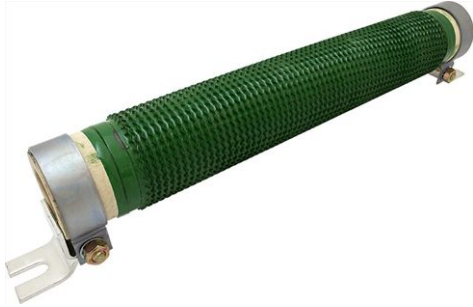


# Vitreous Wirewound Power Resistor with Corrugated Ribbon



## FEATURES

- Excellent power dissipation
- Robust mechanical
- Good thermal shock characteristics
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

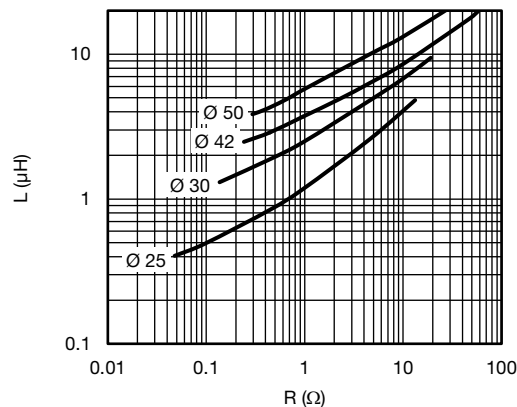
| STANDARD ELECTRICAL SPECIFICATIONS |                   |                              |                                     |
|------------------------------------|-------------------|------------------------------|-------------------------------------|
| GLOBAL MODEL                       | POWER RATING<br>W | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE <sup>(1)</sup><br>$\pm$ % |
| VC 50 x 370                        | 1000              | 0.39 to 68                   | 5, 10                               |
| VC 42 x 362                        | 700               | 0.33 to 56                   | 5, 10                               |
| VC 30 x 250                        | 350               | 0.22 to 33                   | 5, 10                               |
| VC 30 x 153                        | 220               | 0.18 to 22                   | 5, 10                               |
| VC 25 x 168                        | 200               | 0.10 to 18                   | 5, 10                               |
| VC 25 x 138                        | 160               | 0.068 to 12                  | 5, 10                               |
| VC 25 x 110                        | 130               | 0.068 to 10                  | 5, 10                               |
| VC 25 x 84                         | 90                | 0.068 to 8.2                 | 5, 10                               |

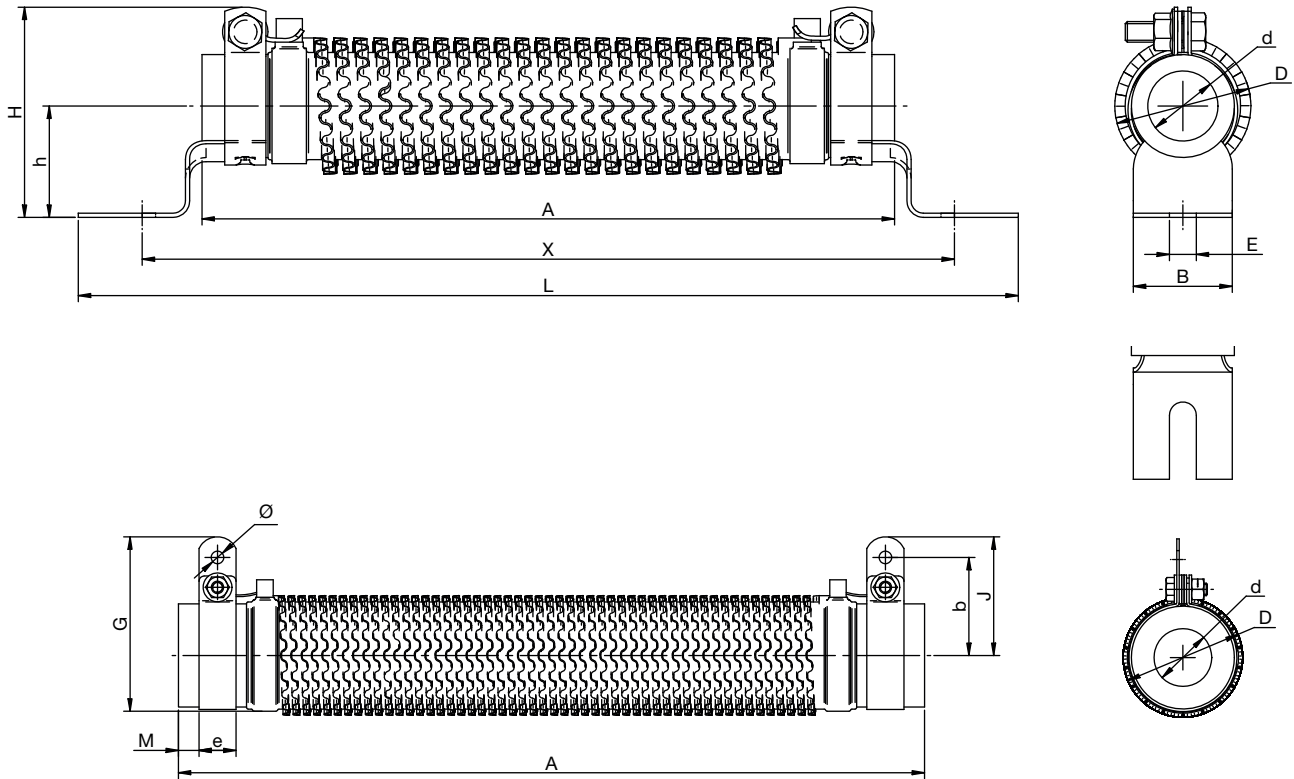
**Note**
<sup>(1)</sup> For  $R_n < 1 \Omega$ 

| TECHNICAL SPECIFICATIONS    |                   |                                 |
|-----------------------------|-------------------|---------------------------------|
| PARAMETER                   | UNIT              | RESISTOR CHARACTERISTICS        |
| Temperature coefficient     | ppm/ $^{\circ}$ C | 180 ppm/ $^{\circ}$ C (typical) |
| Operating temperature range | $^{\circ}$ C      | -55 to +450                     |

| GENERAL CHARACTERISTICS |              |
|-------------------------|--------------|
| Core                    | Ceramic      |
| Winding                 | Nickel alloy |
| Coating                 | Vitreous     |
| Ohmic values            | E12          |
| Traction lug outputs    | VCF version  |
| Collars outputs         | VCN version  |

## INDUCTANCE VALUE AS A FUNCTION OF $R_n$



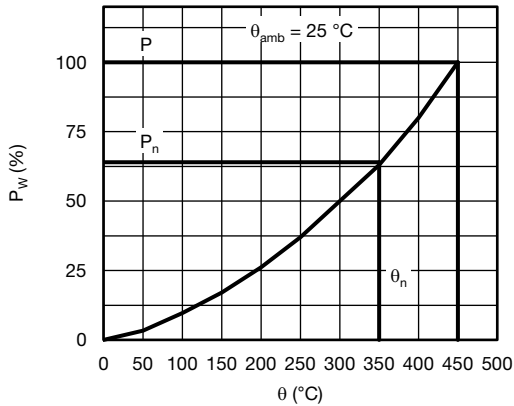
**DIMENSIONS** in millimeters **AND WEIGHT** in g


| TYPE        | 50 x 370   | 42 x 362   | 30 x 250  | 30 x 153    | 25 x 168  | 25 x 138  | 25 x 110  | 25 x 84   |
|-------------|------------|------------|-----------|-------------|-----------|-----------|-----------|-----------|
| A           | 362 ± 7    | 362 ± 7    | 250 ± 2   | 152.5 ± 1.5 | 168 ± 2   | 138 ± 2   | 110 ± 2   | 84 ± 2    |
| B + 0.5/- 0 | 30         | 30         | 25        | 25          | 24        | 24        | 24        | 24        |
| b           | 48 ± 1.5   | 45 ± 1.5   | 33 ± 1    | 33 ± 1      | 28.5 ± 1  | 28.5 ± 1  | 28.5 ± 1  | 28.5 ± 1  |
| D max.      | 65         | 55         | 44        | 44          | 39        | 39        | 39        | 39        |
| d           | 28.6 ± 0.6 | 26.5 ± 0.5 | 17 min.   | 17 min.     | 17 ± 0.35 | 17 ± 0.35 | 17 ± 0.35 | 17 ± 0.35 |
| E           | 9 ± 0.5    | 9 ± 0.5    | 9 ± 0.5   | 9 ± 0.5     | 6.5 ± 0.2 | 6.5 ± 0.2 | 6.5 ± 0.2 | 6.5 ± 0.2 |
| e ± 1       | 18         | 18         | 13        | 13          | 9         | 9         | 9         | 9         |
| G max.      | 92         | 88         | 63        | 63          | 55        | 55        | 55        | 55        |
| H max.      | 80         | 72         | 62        | 62          | 53        | 53        | 53        | 53        |
| h ± 2       | 47.5       | 45         | 30        | 30          | 27        | 27        | 27        | 27        |
| J           | 58 ± 2.5   | 52 ± 1.5   | 39 ± 1    | 39 ± 1      | 33.5 ± 1  | 33.5 ± 1  | 33.5 ± 1  | 33.5 ± 1  |
| L max.      | 436        | 433        | 320       | 222.5       | 230       | 200       | 171       | 145       |
| M           | 10 + 0/- 3 | 10 + 0/- 3 | 5 ± 1.5   | 5 ± 1.5     | 6 ± 1.5   | 6 ± 1.5   | 6 ± 1.5   | 6 ± 1.5   |
| Ø           | 6.1 ± 0.5  | 6.1 ± 0.5  | 5.7 ± 0.5 | 5.7 ± 0.5   | 5 ± 0.8   | 5 ± 0.8   | 5 ± 0.8   | 5 ± 0.8   |
| X ± 2       | 400        | 398        | 285       | 187.5       | 198       | 168       | 141       | 115       |
| Mass        | 1600       | 1350       | 400       | 270         | 270       | 210       | 170       | 130       |

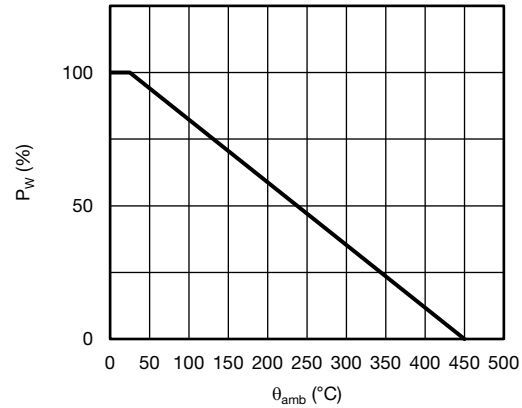


| PERFORMANCES   |  |              |                |
|----------------|--|--------------|----------------|
| TESTS          | CONDITIONS                                   | REQUIREMENTS | TYPICAL VALUES |
| Overloads      | 10 P <sub>n</sub> (temp. nom.), 5 s          | 2 %          | 1 %            |
| Climatic       | -55 °C, 5 cycles, +200 °C                    | 3 %          | 1 %            |
| Thermal shocks | P <sub>n</sub> -55 °C                        | 2 %          | 0.4 %          |
| Endurance      | 500 cycles P <sub>n</sub><br>90 min / 30 min | 5 %          | 2 %            |

**DISSIPATION**

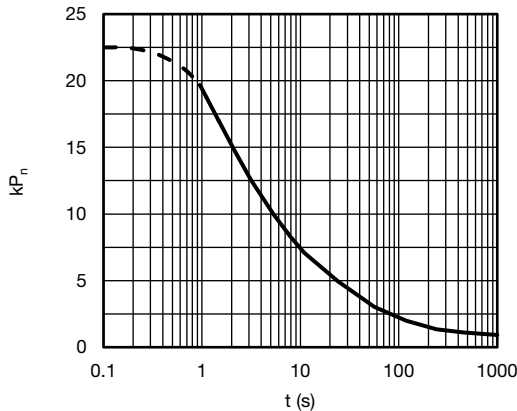


Power  $P_w$  as a Function of Surface Temperature  
 $P(W) = f(\text{Temperature Surface})$



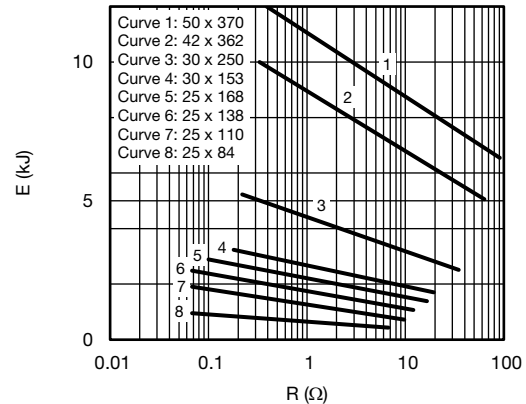
Derating in Power as a Function of Ambient Temperature

**OVERLOADS**



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

**PERMISSIBLE ENERGY**



Repetitive Operation  
Energy as a Function of  $R_n$   
Pulse Duration < 100 ms  
 $E = f(R)$

**OPTIONS** (Consult us)

- Other values than E12 series
- Intermediate terminals
- Insulated electrical output of fixed lugs



| ORDERING INFORMATION |             |                 |                  |                                     |  |            |
|----------------------|-------------|-----------------|------------------|-------------------------------------|--|------------|
| <b>VC</b>            | <b>F</b>    | <b>30 x 250</b> | <b>U22</b>       | <b>± 10 %</b>                       | <b>XXX</b>   | <b>BO3</b> |
| MODEL                | CONNECTIONS | STYLE           | RESISTANCE VALUE | TOLERANCE                           | CUSTOM DESIGN  | PACKAGING  |
|                      |             |                 |                  | ± 5 %<br>± 10 %<br>Other on request | Optional<br>On request:<br>special value,<br>tolerance,<br>terminals, etc. |            |

| GLOBAL PART NUMBER INFORMATION |        |  |  |                     |   |                                   |   |   |   |   |   |   |   |   |   |   |   |  |
|--------------------------------|--------|--|--|---------------------|---|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|--|
| V                              | C      | F  | 2  | 5                   | 0   | 8                                 | 4 | 0 | R | 0 | 6 | 8 | K | B | 9 | 9 | 9 |  |
| 1                              |        | 2  | 3  |                     |   | 4                                 |   |   |   | 5 | 6 | 7 |   |   |   |   |   |  |
| 1                              | 2      | 3  | 4  | 5                   | 6   | 7                                 |   |   |   |   |   |   |   |   |   |   |   |  |
| PRODUCT TYPE                   | LEADS  | SIZE   | RESISTANCE VALUE   | TOLERANCE           | PACKAGING   | INDUSTRIALIZATION NUMBER          |   |   |   |   |   |   |   |   |   |   |   |  |
| VC                             | F<br>N | 25084<br>25110<br>25138<br>25168<br>30153<br>30250<br>42362<br>50370 | The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point.<br>8R2 = 8.2 Ω<br>0R068 = 0.068 Ω | J = 5 %<br>K = 10 % | B = box<br>Box quantity depends of model and size | 3 specific digits (if applicable) |   |   |   |   |   |   |   |   |   |   |   |  |

| EXAMPLES |                              |                    |
|----------|------------------------------|--------------------|
| MODEL    | DESCRIPTION                  | PART NUMBER        |
| VCF      | VCF 25X138 U068 10 % 999 BO3 | VCF251380R068KB999 |
| VCN      | VCN 25X168 U1 10 % B03       | VCN251680R10KB     |



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