

Molded Metal Film High Stability Resistors

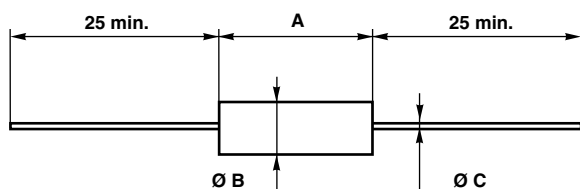


FEATURES

- 0.125 W to 0.5 W at 70 °C
- Approval 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 332K	0.125	300	1	30, 50
	1 to 332K	0.250	300,	1	30, 50
	1 to 332K	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 2.21M	0.500	400	1	30, 50

Note

-  Undergoes European Quality Insurance System (CECC)

TECHNICAL SPECIFICATIONS

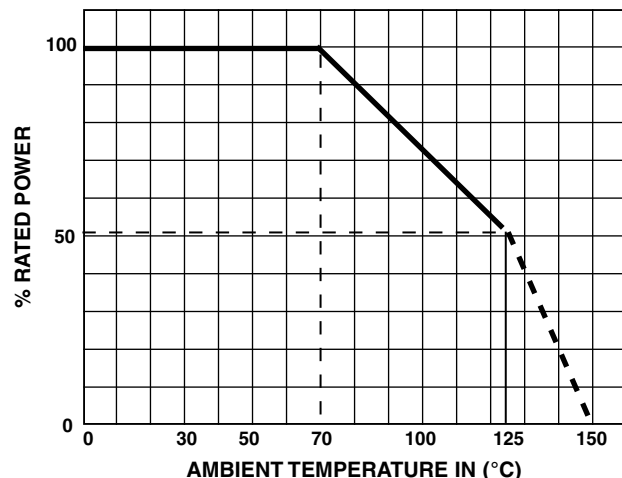
VISHAY SFERNICE SERIES		RCMS02 			RCMS05 		RCMS1 
Reference under CECC 40 101-002 approvals		RS58Y	RS64Y	RS71Y	RS63Y	RS69Y	RS68Y
Reference under CECC 40 101-803 approvals		BC	-	-	CC	-	DC
MIL-R-105509 F equivalent reference		RN55C	-	-	RN60C	-	RN65C
Power Rating at 70 °C		0.125 W	0.250 W	0.500 W	0.250 W	0.500 W	0.500 W
Resistance Value Range in Relation to Tolerance ± 1 % E96		1 Ω to 332 k Ω	1 Ω to 332 k Ω	1 Ω to 332 k Ω	1 Ω to 1 M Ω	1 Ω to 1 M Ω	1 Ω to 2.21 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					

Note

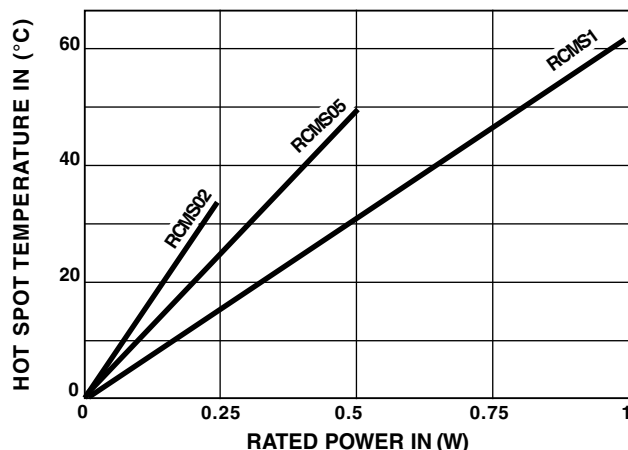
-  Undergoes European Quality Insurance System (CECC)

PERFORMANCE			
CECC 40 100 EN 140-100		TYPICAL VALUES AND DRIFTS	
TESTS	CONDITIONS	REQUIREMENTS	
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_n	$\leq \pm (0.25 \% + 0.05 \Omega)$	$\pm 0.1 \%$ 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	$\leq \pm (1 \% + 0.05 \Omega)$ 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



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	$\pm 0.25 \%$
	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 $\pm 0.5 \%$.

NOISE LEVEL

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

MARKING

Printed: Vishay Sfernice trademark, series, style NF style (if applicable), 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 k Ω				F = 1 %	H = K3, 50 ppm/K		AM500 = A20 AM1000 = A22 BAG50 = S09 BAG100 = S14						



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<u>RCMS0251R10FHS14</u>	<u>RCMS051R620FHS14</u>	<u>RCMS0210500FHS14</u>	<u>RCMS0545300FHA20</u>	<u>RCMS0537400FHA20</u>
<u>RCMS0554900FHA20</u>	<u>RCMS0515801FHS14</u>	<u>RCMS024R990FHS14</u>	<u>RCMS0521102FHS14</u>	<u>RCMS0510001FHS14</u>
<u>RCMS02200R0FHS14</u>	<u>RCMS05390R0FHS14</u>	<u>RCMS0575000FHS14</u>	<u>RCMS054R300FHS14</u>	<u>RCMS0520000FHS14</u>
<u>RCMS0520000FHA20</u>	<u>RCMS058R200FHS14</u>	<u>RCMS0551000FHS14</u>	<u>RCMS0547001FHS14</u>	<u>NY431600FA20</u>
<u>RCMS0511301FHS14</u>	<u>RCMS0510R00FHS14</u>	<u>RCMS05100R0FHS14</u>	<u>RCMS0510000FHS14</u>	<u>RCMS0210000FHS14</u>
<u>RCMS05470R0FHS14</u>	<u>RCMS0556001FHS14</u>	<u>RCMS05475R0FHS14</u>	<u>RCMS0221500FHS14</u>	<u>RCMS0580600FHA20</u>
<u>RCMS059R100FHS14</u>	<u>RCMS0530900FHA20</u>	<u>RCMS0524900FHA20</u>	<u>RCMS0551001FHS14</u>	<u>RCMS0518701FHS14</u>
<u>RCMS0547000FHS14</u>	<u>RCMS0566500FHA20</u>	<u>RCMS055R600FHS14</u>	<u>RCMS053R900FHS14</u>	<u>RCMS0515400FHA20</u>
<u>RCMS05510R0FHS14</u>	<u>RCMS0512102FHS14</u>	<u>RCMS0235701FHS14</u>	<u>RCMS0226701FHS14</u>	<u>RCMS0210202FHS14</u>
<u>RCMS021R240FHS14</u>	<u>RCMS0223701FHS14</u>	<u>RCMS0259000FHS14</u>	<u>RCMS0210200FHS14</u>	<u>RCMS0524900FHS14</u>
<u>RCMS0211001FHS14</u>	<u>RCMS0566500FHS14</u>			