

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 $\leq \pm 30$ ppm/°C in the range -10 °C to +70 °C
- Excellent initial precision: up to ± 1 %
- High insulation typical values: 10^6 M Ω
- Termination = pure matte tin
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


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

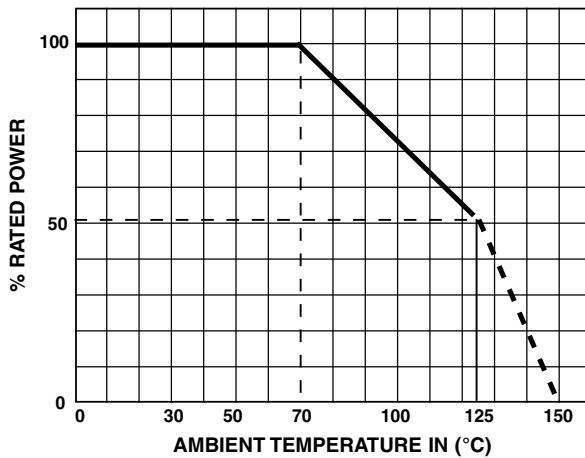
STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	RESISTANCE RANGE Ω	RATED POWER $P_{70\text{ °C}}$ W	LIMITING ELEMENT VOLTAGE V	TOLERANCE \pm %	TEMPERATURE COEFFICIENT \pm ppm/°C
RCMS02	1 to 150K	0.125	300	1	30, 50
	1 to 150K	0.250	300	1	30, 50
	1 to 150K	0.500	350	1	30, 50
RCMS05	1 to 1M	0.250	350	1	30, 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 k Ω	1 Ω to 150 k Ω	1 Ω to 150 k Ω	1 Ω to 1 M Ω	1 Ω to 1 M Ω	1 Ω to 1 M Ω
Maximum voltage		300 V	300 V	350 V	350 V	350 V	400 V
Critical resistance		-	-	-	490 k Ω	245 k Ω	320 k Ω
Temperature coefficient		Rated in the range -55 °C +155 °C $K3 \leq \pm 50$ ppm/°C Typical in the range -10 °C +70 °C $K3 \leq \pm 30$ ppm/°C					
Insulation resistance (typical)		$\geq 10^7$ M Ω (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	$\leq \pm (1 \% + 0.05 \Omega)$ Insulation resist. > 1 G Ω	$\pm 0.5 \%$ or 0.05 Ω Insulation resist. 10 ⁶ M Ω
Short time overload	2.5 U_n / 5 s Limited to 2 U_m	$\leq \pm (0.25 \% + 0.05 \Omega)$	$\pm 0.1 \%$ or 0.05 Ω
Damp heat humidity (steady state)	56 days with low load	$\leq \pm (1 \% + 0.05 \Omega)$ Insulation resist. > 1 G Ω	$\pm 0.5 \%$ or 0.05 Ω Insulation resist. 10 ⁶ M Ω
Rapid temperature change	-55 °C +125 °C	$\leq \pm (0.25 \% + 0.05 \Omega)$	$\pm 0.1 \%$ or 0.05 Ω
Climatic sequence	-55 °C +125 °C severity 1	$\leq \pm (0.5 \% + 0.05 \Omega)$ Insulation resist. > 1 G Ω	$\pm 0.1 \%$ or 0.05 Ω Insulation resist. 10 ⁶ M Ω
Terminal strength	Pull - twist - 2 bends	$\leq \pm (1 \% + 0.05 \Omega)$	$\pm 0.05 \%$ or 0.05 Ω
Vibration	10 Hz to 500 Hz	$\leq \pm (0.25 \% + 0.05 \Omega)$	$\pm 0.05 \%$ or 0.05 Ω
Soldering (thermal shock)	+260 °C 10 s	$\leq \pm (0.25 \% + 0.05 \Omega)$	$\pm 0.1 \%$ or 0.05 Ω
Load life	Cycle 90'/30' 1000 h at P_n at 70 °C	$\leq \pm (1 \% + 0.05 W)$ Insulation resist. > 1 G Ω	$\pm 0.2 \%$ or 0.05 Ω Insulation resist. 10 ⁶ M Ω
Shelf life	1 year ambient temperature	-	$\pm 0.1 \%$ or 0.05 Ω

POWER RATING



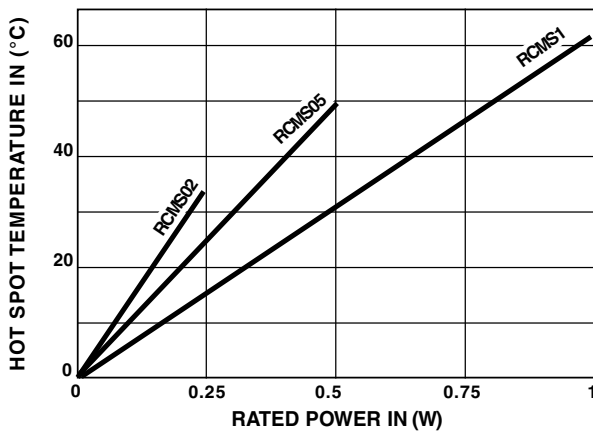
PRACTICAL OPERATING TOLERANCES

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	$\pm 0.25 \%$
	10 000 h at P_r	$\pm 0.5 \%$

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 $\pm 0.5 \%$.

TEMPERATURE RISE



NOISE LEVEL

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

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.	<p>The first four digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point.</p> <p>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</p>				F = 1 %	H = K3, 50 ppm/K		AM500 = A20 AM1000 = A22 BAG50 = S09 BAG100 = S14						



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