RCEC 500



Vishay MCB

ROHS COMPLIANT

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



ADDITIONAL RESOURCES



FEATURES

- · Technology: thick film deposited on ceramic
- Cold system without external radiation
- High power / volume ratio
- Non-inductive
- Easy assembly, self calibrated pressure (120 N to 160 N)
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

STANDARD ELECTRICAL SPECIFICATIONS								
MODEL	$\begin{array}{c} \textbf{RESISTANCE RANGE}\\ \Omega \end{array}$	RATED POWER P _{BC85 °C} W	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C	E-SERIES OHMIC VALUES			
RCEC 500	0.47 to 3	500	10, 5	300	E24			
	3.3 to 1M	500	10, 5	100	E24			

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

TECHNICAL SPECIFICATIONS						
PARAMETER	500L	500	500HV			
Operating temperature range		-55 °C to +155 °C				
Maximum operating voltage		5000 V				
Dielectric strength V _{eff} (50 Hz 1 min)	6000 V	7000 V	12 000 V			
Creepage distance	42 mm	42 mm	75 mm			
Clearance distance	12 mm	12 mm	30 mm			
Capacitance: ground		120 pF				
Capacitance: parallel	40 pF					
Partial discharge	- \leq 500 pC at 7000 V _{eff} - \leq 10 pC at 5000 V _{eff} Other cases: consult us					
Inductance	≤ 40 nH					
Insulation resistance		$10^5\text{M}\Omega$ at 500 V_{CC}				
Weight (max.)	120 g					

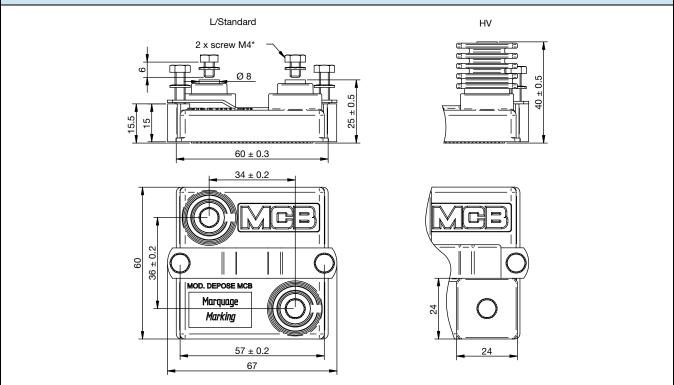


www.vishay.com

RCEC 500

Vishay MCB

DIMENSIONS in millimeters



PERFORMANCES						
TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES			
Momentary overload	1000 W / 10 s θ = 70 °C	2 %	0.2 %			
Humidity (steady state)	56 days, 40 °C, 95 % HR	2 % or 0.05 $\Omega^{(1)}$	0.2 %			
VRT	-55 °C to +125 °C 5 cycles	Insul. > $10^3 M\Omega$	0.2 %			
Mechanical shock	CEI 61373 cat 1 class B half sinus 50 m/s² / 30 ms 6 per axis (3 negative and 3 positive)	2 % or 0.05 $\Omega^{(1)}$	0.25 %			
Vibration	CEI 61373 cat 1 class B random 5 Hz to 150 Hz 7.9 m/s 5 h per axis	0.5 % or 0.05 $\Omega^{(1)}$	0.25 %			
Terminals strength	200 Ncm / 200 N	0.5 % or 0.05 Ω ⁽¹⁾	0.1 %			
Endurance	2000 cycles P _n 30 min / 30 min	1 % or 0.05 Ω ⁽¹⁾	0.2 %			

Note

⁽¹⁾ The higher of either value

ENERGY ABSORPTION

R < 390 Ω

Repetitive operation: 7 J/t = 50 μ s Accidental operation: 20 J/t = 50 μ s / 120 impulsions max.

R > 390 Ω

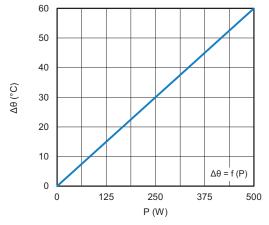
Repetitive operation: 3.5 J/t = 50 μ s Other t values: consult us

2

SHAY. www.vishay.com

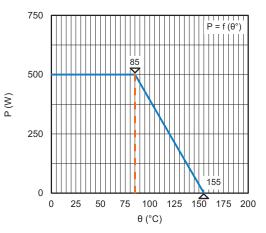
RCEC 500 Vishay MCB

DISSIPATION

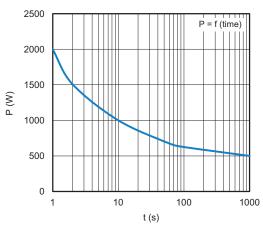


Temperature Rise as a Function of the Power Applied Overall Thermal Resistance 0.12 $^\circ\text{C/W}$ (See Assembly)

OVERLOAD

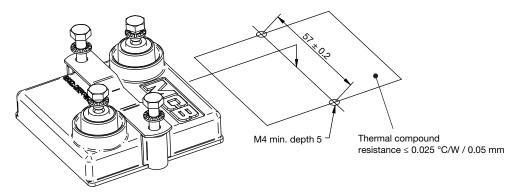


Permanent Applicable Power as a Function of Bottom Case Temperature



Intermittent Overload (Exceptional Operation) Bottom Case Temperature +85 °C

ASSEMBLY



Screws and bolts supplied.

Maximum tightening torque: 1.8 Nm to 2 Nm, mechanical mounting 1.8 Nm to 2 Nm, electrical mounting

Revision: 09-Sep-2019



Vishay MCB

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.

TERMINAL OPTIONS

- Electrical terminals M5
- Other terminal size
- Output cable

ORDERING INFORMATION								
RCEC	500	HV	100K	5 %	XXX	BO15		
MODEL	STYLE	TERMINALS	RESISTANCE VALUE	TOLERANCE	CUSTOM DESIGN	PACKAGING		
				± 5 % ± 10 % Other on request	Optional On request: special value, tolerance shape, M5 terminals, etc.			

GLOBAL PART	GLOBAL PART NUMBER INFORMATION						
RCE	C 5 0	0 H V 2	5 R 6	0 K B 4 5			
1	2	3	4	5	6		
GLOBAL MODEL	TERMINAL (if applicable)	OHMIC VALUE	TOLERANCE	PACKAGING	INDUSTRIALIZATION NUMBER		
RCEC 500	Standard (no digit) = dielectric strength 7 kV + partial discharge HV = dielectric strength 12 kV + partial discharge L = dielectric strength 6 kV	The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. $4702 = 47 \text{ k}\Omega$ $1000 = 100 \Omega$ $47\text{R0} = 47 \Omega$ $4\text{R70} = 4.7 \Omega$	J = 5 % K = 10 %	B = box (24 pcs for standard and L 15 pcs for HV)	3 specific digits (if applicable)		

EXAMPLES						
MODEL	DESCRIPTION	PART NUMBER				
RCEC 500	RCEC 500 220K 10 % BO24	RCEC5002203KB				
RCEC 500 HV	RCEC 500 HV 100U 5 % 310 BO15	RCEC500HV1000JB310				

Revision: 09-Sep-2019



RCEC 500

Vishay MCB

PRODUCT	PRODUCT SUMMARY									
SERIES	SIZE / DEVICE STYLE			RESISTANCE (Ω) E-SEF		E-SERIES	POWER RATING (W)	TEMP. (°C)	MAX. VOLTAGE (V)	AUTO.
		(± ppm/°C) (± %)		MIN.	MAX.					

TAGS				
ТҮРЕ	PARAMETER			
Mounting technology				
Technology				
Applications				
Characteristics				



Vishay

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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. 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.