Molded Metal Film High Stability Resistors

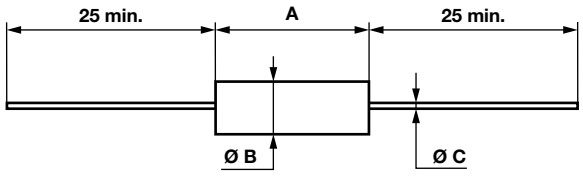
FEATURES

- 0.125 W to 0.5 W at 70 °C
- According to CECC 40 101 (002 / 803)
- High long term stability drift < 0.5 % after 1000 h
- Excellent temperature coefficient ≤ ± 30 ppm/°C in the range -10 °C to +70 °C
- Excellent initial precision: up to ± 1 %
- High insulation typical values: 10^6 MΩ
- Termination = pure matte tin
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

DIMENSIONS in millimeters



SERIES	A	Ø B	Ø C	WEIGHT in g
RCMS02	6.5 ± 0.2	$2.5^{\ 0}_{-0.2}$	0.6	0.26
RCMS05	10.2 ± 0.2	3.65 ± 0.1	0.6	0.46
RCMS1	16 ± 0.5	6.2 ± 0.2	0.8	1.30

STANDARD ELECTRICAL SPECIFICATIONS

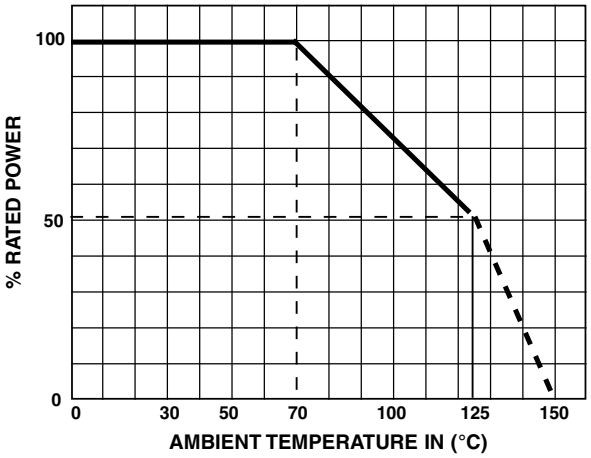
MODEL	RESISTANCE RANGE Ω	RATED POWER $P_{70\ °C}$ W	LIMITING ELEMENT VOLTAGE V	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C
RCMS02	1 to 150K	0.125	300	1	30, 50
	1 to 150K	0.250	300	1	30, 50
	1 to 150K	0.500	350	1	30, 50
RCMS05	1 to 1M	0.250	350	1	30, 50
	1 to 1M	0.500	350	1	30, 50
RCMS1	1 to 1M	0.500	400	1	30, 50

TECHNICAL AND QUALITY SPECIFICATIONS

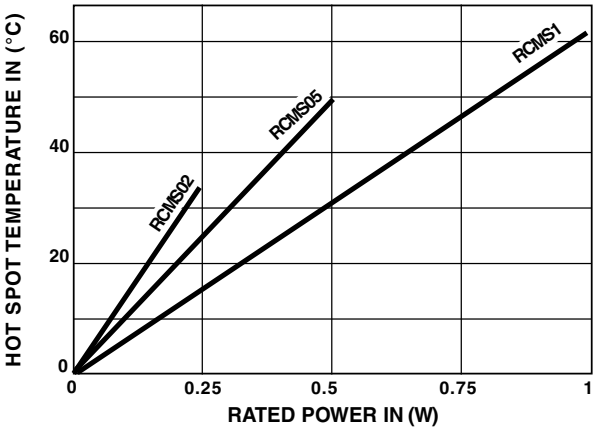
VISHAY SFERNICE SERIES		RCMS02			RCMS05		RCMS1
Reference under CECC 40 101-002		RS58Y	RS64Y	RS71Y	RS63Y	RS69Y	RS68Y
Reference under CECC 40 101-803		BC	-	-	CC	-	DC
MIL-R-105509 F equivalent reference		RN55C	-	-	RN60C	-	RN65C
Power rating at 70 °C		0.125 W	0.250 W	0.500 W	0.250 W	0.500 W	0.500 W
Resistance value range in relation to tolerance	± 1 % E96	1 Ω to 150 kΩ	1 Ω to 150 kΩ	1 Ω to 150 kΩ	1 Ω to 1 MΩ	1 Ω to 1 MΩ	1 Ω to 1 MΩ
Maximum voltage		300 V	300 V	350 V	350 V	350 V	400 V
Critical resistance		-	-	-	490 kΩ	245 kΩ	320 kΩ
Temperature coefficient	Rated in the range -55 °C +155 °C	K3 ≤ ± 50 ppm/°C					
	Typical in the range -10 °C +70 °C	K3 ≤ ± 30 ppm/°C					
Insulation resistance (typical)		≥ 10^7 MΩ (500 V_{DC})					
Voltage coefficient		10 ppm/V					
Environmental specification		-65 °C / +155 °C / 56 days					

PERFORMANCE			
TESTS	**CONDITIONS**	**REQUIREMENTS**	**TYPICAL VALUES AND DRIFTS**
Load life at max. category temperature	1000 h at 125 °C 50 % of P_n	≤ ± (1 % + 0.05 Ω) Insulation resist. > 1 GΩ	± 0.5 % or 0.05 Ω Insulation resist. 10^6 MΩ
Short time overload	2.5 Un / 5 s Limited to 2 Um	≤ ± (0.25 % + 0.05 Ω)	± 0.1 % or 0.05 Ω
Damp heat humidity (steady state)	56 days with low load	≤ ± (1 % + 0.05 Ω) Insulation resist. > 1 GΩ	± 0.5 % or 0.05 Ω Insulation resist. 10^6 MΩ
Rapid temperature change	-55 °C +125 °C	≤ ± (0.25 % + 0.05 Ω)	± 0.1 % or 0.05 Ω
Climatic sequence	-55 °C +125 °C severity 1	≤ ± (0.5 % + 0.05 Ω) Insulation resist. > 1 GΩ	± 0.1 % or 0.05 Ω Insulation resist. 10^6 MΩ
Terminal strength	Pull - twist - 2 bends	≤ ± (1 % + 0.05 Ω)	± 0.05 % or 0.05 Ω
Vibration	10 Hz to 500 Hz	≤ ± (0.25 % + 0.05 Ω)	± 0.05 % or 0.05 Ω
Soldering (thermal shock)	+260 °C 10 s	≤ ± (0.25 % + 0.05 Ω)	± 0.1 % or 0.05 Ω
Load life	Cycle 90'/30' 1000 h at P_n at 70 °C	≤ ± (1 % + 0.05 W) Insulation resist. > 1 GΩ	± 0.2 % or 0.05 Ω Insulation resist. 10^6 MΩ
Shelf life	1 year ambient temperature	-	± 0.1 % or 0.05 Ω

POWER RATING



TEMPERATURE RISE



PRACTICAL OPERATING TOLERANCES

Tables 2 and 3 show the basic characteristics and max. values under different stresses. In fact, the values and drifts are maintained to within narrower limits.

Temperature coefficient between -10 °C and +70 °C	K3 ≤ 30 ppm/°C	
LONG LIFE 90'/30' cycles ambient temperature 70 °C	1000 h at P_r	± 0.25 %
	10 000 h at P_r	± 0.5 %

Thus, in operation under the specified conditions (P_r at 70 °C) the total drift (load life + TCR) of a RCMS K3 does not exceed ± 0.5 %.

NOISE LEVEL

In a frequency decade, the average noise level increases with the ohmic value and can reach 0.3 µV/V for the highest values. It is non measurable for R_n < 2 kΩ.

MARKING

Printed: Vishay Sfernice trademark, series, ohmic value (in Ω), tolerance (in %), temperature coefficient, manufacturing data. Due to lack of space RCMS 02 is printed MS 02.

GLOBAL PART NUMBER INFORMATION

R	C	M	S	0	5		4	R	6	4	0	F	H	A	2	0

GLOBAL MODEL	SIZE	SPECIAL	OHMIC VALUE	TOLERANCE	TEMPERATURE COEFFICIENT	PACKAGING
RCMS	**02** **05** **10**	As applicable. Contact us.	The first four digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point. **4R640** = 4.64 Ω **48701** = 48 700 Ω **10002** = 100 000 Ω **R0100** = 0.01 Ω **R6800** = 0.68 Ω **27000** = 2700 Ω = 2.7 kΩ	**F** = 1 %	**H** = K3, 50 ppm/K	AM500 = **A20** AM1000 = **A22** BAG50 = **S09** BAG100 = **S14**

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