

Power Resistors Cooled by Auxiliary Heatsink (Not Supplied) Thick Film Technology



FEATURES

- Cold system without external radiation
- High power / volume ratio
- Non-inductive
- Screw-on or fast-on outputs
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



3D Models

STANDARD ELECTRICAL SPECIFICATIONS

| MODEL | RESISTANCE RANGE Ω | MAX. RATED POWER $P_{60\text{ }^\circ\text{C}}$ W | TOLERANCE \pm % | TEMPERATURE COEFFICIENT \pm ppm/ $^\circ\text{C}$ | E-SERIES OHMIC VALUES |
|----------|------------------------------|--|----------------------|--|-----------------------------|
| RCEC ISO | 0.33 to 1M | 100 | 10, 5 ⁽¹⁾ | 250 (typical) | E 24 |

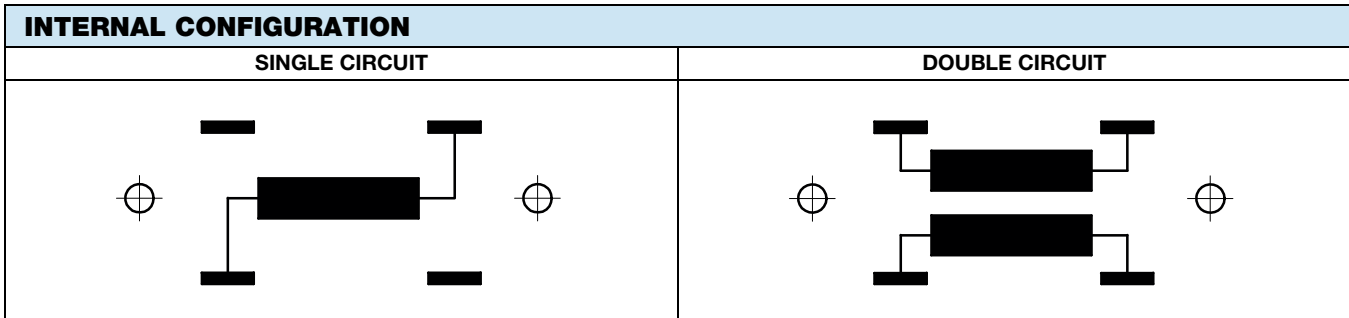
Note
⁽¹⁾ On request

MECHANICAL SPECIFICATIONS

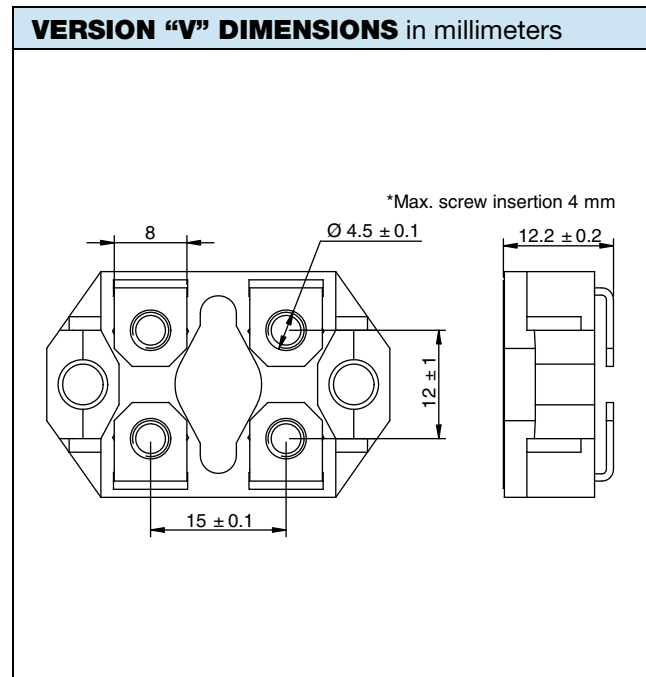
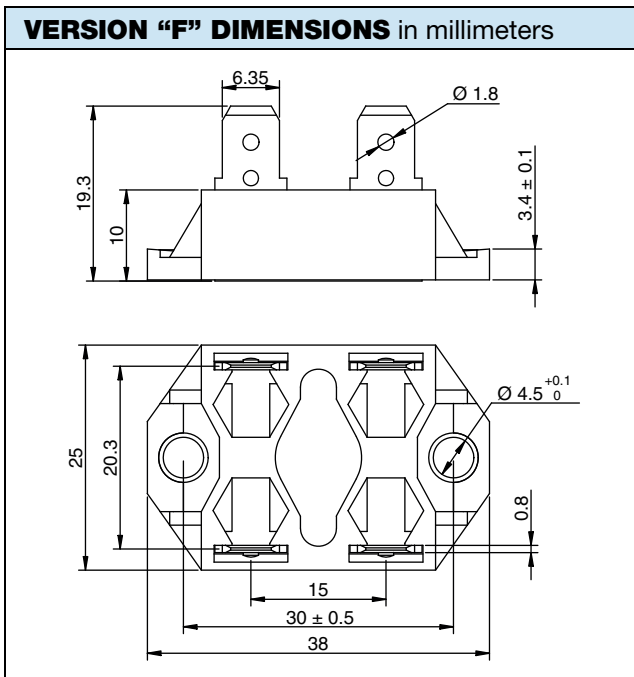
| | |
|-----------------------------|---|
| UL 94 flame classifications | Material comply with the standard UL 94 V-0 |
| Resistive element | Cermet |
| Substrate | Alumina |
| Encapsulation | Resin filled case |

TECHNICAL SPECIFICATIONS

| PARAMETER | RCEC ISO |
|--|---|
| Nominal power rating at 115 $^\circ\text{C}$ | 25 W |
| Maximum power rating at 100 $^\circ\text{C}$ | 50 W |
| Operating temperature range | -40 $^\circ\text{C}$ to +125 $^\circ\text{C}$ |
| Maximum operating voltage | 1500 V |
| Dielectric strength V_{RMS} (50 Hz / 1 min) | 2500 V |
| Creepage distance | 10 mm |
| Clearance distance | 5.5 mm |
| Capacitance: ground | 36 pF |
| Capacitance: parallel | 12 pF |
| Partial discharge | On request |
| Inductance | \leq 50 nH |
| Insulation resistance | 10^5 M Ω at 500 V_{CC} |
| Weight (max.) | 20 g |


Note

- Tolerance on ohm value for double circuit: $\pm 10\%$



| PERFORMANCES | | | |
|-------------------------|-----------------------------------|--|----------------|
| TESTS | CONDITIONS | REQUIREMENTS | TYPICAL VALUES |
| Momentary overload | $4 P_n / 10\text{ s}$ | 2 % | 0.2 % |
| Humidity (steady state) | 56 days, 40 °C, 95 % HR | 2 % or $0.05\ \Omega$ insul. $> 10^3\ \text{M}\Omega$ | 0.2 % |
| VRT | -40 °C to +125 °C 5 cycles | 2 % or $0.05\ \Omega$ ⁽¹⁾ | 0.2 % |
| Mechanical shock | 40 A / 4000 | 0.5 % or $0.05\ \Omega$ ⁽¹⁾ | 0.25 % |
| Vibration | 500 / 10 | 0.5 % or $0.05\ \Omega$ ⁽¹⁾ | 0.25 % |
| Terminals strength | 130 Ncm / 100 N | 1 % or $0.05\ \Omega$ ⁽¹⁾ | 0.1 % |
| Endurance | 2000 cycles P_n 30 min / 30 min | 5 % | 0.2 % |

Note

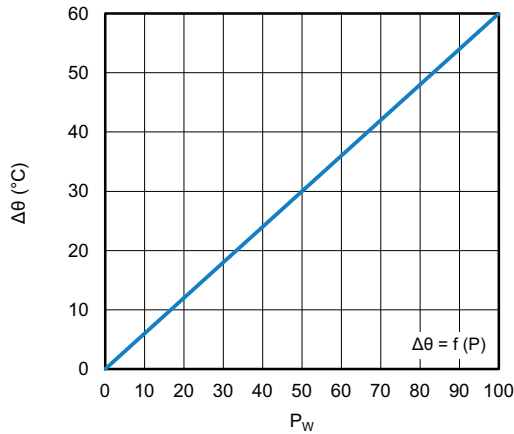
⁽¹⁾ The higher of either value

ENERGY ABSORPTION

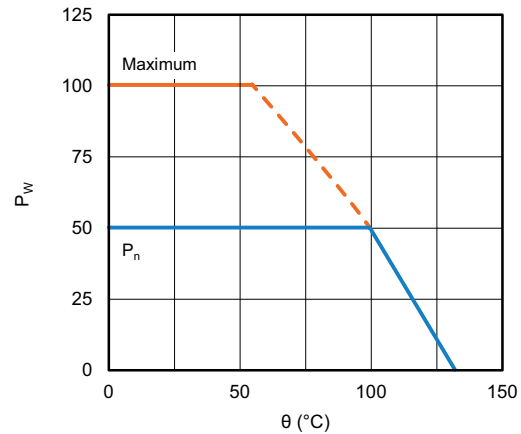
With single resistor, repetitive operation: $0.4\ \text{J/t} = 50\ \mu\text{s}$

Other t values: consult us

DISSIPATION



Temperature Rise as a Function of the Power Applied
Overall Thermal Resistance 0.6 °C/W (See Assembly)



Permanent Applicable Power as a Function
of Heatsink Temperature

MECHANICAL ASSEMBLY

Head screw, low or normal height without washers.

Maximum tightening torque:

80 Ncm, mechanical mounting

130 Ncm, electrical connection

COOLING

The temperature of the heatsink may be maintained at the specified values with:

- Forced air ventilation
- Internal circulation of a liquid cooling
- Heatsink contact surface: Ra 6.3 μm
- Evenness defect: 0.05 mm max.
- Surface temperature gradient (isotherm): 20 °C max.
- Thermal compound not supplied (resistance < 0.025 °C/W / 0.05 mm)

The user must select the thermal resistance of the heatsink according to the power applied.

| ORDERING INFORMATION | | | | | | | | | | |
|----------------------|-------|--------------------------|--|--|---|--|----------------------------|--|--------|-----------|
| RCEC | ISO | F | D | MP | 100K | 5 % | 100K | 5 % | XXX | BO15 |
| MODEL | STYLE | TERMINALS | | OPTION | RESISTANCE VALUE | TOLERANCE | RESISTANCE VALUE | TOLERANCE | CUSTOM | PACKAGING |
| | | F = faston S = screws | Single Double Triple (on request) | Common point for double value | Value for single, first value for double | ± 5 % ± 10 % Other on request | Second value for double | ± 5 % ± 10 % Other on request | | |



| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | | |
|--------------------------------|--|--|-----------------------------------|----------------|--|---|---|---|---|---|---|---|---|---|--|--|--|
| R | C | E | C | I | S | 0 | V | S | 1 | 0 | R | 0 | K | B | | | |
| 1 | | | 2 | | 3 | | | 4 | 5 | 6 | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | |
| GLOBAL MODEL | LEAD | OHMIC VALUE | TOLERANCE | PACKAGING | INDUSTRIALIZATION NUMBER | | | | | | | | | | | | |
| RCEC ISO | Screws simple = VS Screws double = VD Screws triple = VT Faston simple = FS Faston double = FD Faston triple = FT | The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. 4702 = 47 kΩ 56R0 = 56 Ω In case of double or triple value => value = sum of the 2 or 3 value | J = 5 % K = 10 % | B = box | 3 specific digits (if applicable) | | | | | | | | | | | | |

| EXAMPLES | | |
|----------|--|--------------------|
| MODEL | DESCRIPTION | PART NUMBER |
| RCEC ISO | RCEC ISO VS 10U 10 % BO5 | RCECISOVS10R0KB |
| RCEC ISO | RCEC ISO FD MP 8K2 10 % 8K2 10 % 921 BO5 | RCECISOFD1642KB921 |
| RCEC ISO | RCEC ISO FS 15U 10 % 994 BO5 | RCECISOFS15R0KB994 |



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