

Fixed Resistors

Type RCR16, RCR25, RCR50(+), RCR60, RCR75 and RCR100

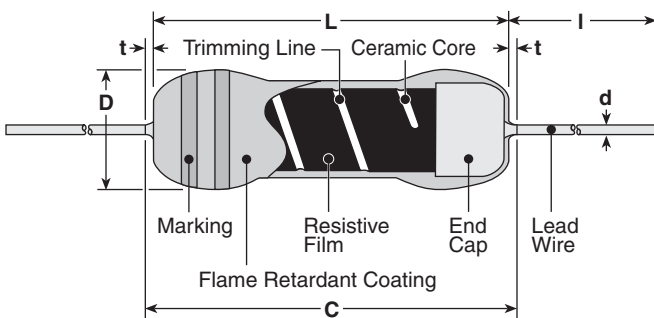
ISO 9001:2000
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1. Scope of Application

This specification applies to RCR16, RCR25, RCR50(+), RCR60, RCR75 and RCR100 type coat-insulated fixed surge resistant resistors produced by KOA corporation.

Values from 1MΩ to 12MΩ are approved to UL 1676, RCR50+ and RCR60 only (discharge path resistor spec, File No. E159326).

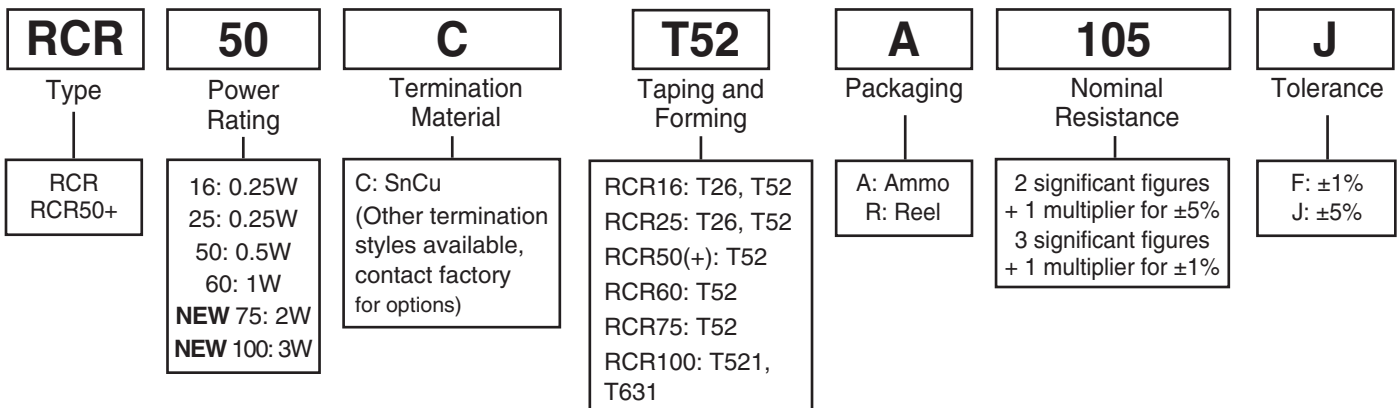
2. Dimensions and Construction



Type	Dimensions inches (mm)					I
	L	C (max.)	t (max.)	D	d (nom.)	
RCR16	.126±.008 (3.2±0.2)	.134 (3.4)	—	.067 ^{+0.008} _{-.004} (1.7 ^{+0.2} _{-.01})	.018 (0.45)	.787 Min. (20.0 Min.)
RCR25	.248±.02 (6.3±0.5)	.28 (7.1)	—	.098±.02 (2.5±0.5)	.024 (0.6)	
RCR50 RCR50+	.374±.039 (9.5±1.0)	—	.118 (3.0)	.138±.016 (3.5±0.4)	.028 (0.7)	
RCR60	.374 ^{+0.039} _{-.004} (9.5 ^{+1.0} _{-.02})	—	.118 (3.0)	.157±.02 (4.0±0.5)	.031 (0.8)	
NEW RCR75	.472±.039 (12±1.0)	—	.118 (3.0)	.236 ^{+0.039} _{-.016} (6.0 ^{+1.0} _{-.4})	.031 (0.8)	
NEW RCR100	.610±.039 (15.5±1.0)	—	.118 (3.0)	.236 ^{+0.039} _{-.016} (6.0 ^{+1.0} _{-.4})	.031 (0.8)	

3. Type Designation

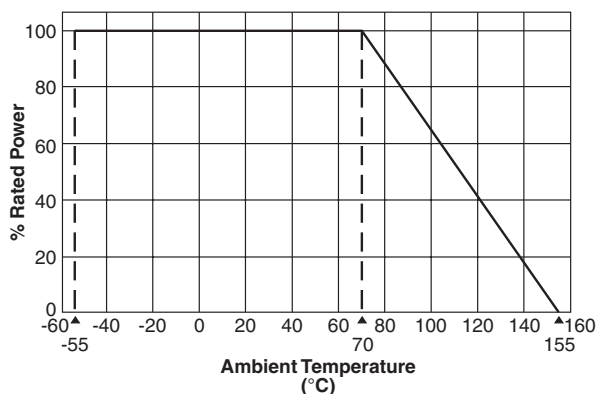
The type designation shall be in the following form:



4. Standard Applications

Part Designation	Power Rating @ 70°C	Minimum Dielectric Withstanding Voltage	Resistance Range E-96 (F±1%)	Resistance Range E-24 (J±5%)	Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage	Operating Temperature Range
RCR16	0.25W	300V	100kΩ - 1MΩ	100kΩ - 5.1MΩ	500V	1000V	-55°C to +155°C
RCR25		700V		—	100kΩ - 33MΩ	DC 1600V AC 1150V	
RCR50	0.5W		3.3Ω - 910kΩ		2000V	2500V	
RCR50+	1.0W		1MΩ - 12MΩ		4000V	5000V	
RCR60			100kΩ - 56MΩ				
RCR75	2.0W		100kΩ - 100MΩ		5000V	5000V	
RCR100	3.0W	470kΩ - 33MΩ					

5. Derating Curve

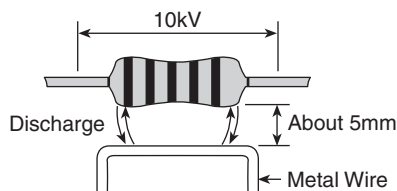


Notice of Surge Load

Surge withstanding load voltage for the resistors cannot be guaranteed when the undermentioned 4 items get to a remarkable overload in comparison with the conditions shown by surge withstanding voltage in Anti-surge characteristics. Please contact KOA in advance if such a case is anticipated.

1. Peak voltage to be applied
2. Pulse width
3. Conditions of protecting insulation around the resistor
4. Situation of proximity conductivity object

For example: In the figure, a metal wire is placed less than 5mm away from the resistor body, there is such a case that causes an electric discharge by a surge load 10kV and then destroys the outer coating.



6. Markings on Resistor

Resistors shall be coded with color bands in accordance with JIS C 0802. The first and the second color bands shall show 2 effective numbers, the third band shall show a multiplier of 10, the fourth band shall show resistance tolerance, and the fifth band "green" shall show UL1676 approval (on RCR50 values from 1MΩ to 12MΩ).

7. Performance Characteristics

Parameter	Requirement $\Delta R \pm(\% + 0.05\Omega)$		Typical	Test Method				
	Limit							
Resistance	Within regulated tolerance		—	Measuring points are 10mm \pm 1mm from the end cap				
T.C.R.	Type	T.C.R.	—	Room temperature/100°C up				
	RCR16	$\pm 200\text{ppm}/^\circ\text{C}$			100k Ω - 5.1M Ω			
	RCR25	$\pm 350\text{ppm}/^\circ\text{C}$			100k Ω - 33M Ω			
	RCR50 (+)	$\pm 500\text{ppm}/^\circ\text{C}$			3.3 Ω - 91k Ω			
		$\pm 350\text{ppm}/^\circ\text{C}$			100k Ω - 33M Ω			
	RCR60	$\pm 350\text{ppm}/^\circ\text{C}$			100k Ω - 56M Ω			
	RCR75	$\pm 350\text{ppm}/^\circ\text{C}$			100k Ω - 100M Ω			
RCR100	$\pm 350\text{ppm}/^\circ\text{C}$	470k Ω - 33M Ω						
Overload	1		0.5	Rated voltage x 2.5 or maximum overload voltage for 5 seconds, whichever is less				
Resistance to Solder Heat	1		0.5	260°C \pm 5°C, 10 seconds \pm 1 second or 350°C \pm 10°C, 3.5 seconds \pm 0.5 seconds				
Terminal Strength	No mechanical damage		—	Twist 360°, 5 times				
Rapid Change of Temperature	1		0.5	-55°C (30 minutes)/+155°C (30 minutes), 5 cycles				
Moisture Resistance	5		2.5	40°C \pm 2°C, 90-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle				
Endurance @ 70°C	5		2.5	70°C \pm 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle				
Resistance to Solvent	No visible damage to protective coating and marking		—	Isopropyl alcohol with ultrasonic washing, 2 minutes Power: 0.3W/cm ² , f: 28kHz, Temperature: 35°C \pm 5°C				
Surge Withstanding	10		2.5	Discharge test: 2kV - 10kV, 0.01 μ F capacitor discharge pulse, 10 times (1 pulse/5 seconds maximum)				
				Type	RCR16	RCR25	RCR50, RCR50+	RCR60, RCR75, RCR100
				Applied Voltage	2kV	3kV	3.3 Ω - 6.2 Ω : 10kV	10kV
							6.8 Ω - 10 Ω : 7kV	
							11 Ω - 9.1k Ω : 5kV	
10k Ω - 91k Ω : 7kV								
100k Ω - 33M Ω : 10kV								
EN60065 Test (RCR60 only)	20		—	Discharge test: 10kV, 1000pF capacitor discharge pulse, 50 times (1 pulse/5 seconds maximum)				

9. Package

9-1 Package

RCR16	T25A: 5,000 pieces/box T52A: 3,000 pieces/box
RCR25	T25A: 2,000 pieces/box T52A: 2,000 pieces/box T52R: 5,000 pieces/reel
RCR50(+)	T52A: 2,000 pieces/box T52R: 3,000 pieces/reel
RCR60	T52A: 2,000 pieces/box
RCR75	T52: 1,000 pieces/box
RCR100	T521: 500 pieces/box T631: 1,000 pieces/box

9-2 Forming

	Type
RCR16	M-5
RCR25	M-10
RCR50	M-15
RCR60	M-15
RCR100	M-20

10. Markings

Marking items for box and tape and reel packaging are as follows:

1	Product name	2	Nominal resistance
3	Resistance tolerance	4	Quantity
5	Lot number	6	Manufacturer's name