     | ppm/°C | 75 ppm/°C (typical)      |
| Operating temperature range | °C     | -55 to +450              |

### GENERAL CHARACTERISTICS

|                        |                 |
|------------------------|-----------------|
| Core                   | Ceramic         |
| Winding                | NiCr alloy      |
| Coating                | Vitreous enamel |
| Ohmic values           | E12             |
| Insulated mounting (Z) | On request      |

**DIMENSIONS in millimeters AND WEIGHT in g**


| TYPE | 150           | 120           | 90             | 50           | 30             |
|------|---------------|---------------|----------------|--------------|----------------|
| A    | $150 \pm 3$   | $120 \pm 2.4$ | $90 \pm 1.8$   | $50 \pm 1$   | $30 \pm 0.6$   |
| a    | $140.2 \pm 3$ | $110 \pm 2.4$ | $78.5 \pm 1.8$ | $38.3 \pm 1$ | $18.9 \pm 0.6$ |
| Mass | 64            | 51            | 39             | 25           | 15             |

**DIMENSIONS SUPPORTER Z in millimeters AND WEIGHT in g**  
**INSULATED MOUNTING ALLOWS DE-STACKING**


| TYPE | 150         | 120           | 90          | 50         | 30           |
|------|-------------|---------------|-------------|------------|--------------|
| X    | $168 \pm 3$ | $136 \pm 2.4$ | $108 \pm 2$ | $68 \pm 1$ | $48 \pm 0.5$ |
| L    | $182 \pm 3$ | $152 \pm 2.4$ | $122 \pm 2$ | $82 \pm 1$ | $62 \pm 0.5$ |
| Mass | 4           | 4             | 4           | 4          | 4            |

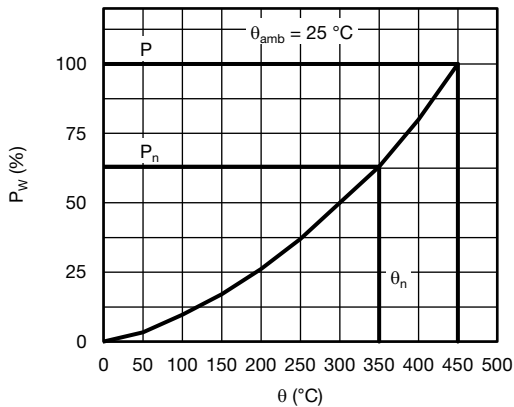
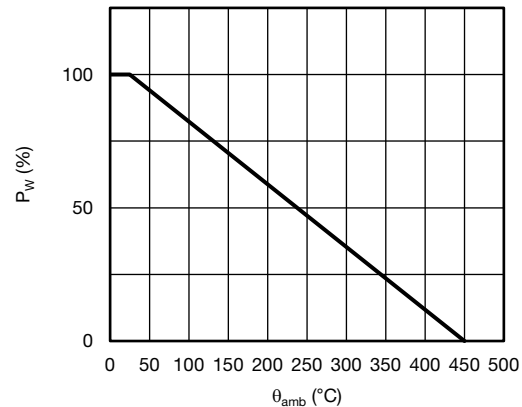
**SPECIFIC NON-INDUCTIVE "A" VNPC MODEL CHARACTERISTICS**

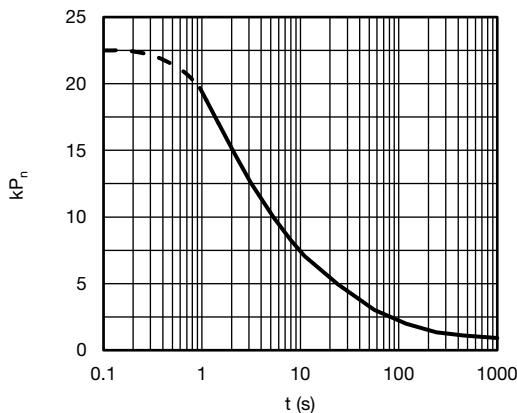
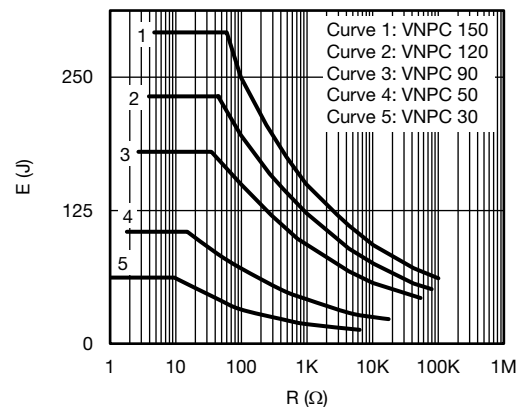
| TYPE              | 150A  | 120A  | 90A   | 50A   | 30A   |
|-------------------|-------|-------|-------|-------|-------|
| R <sub>min.</sub> | 4.7 Ω | 3.9 Ω | 2.7 Ω | 1.8 Ω | 1.0 Ω |
| R <sub>max.</sub> | 560 Ω | 470 Ω | 330 Ω | 150 Ω | 68 Ω  |

| PERFORMANCES          |  |                                |  |
|-----------------------|--|--------------------------------|--|
| TESTS                 | CONDITIONS                                   | REQUIREMENTS                   | TYPICAL VALUES                           |
| Overloads             | 10 P <sub>n</sub> (temp. nom.), 5 s          | 2 % or 0.05 Ω <sup>(1)</sup>   | 0.4 %                                    |
| Climatic              | -55 °C, 5 cycles, +200 °C                    | 3 % or 0.05 Ω <sup>(1)</sup>   | Collar insulated<br>> 10 <sup>2</sup> MΩ |
| Damp heat             | 56 days 95 % HR                              | 2 % or 0.05 Ω <sup>(1)</sup>   |  |
| Thermal shocks        | P <sub>n</sub> -55 °C                        | 2 % or 0.05 Ω <sup>(1)</sup>   | 0.2 %                                    |
| Shocks                | Severity 50 A                                | 0.5 % or 0.05 Ω <sup>(1)</sup> | 0.25 %                                   |
| Vibrations            | Severity 55/10                               | 0.5 % or 0.05 Ω <sup>(1)</sup> | 0.25 %                                   |
| Strength of terminals | Collar 40 N                                  | 1 % or 0.05 Ω <sup>(1)</sup>   | 0.1 %                                    |
| Endurance             | 500 cycles P <sub>n</sub><br>90 min / 30 min | 5 %                            | 1 %                                      |

**Note**

(1) The higher of either value.

**DISSIPATION**

 Power P<sub>W</sub> as a Function of Surface Temperature  
 $P(W) = f(\text{Temperature Surface})$ 

 Derating in Power as a Function  
 of Ambient Temperature

**OVERLOADS**

 Intermittent Overloads  
 Exceptional Operation  
 Initial Temperature < 70 °C  
 $k \times P_n = f(t)$ 
**PERMISSIBLE ENERGY**

 Repetitive Operation  
 Energy as a Function of R<sub>n</sub>  
 Pulse Duration < 100 ms  
 $E = f(R)$



**OPTIONS** (Consult us)

- Other values than E12 series

| ORDERING INFORMATION |           |                                   |                  |  |   |             |
|----------------------|-----------|-----------------------------------|------------------|--|---|-------------|
| <b>VNPC</b>          | <b>30</b> | <b>A</b>                          | <b>120U</b>      | <b>± 5 %</b>                                     | <b>XXX</b>  | <b>BO40</b> |
| MODEL                | STYLE     | NON-INDUCTIVE WINDING<br>Optional | RESISTANCE VALUE | TOLERANCE<br>± 5 %<br>± 10 %<br>Other on request | CUSTOM DESIGN<br>Optional<br>On request:<br>special value,<br>tolerance,<br>terminals, etc. | PACKAGING   |

| GLOBAL PART NUMBER INFORMATION |  |                                  |  |                                   |   |  |   |   |   |   |   |   |   |   |   |   |
|--------------------------------|--|----------------------------------|--|-----------------------------------|---|--|---|---|---|---|---|---|---|---|---|---|
| V                              | N  | P                                | C  | 0                                 | 9   | 0  | A | 1 | 0 | R | 0 | J | B | 8 | 9 | 9 |
| 1                              |  |                                  |  | 2                                 |   |  | 3 | 4 |   |   |   | 5 | 6 | 7 |   |   |
| 1                              | 2  | 3                                | 4  | 5                                 | 6   | 7  |   |   |   |   |   |   |   |   |   |   |
| PRODUCT TYPE                   | TYPE   | OPTION (if applicable)           | RESISTANCE VALUE   | TOLERANCE                         | PACKAGING   | INDUSTRIALIZATION NUMBER                 |   |   |   |   |   |   |   |   |   |   |
| <b>VNPC</b>                    | <b>030</b><br><b>050</b><br><b>090</b><br><b>120</b><br><b>150</b> | <b>A = non-inductive winding</b> | <b>The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point.</b><br><b>4702 = 47 kΩ</b><br><b>47R0 = 47 Ω</b> | <b>J = 5 %</b><br><b>K = 10 %</b> | <b>B = box</b><br><b>Box quantity depends of model and size</b> | <b>3 specific digits (if applicable)</b> |   |   |   |   |   |   |   |   |   |   |

| EXAMPLES |                            |                   |
|----------|----------------------------|-------------------|
| MODEL    | DESCRIPTION                | PART NUMBER       |
| VNPC     | VNPC 90 A 10U 5 % 899 BO40 | VNPC090A10R0JB899 |
| VNPC     | VNPC 30 12U 5 % BO40       | VNPC03012R0JB     |



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