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

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 www.vishay.com/doc?99912

RoHS COMPLIANT

ADDITIONAL RESOURCES

3D Models

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	RESISTANCE RANGE Ω	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	

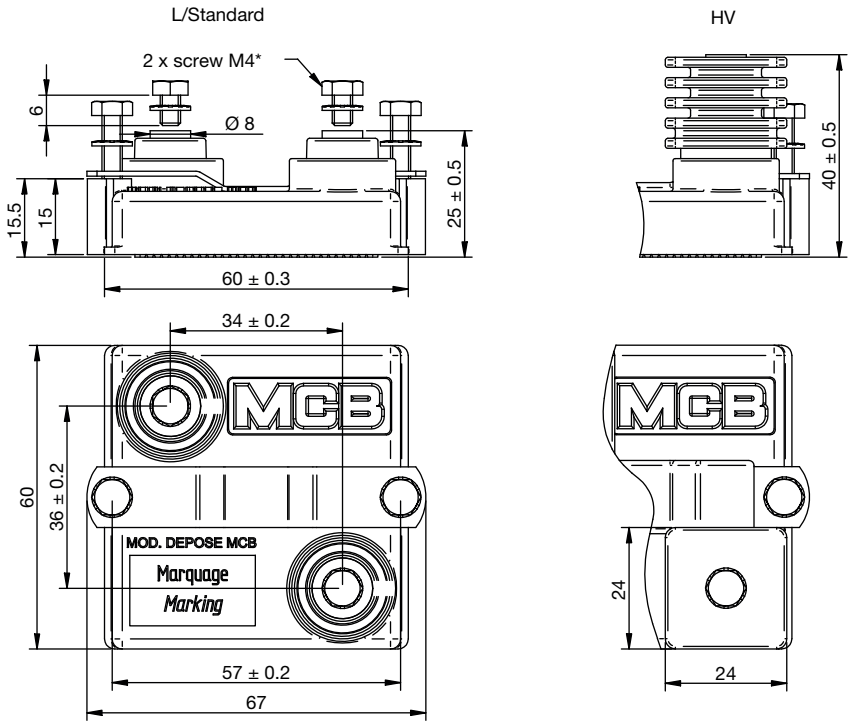
MECHANICAL SPECIFICATIONS

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	-	≤ 500 pC at 7000 V_{eff} ≤ 10 pC at 5000 V_{eff} Other cases: consult us	
Inductance	≤ 40 nH		
Insulation resistance	10^5 MΩ at 500 V_{CC}		
Weight (max.)	120 g		

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 Ω (1)	0.2 %
VRT	-55 °C to +125 °C 5 cycles	Insul. > 10^3 MΩ	0.2 %
Mechanical shock	CEI 61373 cat 1 class B half sinus 50 m/s^2 / 30 ms 6 per axis (3 negative and 3 positive)	2 % or 0.05 Ω (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 Ω (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

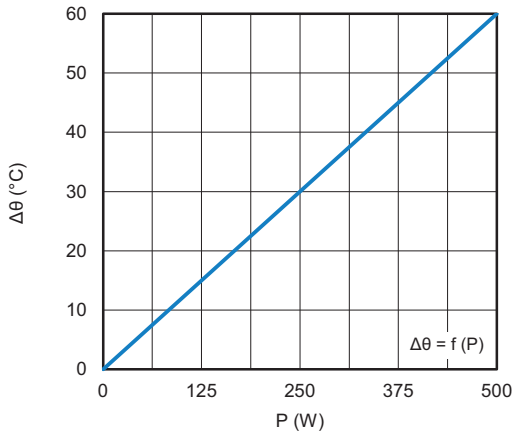
R < 390 Ω

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

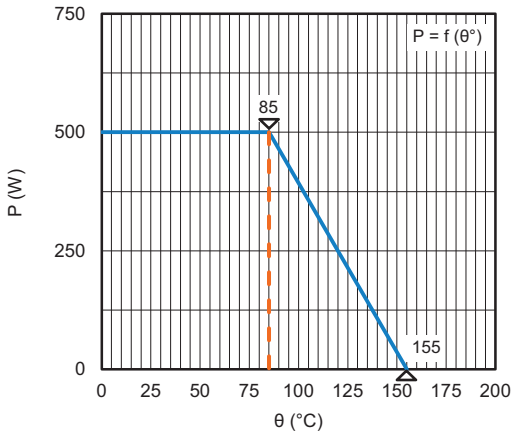
R > 390 Ω

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

DISSIPATION

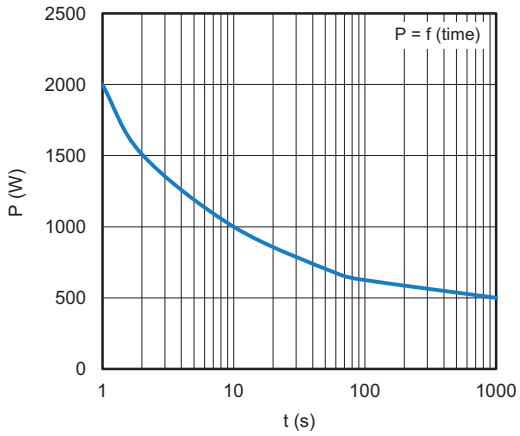


Temperature Rise as a Function of the Power Applied
Overall Thermal Resistance 0.12 °C/W (See Assembly)



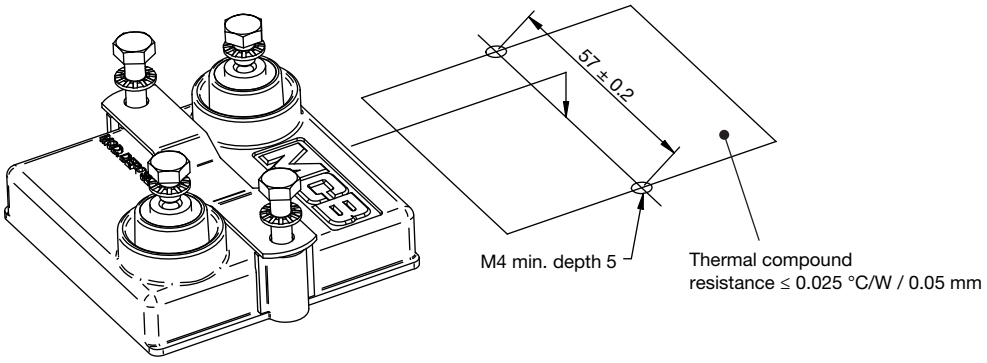
Permanent Applicable Power as a Function
of Bottom Case Temperature

OVERLOAD



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

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 NUMBER INFORMATION

R	C	E	C	5	0	0	H	V	5	R	6	0	K	B			
1							2		3				4	5	6		

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 kΩ** **1000 = 100 Ω** **47R0 = 47 Ω** **4R70 = 4.7 Ω**	**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

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

TAGS	
TYPE	PARAMETER
Mounting technology	
Technology	
Applications	
Characteristics	

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