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



FEATURES

- System without external radiation
- High power / volume ratio
- Non-inductive
- Screw-on outputs
- 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	VALUE	RESISTANCE RANGE Ω	MAX. RATED POWER $P_{75\,°C}$ W	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C	E-SERIES OHMIC VALUES (3)
RCEC 400	Single	0.15 (2) to 0.49	400	10, 5 (1)	700 (typical)	E 24
	Single	0.5 to 3	400	10, 5 (1)	300 (typical)	E 24
	Single	3.3 to 1M	400	10, 5 (1)	100 (typical)	E 24
	Double	1.5 to 1M	2 x 180	10, 5 (1)	150 (typical)	E 24

Notes

(1) ± 2 % or ± 1 % on special request for limited resistance value and with reduction of maximum power and pulse rating (contact us for detail)
(2) Current limitation for 0.15 Ω: 30 A_{RMS} max.
(3) Other on request

MECHANICAL SPECIFICATIONS

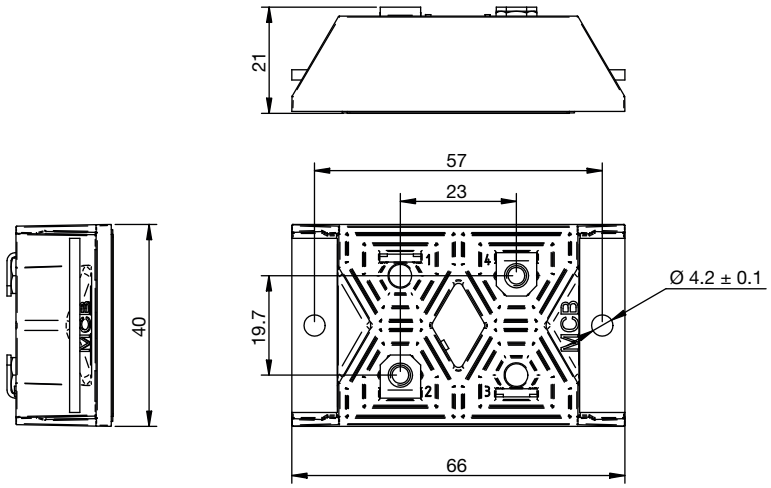
UL 94 flame classifications	Material in accordance with UL 94 V-0
Resistive element	Thick film
Substrate	Alumina
Encapsulation	Resin filled in housing

TECHNICAL SPECIFICATIONS

PARAMETER	SINGLE VALUE	DOUBLE VALUE
Operating temperature range	-55 °C to +150 °C	
Maximum operating voltage	4000 V	
Dielectric strength V_{RMS} (50 Hz / 1 min)	6000 V	
Creepage distance	> 42 mm	
Clearance distance	> 12 mm	> 10 mm
CTI index	> 600	
Partial discharge	< 20 pC at 5000 V_{eff}	
Inductance	< 40 nH	
Insulation resistance	10^5 MΩ at 500 V_{DC}	
Weight (max.)	75 g	

For technical questions, contact: mcbfixedresistors@vishay.com
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DIMENSIONS in millimeters



PERFORMANCES

TESTS		CONDITIONS	REQUIREMENTS	TYPICAL VALUES
Momentary overload	Single value	800 W / 10 s	2 %	0.2 %
	Double value	2 x 360 W / 10 s		
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	2 % or 0.05 Ω (1)	0.2 %
Mechanical shock		IEC 60115-4 clause 2-3-6	0.5 % or 0.05 Ω (1)	0.25 %
Vibration		IEC 60115-4 clause 2-3-2	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

Single Value

Repetitive operation: 2 J/t = 50 µs

Other t values: consult us

Double Value

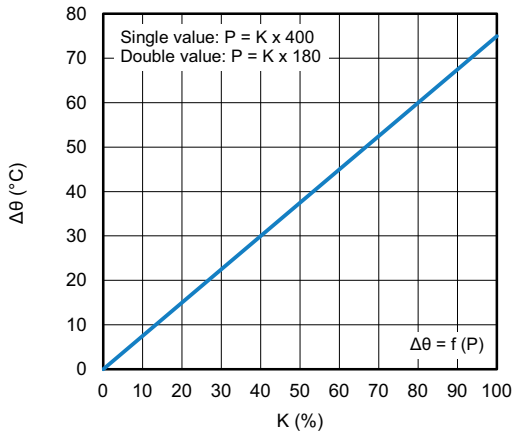
Repetitive operation: 2 J/t = 50 µs

Other t values: consult us

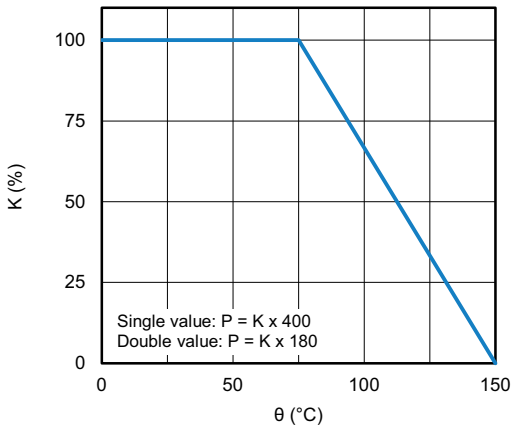
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DISSIPATION

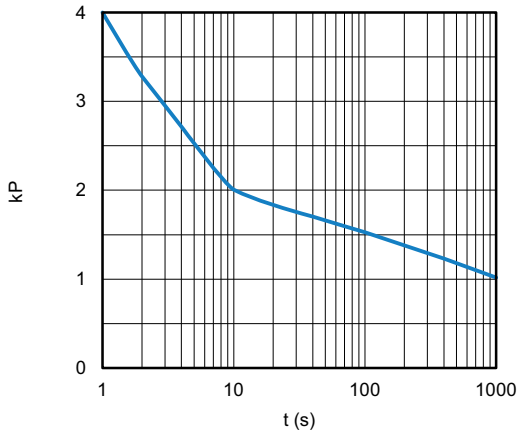


Temperature Rise as a Function of the Power Applied
Overall Thermal Resistance 0.1875 °C/W
(Double Value: 0.2083 °C/W)



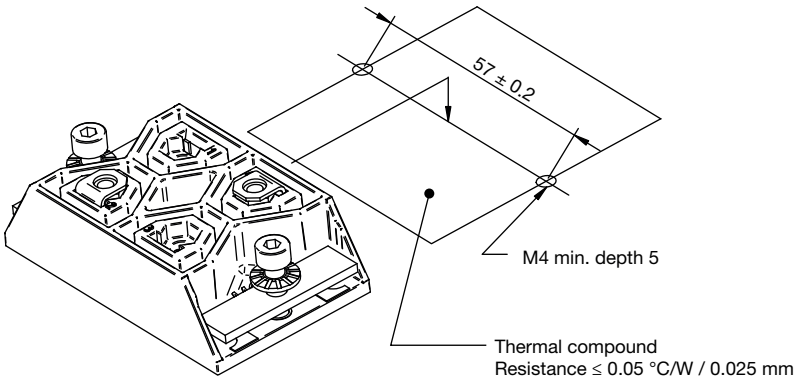
Permanent Applicable Power as a Function
of Heatsink Temperature

OVERLOAD



Intermittent Overload (Exceptional Operation)

ASSEMBLY



Maximum tightening torque:
150 Ncm, mechanical mounting
130 Ncm, electrical mounting

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COOLING

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

- Forced air ventilation
- Internal circulation of a cooling liquid
- 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	400	GD	MP	100K	5 %	100K	5 %	XXX	BO20
MODEL	STYLE		OPTION	RESISTANCE VALUE	TOLERANCE	RESISTANCE VALUE	TOLERANCE	CUSTOM	PACKAGING
		Single Double Triple	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	4	0	0	G	S	2	R	7	0	J	B			
1							2		3				4	5	6		

1	2	3	4	5	6
GLOBAL MODEL	LEAD	OHMIC VALUE	TOLERANCE	PACKAGING	INDUSTRIALIZATION NUMBER
RCEC 400	**Simple = GS Double = GD Triple = GT**	**The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. 4702 = 47 kΩ 48R7 = 48.7 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)**

EXAMPLES

MODEL	DESCRIPTION	PART NUMBER
RCEC 400	RCEC 400 GS 2U7 5 % BO20	RCEC400GS2R70JB
RCEC 400	RCEC 400 GD MP 12K 10 % 12K 10 % 998 BO20	RCEC400GD2402KB998

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