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 (400 N)
- Possible configuration with 2 or 3 resistors
- 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 $BC_{85\,°C}$ W	TOLERANCE (1) ± %	TEMPERATURE COEFFICIENT ± ppm/°C	E-SERIES OHMIC VALUES
RCEC 850	0.47 to 3	850	10, 5	300	E24
	3 to 1M	850	10, 5	100	

Note

(1) ± 2 % or ± 1 % on special request for limited resistance value and with reduction of maximum power and pulse rating (contact us for details)

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

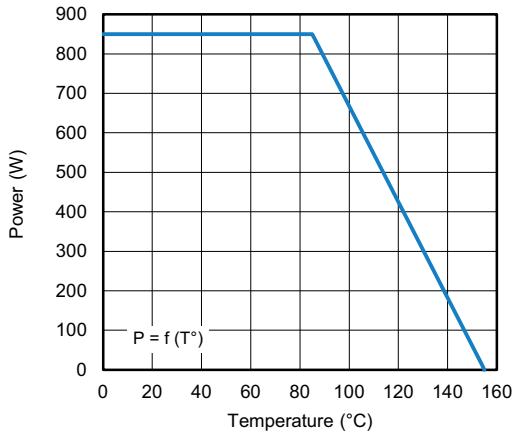
PARAMETER	RCEC 850
Operating temperature range	-55 °C to +155 °C
Maximum operating voltage	5000 V
Dielectric strength V_{RMS} (50 Hz / 1 min)	7000 V (other cases: contact us)
Creepage distance	> 42 mm
Clearance distance	> 13 mm
Nominal power at 85 °C bottom case temperature	850 W (single resistor), 2 x 350 W (double resistor)
Capacitance / ground	120 pF (typical) / frequency 10 kHz
Self-inductance	≤ 40 nH (typical) / frequency 10 kHz
Partial discharge	< 20 pC at 5000 V_{eff} Other cases: consult us
Insulation	> 100 GΩ at 1000 V_{DC}
Weight (max.)	120 g

PERFORMANCES			
TESTS	**CONDITIONS**	**REQUIREMENTS**	**TYPICAL VALUES**
Overload	1200 W / 10 s with $\theta_{bottom\ case}$ = 85 °C	± 2 % or ± (0.5 % + 0.05 Ω)	< 0.2 %
Damp heat	4 days 40 °C 93 % HR	± 2 % or ± (0.5 % + 0.05 Ω)	< 0.2 %
VRT	-55 °C / +125 °C 21 cycles	± 2 % or ± (0.5 % + 0.05 Ω)	< 0.1 %
Shock	18 shocks 3 positive and 3 negative per axis - 100 m/s^2 and 11 ms (IEC 60068-2-27, Ea)	± (0.5 % + 0.05 Ω)	< 0.1 %
Vibrations	10 sweeps/axis - 7.5 mm at 5 Hz to 8 Hz, 20 m/s^2 at 8 Hz to 200 Hz and 40 m/s^2 at 200 Hz to 500 Hz (IEC 60068-2-6, Fc)	± (0.5 % + 0.05 Ω)	< 0.1 %
Terminal strength	200 Ncm/100 N	± 1 % or ± (0.5 % + 0.05 Ω)	< 0.1 %

Note

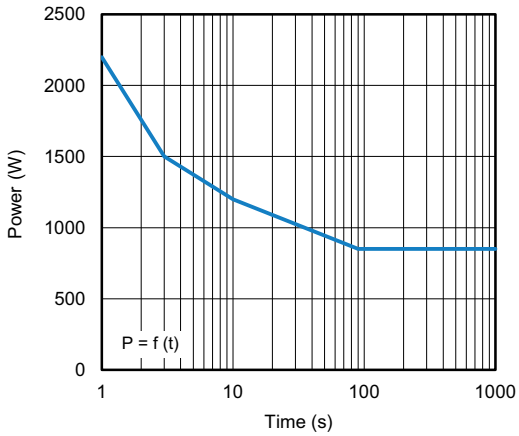
- All tests were done in Vishay MCB laboratories conditions

DISSIPATION



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

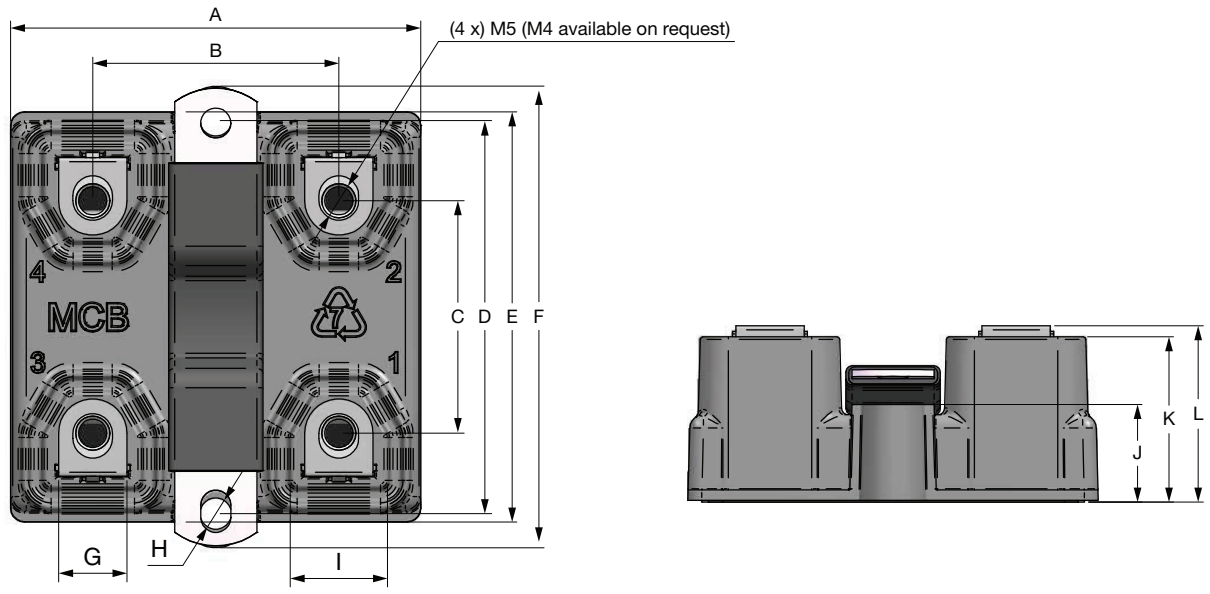
OVERLOAD



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

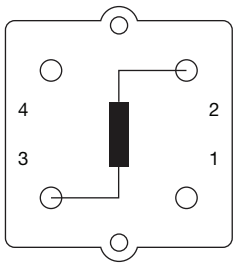
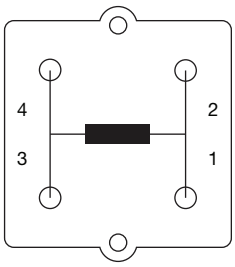
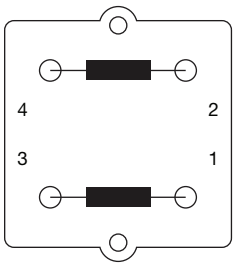
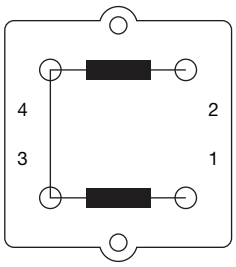
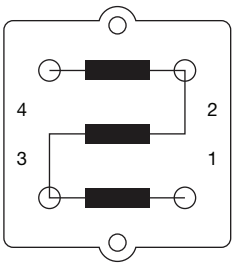
ENERGY	
R < 390 Ω	**R > 390 Ω**
Repetitive operation = 8 J Pulse τ = 50 µs	Repetitive operation = 4 J Pulse τ = 50 µs
Accidental operation = 20 J Pulse τ = 50 µs 120 pulses	Other τ values: consult us

DIMENSIONS in millimeters

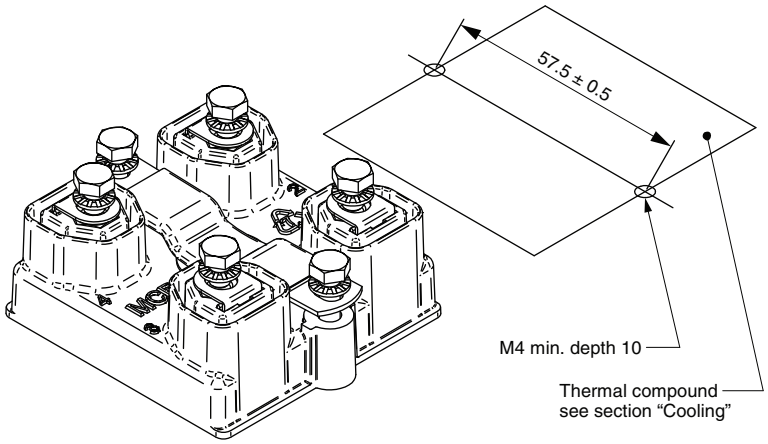


DIMENSION	MILLIMETER		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	59.2	60.8	2.331	2.394
B	35.8	36.2	1.409	1.425
C	33.8	34.2	1.331	1.346
D	57	58	2.244	2.283
E	59.7	60.3	2.350	2.374
F	67	68	2.638	2.677
G	9.5	10.5	0.374	0.413
H	4.3	4.9	0.169	0.193
I	13.5	14.5	0.531	0.571
J	14	14.6	0.551	0.575
K	23.7	24.7	0.933	0.972
L	25.5	26	1.004	1.024

CONFIGURATIONS

1	2	3	4	5
				

ASSEMBLY



Mounting screws and washers are supplied.
Electrical screws and washers are not supplied.

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

TERMINAL OPTIONS

- Electrical terminals M4

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 µ
- 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

Note

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

ORDERING INFORMATION

RCEC	850	S	1	100K	100K	100K	5 %	XXX	BO20
MODEL	STYLE	**S**INGLE / **D**OUBLE	CONFIGURATION	RESISTANCE Value for single / first value for double or triple	RESISTANCE Second value for double or triple	RESISTANCE Third value for triple	TOLERANCE ± 5 % ± 10 % Other on request	CUSTOM	PACKAGING

GLOBAL PART NUMBER INFORMATION

R	C	E	C	8	5	0	S	1	2	R	7	0	J	B			
1							2		3				4	5	6		

1	2	3	4	5	6
GLOBAL MODEL	TERMINAL	OHMIC VALUE	TOLERANCE	PACKAGING	INDUSTRIALIZATION NUMBER
RCEC 850	**First digit:** **S = simple** **D = double** **T = triple** **Second digit:** **configuration** **1, 2, 3, 4, or 5**	**The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point.** **4702 = 47 kΩ** **47R0 = 47 Ω** **In case of double or triple value → value = sum of the 2 or 3 values**	**J = 5 %** **K = 10 %**	**B = box**	**3 specific digits (if applicable)**

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