

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/doc299912


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 $\pm \text{ppm}/^{\circ}\text{C}$	E-SERIES OHMIC VALUES
RCEC ISO	0.33 to 1M	100	10, 5 ⁽¹⁾	250 (typical)	E 24

Note

⁽¹⁾ On request

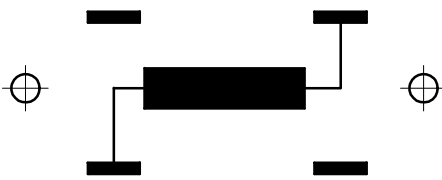
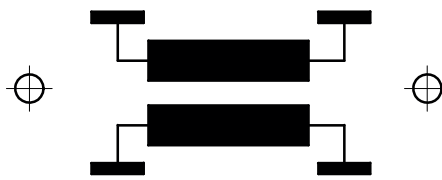
MECHANICAL SPECIFICATIONS

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

TECHNICAL SPECIFICATIONS

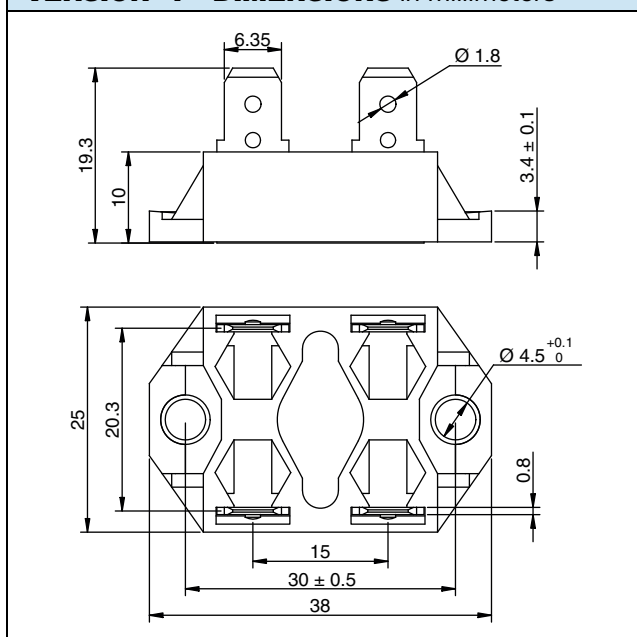
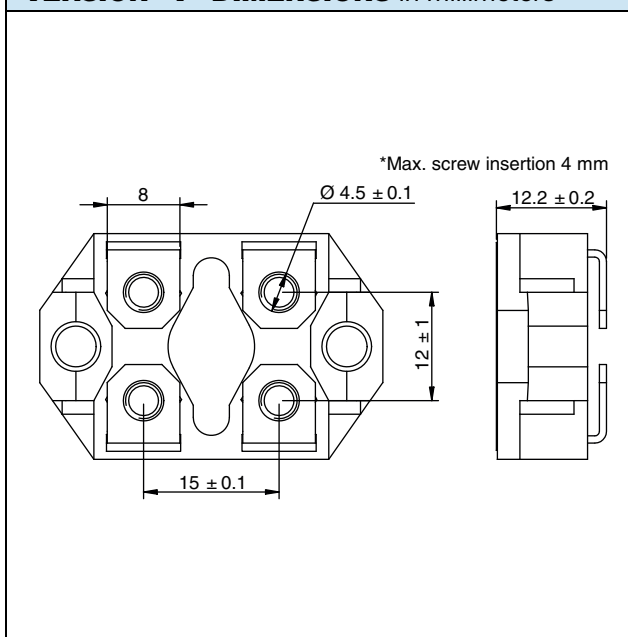
PARAMETER	RCEC ISO
Nominal power rating at 115 °C	25 W
Maximum power rating at 100 °C	50 W
Operating temperature range	-40 °C to +125 °C
Maximum operating voltage	1500 V
Dielectric strength V_{RMS} (50 Hz / 1 min)	2500 V
Creepage distance	10 mm
Clearance distance	5.5 mm
Capacitance: ground	36 pF
Capacitance: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

INTERNAL CONFIGURATION

SINGLE CIRCUIT	DOUBLE CIRCUIT
	

Note

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

VERSION "F" DIMENSIONS in millimeters

VERSION "V" DIMENSIONS in millimeters

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 Ω insul. > $10^3 \text{ M}\Omega$	0.2 %
VRT	-40 °C to +125 °C 5 cycles	2 % or 0.05 Ω ⁽¹⁾	0.2 %
Mechanical shock	40 A / 4000	0.5 % or 0.05 Ω ⁽¹⁾	0.25 %
Vibration	500 / 10	0.5 % or 0.05 Ω ⁽¹⁾	0.25 %
Terminals strength	130 Ncm / 100 N	1 % or 0.05 Ω ⁽¹⁾	0.1 %
Endurance	2000 cycles P_n 30 min / 30 min	5 %	0.2 %

Note

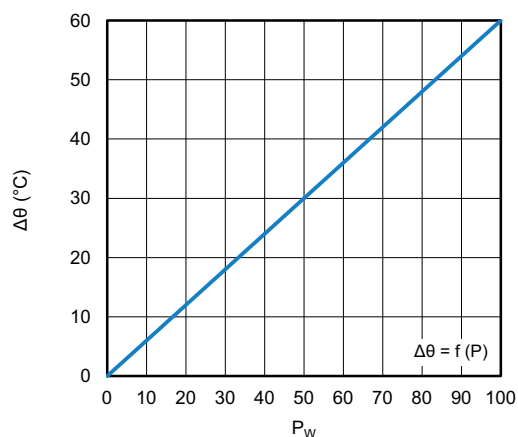
- ⁽¹⁾ The higher of either value

ENERGY ABSORPTION

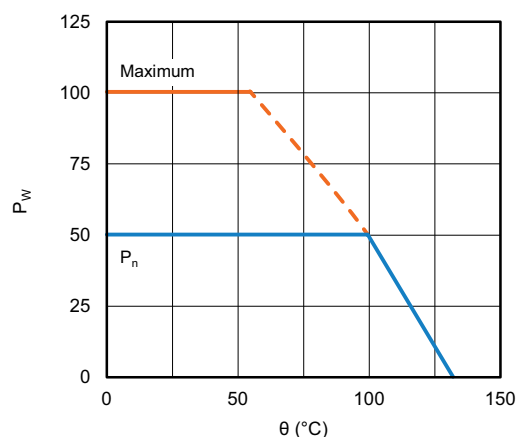
With single resistor, repetitive operation: 0.4 J/t = 50 μs

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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.