

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



### FEATURES

- System without external radiation
- High power / volume ratio
- Non-inductive
- M4 screw-on outputs (M5 on option)
- Easy assembly, self-calibrated pressure (400 N)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### LINKS TO ADDITIONAL RESOURCES



3D Models

### STANDARD ELECTRICAL SPECIFICATIONS

MODEL	RESISTANCE RANGE $\Omega$	MAX. RATED POWER $BC_{85}^{\circ}C$ W	TOLERANCE $\pm \%$	TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}C$	E-SERIES OHMIC VALUES <sup>(3)</sup>
RCEC 750	0.15 <sup>(2)</sup> to 0.49	800	10, 5	700 (typical)	E24
	0.5 to 3	800	10, 5 <sup>(1)</sup>	300 (typical)	E24
	3.3 to 1M	800	10, 5 <sup>(1)</sup>	100 (typical)	E24

#### Notes

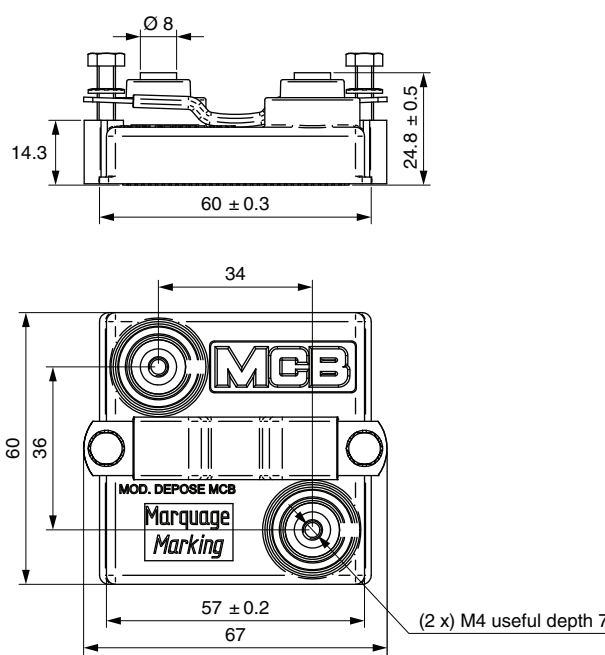
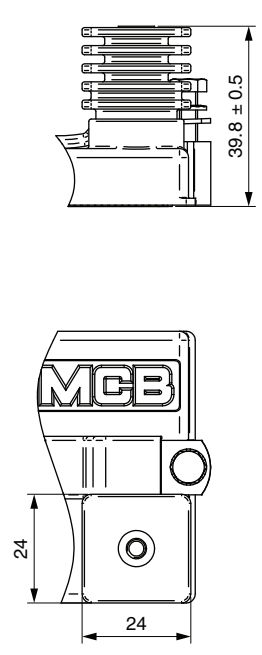
- <sup>(1)</sup>  $\pm 2 \%$  or  $\pm 1 \%$  on special request for limited resistance value and with reduction of maximum power and pulse rating (contact us for details)  
<sup>(2)</sup> Current limitation for 0.15  $\Omega$ : 30 A<sub>RMS</sub> max.  
<sup>(3)</sup> Other on request

### MECHANICAL SPECIFICATIONS

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

### TECHNICAL SPECIFICATIONS

PARAMETER	750	750HV
Operating temperature range	-55 $^{\circ}C$ to +155 $^{\circ}C$	
Maximum operating voltage between terminals	5000 V <sub>DC</sub>	
Dielectric strength V <sub>RMS</sub> (50 Hz / 1 min)	7000 V (other case contact us)	12 000 V (other case contact us)
Creeping distance	> 42 mm	> 75 mm
Clearance distance	> 12 mm	> 30 mm
CTI index	> 600	
Partial discharge	< 10 pC at 5000 V <sub>eff</sub> ( $\leq 10$ pC at 7000 V <sub>eff</sub> on request) Other cases: contact us	
Capacitance / ground (frequency 10 kHz)	120 pF (typical)	
Self-inductance (frequency 10 kHz)	< 40 nH (typical)	
Insulation resistance	> 100 G $\Omega$ at 1000 V <sub>DC</sub>	
Weight	120 g (maximum)	

<b>DIMENSIONS</b> in millimeters	
STANDARD	HV
	

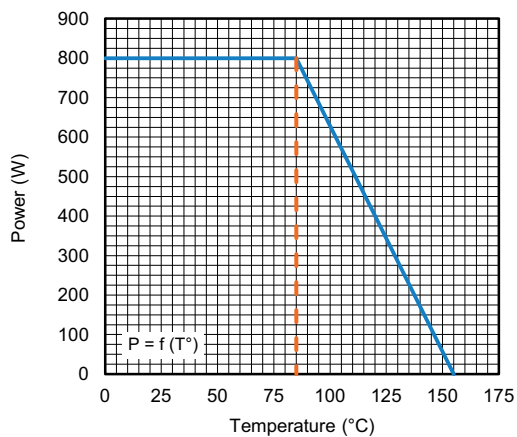
<b>PERFORMANCES</b>			
TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES
Damp heat	56 days, 40 °C, 93 % RH (IEC 60068-2-78)	± (1 % + 0.05 Ω) Insul. > 10 <sup>3</sup> MΩ	< 0.2 %
Climatic sequence	Low temperature: -55 °C High temperature 150 °C Number of cycles: 21 Exposure time: 3 hours for high temperature and 2 hours for low temperature (IEC 60068-2-14 Nb)	± (1 % + 0.05 Ω)	< 0.2 %
Rapid change of temperature	Low temperature: -55 °C High temperature: 125 °C Number of cycles: 5 Exposure time: 30 min Manual transition time: 2 min. (IEC 60068-2-14 Na)	± (0.25 % + 0.05 Ω)	< 0.1 %
Shock	Shock type: half-sine Amplitude: 100 m/s <sup>2</sup> Duration: 6 ms Frequency: 1 bump per second Number of bumps: 3000 Directions tested: 6 (500 bumps in each direction) (IEC 60068-2-29 test Eb)	± (0.25 % + 0.05 Ω)	< 0.2 %

PERFORMANCES			
TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES
Vibrations	Random frequency range: from 10 Hz to 200 Hz / ASD: 0.0104 g <sup>2</sup> /Hz from 200 Hz to 500 Hz / ASD: 0.00312 g <sup>2</sup> /Hz Overall acceleration level: 1.87 G <sub>RMS</sub> Axis tested: 3 (X, Y, and Z) / 150 min per axis (IEC 60068-2-64)	$\pm (0.25\% + 0.05 \Omega)$	< 0.2 %
Terminal strength	2 Nm / 200 N	$\pm (1 \% + 0.05 \Omega)$	< 0.1 %
Endurance	1000 h Pn 90 min on / 30 min off with $\theta_{\text{bottom case}} = 85^\circ\text{C}$ (IEC 60115-1)	$\pm (1 \% + 0.05 \Omega)$	< 0.5 %

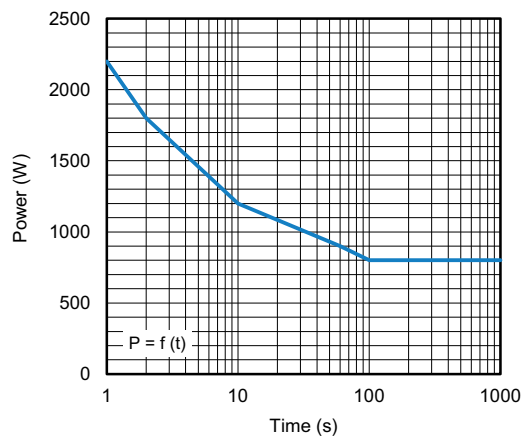
**Note**

(1) All tests were done in Vishay MCB laboratory conditions

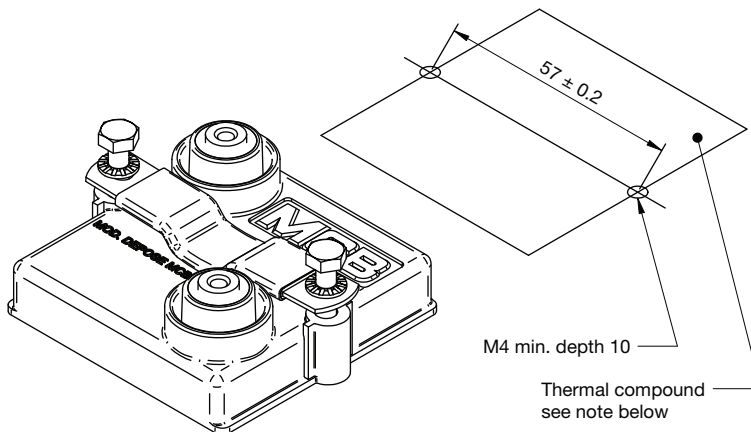
ENERGY	
$R \leq 390 \Omega$	$R > 390 \Omega$
Repetitive operation = 8 J Pulse $\tau = 50 \mu\text{s}$	Repetitive operation = 4 J Pulse $\tau = 50 \mu\text{s}$
Accidental operation = 20 J Pulse $\tau = 50 \mu\text{s}$ 120 pulses	Other $\tau$ values: consult us

**DISSIPATION**


Permanent Applicable Power (W) as a Function of Bottom Case Temperature (°C)

**OVERLOAD**


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

**ASSEMBLY**


Tightening torque for mechanical fixation	1.8 Nm to 2 Nm
Tightening torque for electrical connections	1.8 Nm to 2 Nm

**COOLING**

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

- Forced air ventilation or internal circulation of a liquid cooling
- Heatsink contact surface: < Ra 6.3  $\mu$
- 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 preconized)
- Mounting recommendation: [www.vishay.com/doc?32558](http://www.vishay.com/doc?32558)

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	750	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	7	5	0	H	V	5	R	6	0	K	B			
1						2		3				4	5	6			
1	2		3		4		5		6								
GLOBAL MODEL	TERMINAL		OHMIC VALUE		TOLERANCE		PACKAGING		INDUSTRIALIZATION NUMBER								
RCEC 750	(if applicable) Standard (no digit) = dielectric strength 7 kV + partial discharge HV = dielectric strength 12 kV + partial discharge		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, 15 pcs for HV)		3 specific digits (if applicable)								



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