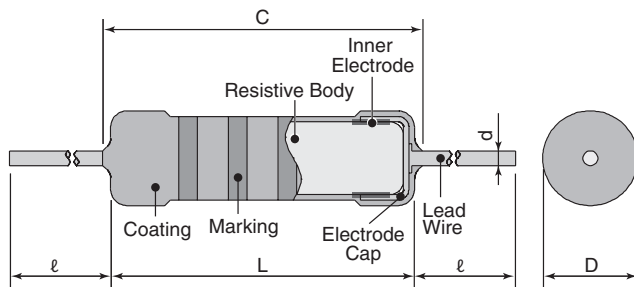


features

- KOA original bulk ceramic resistors
- Coated with UL94V0 flameproof material
- Excellent in anti-pulse characteristics
- Non-inductive resistors
- Products with lead-free terminations meet EU RoHS requirements
- Higher reliability against disconnection compared to wirewound resistors and film resistors
- AEC-Q200 Tested

leaded resistors

dimensions and construction



Type	Dimensions inches (mm)				
	L	C (max.)	D	d (nom.)	I*
PCF1/2	.354±.039 (9.0±1.0)	.437 (11.1)	.138±.02 (3.5±0.5)	.028 (0.7)	1.18±.118 (30.0±3.0)
PCF1	0.65±.039 (16.5±1.0)	.748 (19.0)	.217±.039 (5.5±1.0)	.031 (0.8)	1.50±.118 (38.0±3.0)
PCF2	.748±.039 (19.0±1.0)	.886 (22.5)	.276±.039 (7.0±1.0)		

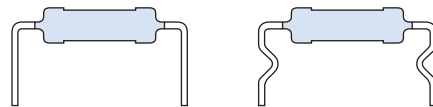
* Lead length changes depending on taping type

ordering information

PCF	1	C	T631	R	103	K
Type	Power Rating	Termination Material	Taping	Packaging	Nominal Resistance	Tolerance
PCF	1/2: 0.5W 1: 1W 2: 2W	C: SnCu	1/2: T52 1: T631 2: T631	R: Reel	2 significant figures + 1 multiplier	K: ±10% M: ±20%

taping

Type	Axial Taping	
	T52	T631
PCF1/2	○	—
PCF1	—	○
PCF2	—	○



Contact us for lead forming details.

For further information on packaging, please refer to Appendix C.

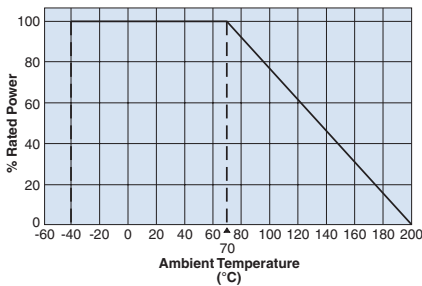
applications and ratings

Part Designation	Power Rating @ 70°C	Resistance Range (Ω)		T.C.R. (x10 ⁻⁶ /K)	Maximum Working Voltage	Maximum Overload Voltage	Dielectric Withstanding Voltage	Rated Ambient Temp.	Operating Temp. Range
		K: ±10% E-12	M: ±20% E-6						
PCF1/2	0.5W	4.7 - 100K	4.7 - 100K	-500 ~ -1300: 3.3Ω≤R<10Ω -600 ~ -1500: 10Ω≤R<100Ω	200V	400V	500V	+70°C	-40°C to +200°C
PCF1	1.0W	3.3 - 390K	3.3 - 390K	-700 ~ -1800: 100Ω≤R<1kΩ -900 ~ -1900: 1kΩ≤R<100kΩ	300V	600V			
PCF2	2.0W			-900 ~ -2000: 100kΩ≤R<200kΩ -900 ~ -2200: 200kΩ≤R<390kΩ	400V	800V	700V		

Rated Voltage = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Maximum Working Voltage, whichever is lower.

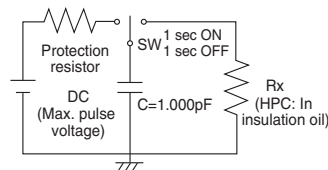
environmental applications

Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the derating curve.

Performance Characteristics

Parameter	Requirement $\Delta R \pm(\% + 0.05\Omega)$		Test Method																												
	Limit	Typical																													
Resistance	Within regulated to tolerance	—	Resistance	Measurement voltage																											
			3.3Ω=<R<10Ω	0.3V																											
			10Ω=<R<100Ω	1.0V																											
			100Ω=<R=<390kΩ	3.0V																											
T.C.R	-500~-1300:3.3Ω≤R<10Ω -600~-1500:10Ω≤R<100Ω -700~-1800:100Ω≤R<1kΩ -900~-1900:1kΩ≤R<100kΩ -900~-2000:100kΩ≤R<200kΩ -900~-2200:200kΩ≤R<390kΩ	—	+25°C/-40°C, +25°C/+75°C and +25°C/+125°C																												
Voltage Coefficient (Apply for over 1kΩ)	0~0.2%/V	—	Rated voltage and rated voltage x 10%																												
Overload	2%	0.4%	Rated voltage x 2.5 or maximum overload voltage for 5s, whichever less																												
Resistance to pulse	Refer to the table on the right	—	<p>The resistor mounted to the test circuit as below is applied with high voltage impulse 10,000 cycles.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Test Voltage</th> <th>Performance Requirements $\Delta R \pm(\% + 0.05\Omega)$</th> </tr> </thead> <tbody> <tr><td rowspan="3">PCF1/2</td><td>10kV:4.7Ω≤R<10kΩ</td><td>5</td></tr> <tr><td>10kV:10kΩ≤R<33kΩ</td><td>10</td></tr> <tr><td>10kV:33kΩ≤R<100kΩ</td><td>25</td></tr> <tr><td rowspan="3">PCF1</td><td>4kV:10kΩ≤R<100kΩ</td><td>5</td></tr> <tr><td>14kV:3.3Ω≤R<30kΩ</td><td>5</td></tr> <tr><td>14kV:30kΩ≤R<390kΩ</td><td>10</td></tr> <tr><td rowspan="3">PCF2</td><td>7kV:30kΩ≤R<390kΩ</td><td>5</td></tr> <tr><td>20kV:3.3Ω≤R<10kΩ</td><td>5</td></tr> <tr><td>20kV:10kΩ≤R<390kΩ</td><td>10</td></tr> <tr><td></td><td>11kV:10kΩ≤R<390kΩ</td><td>5</td></tr> </tbody> </table> 		Type	Test Voltage	Performance Requirements $\Delta R \pm(\% + 0.05\Omega)$	PCF1/2	10kV:4.7Ω≤R<10kΩ	5	10kV:10kΩ≤R<33kΩ	10	10kV:33kΩ≤R<100kΩ	25	PCF1	4kV:10kΩ≤R<100kΩ	5	14kV:3.3Ω≤R<30kΩ	5	14kV:30kΩ≤R<390kΩ	10	PCF2	7kV:30kΩ≤R<390kΩ	5	20kV:3.3Ω≤R<10kΩ	5	20kV:10kΩ≤R<390kΩ	10		11kV:10kΩ≤R<390kΩ	5
Type	Test Voltage	Performance Requirements $\Delta R \pm(\% + 0.05\Omega)$																													
PCF1/2	10kV:4.7Ω≤R<10kΩ	5																													
	10kV:10kΩ≤R<33kΩ	10																													
	10kV:33kΩ≤R<100kΩ	25																													
PCF1	4kV:10kΩ≤R<100kΩ	5																													
	14kV:3.3Ω≤R<30kΩ	5																													
	14kV:30kΩ≤R<390kΩ	10																													
PCF2	7kV:30kΩ≤R<390kΩ	5																													
	20kV:3.3Ω≤R<10kΩ	5																													
	20kV:10kΩ≤R<390kΩ	10																													
	11kV:10kΩ≤R<390kΩ	5																													
Resistance to soldering heat	2%	0.8%	350°C±10°C, 3.5s±0.5s																												
Rapid change of temperature	2%	0.4%	-40°C (30 min.)/+85°C (30 min.), 5 cycles																												
Moisture resistance	5%	0.6%	40°C±2°C, 90%~95%RH, 1000 hours, 1.5h ON/0, 5h OFF cycles																												
Load life	5%	0.4%	70°C±2°C, 1000h, 1.5h ON/0, 5h OFF cycles																												
Resistance to Solvent	No abnormality in appearance. Marking shall be easily legible.	—	Dipping in IPA or Xylene for 3 minutes and leaving for 10 minutes after removing drops, then brushing 10 times.																												

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

12/19/17