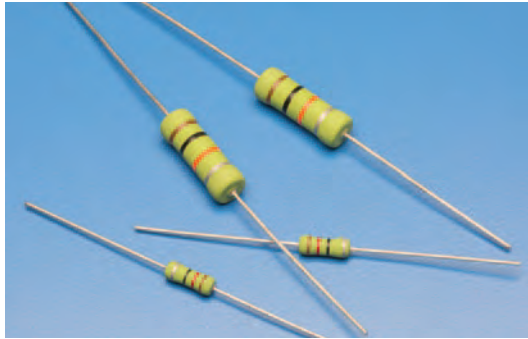
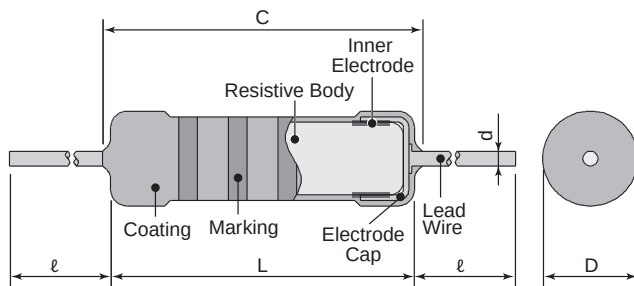




features

- KOA original bulk ceramic resistors
- Flame retardant coating (Equivalent of UL 94 V-0)
- Excellent in in-pulse and inrush current characteristics
- Non-inductive resistors
- Products meet EU RoHS requirements
- Higher reliability against disconnection compared to wirewound resistors and film resistors
- AEC-Q200 Tested

dimensions and construction



Type	Dimensions inches (mm)				
	L	C (max.)	D	d (nom.)	l*
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)		

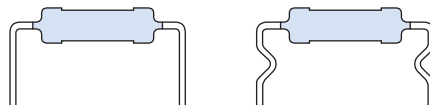
* Lead length changes depending on taping type

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.

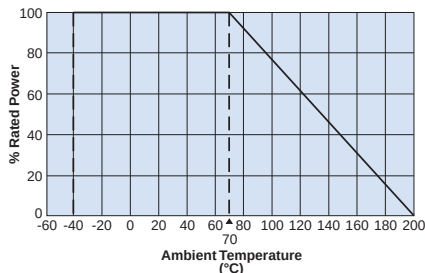
applications and ratings

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 -700 ~ -1800: 100Ω≤R<1kΩ -900 ~ -1900: 1kΩ≤R<100kΩ -900 ~ -2000: 100kΩ≤R<200kΩ -900 ~ -2200: 200kΩ≤R≤390kΩ	200V	400V	500V	+70°C	-40°C to +200°C
PCF1	1.0W	3.3 - 390K	3.3 - 330K		300V	600V			
PCF2	2.0W				400V	800V	700V		

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

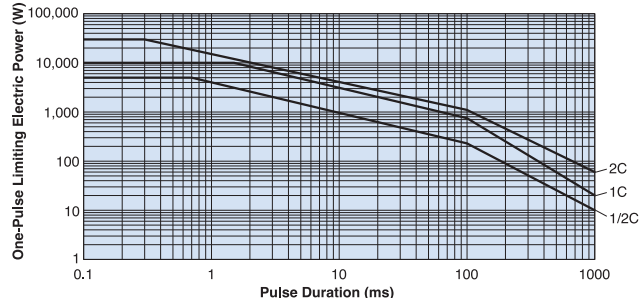
environmental applications

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.

One-Pulse Limiting Electric Power



Please ask us about the resistance characteristic of continuous applied pulse. The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Performance Characteristics

Parameter	Requirement $\Delta R \pm(\% + 0.05\Omega)$		Test Method																												
	Limit	Typical																													
Resistance	Within regulated to tolerance	—	<table><tr><td>Resistance</td><td>Measurement voltage</td></tr><tr><td>$3.3\Omega \leq R < 10\Omega$</td><td>0.3V</td></tr><tr><td>$10\Omega \leq R < 100\Omega$</td><td>1.0V</td></tr><tr><td>$100\Omega \leq R < 390k\Omega$</td><td>3.0V</td></tr></table>	Resistance	Measurement voltage	$3.3\Omega \leq R < 10\Omega$	0.3V	$10\Omega \leq R < 100\Omega$	1.0V	$100\Omega \leq R < 390k\Omega$	3.0V	25°C																			
Resistance	Measurement voltage																														
$3.3\Omega \leq R < 10\Omega$	0.3V																														
$10\Omega \leq R < 100\Omega$	1.0V																														
$100\Omega \leq R < 390k\Omega$	3.0V																														
T.C.R	-500~-1300: $3.3\Omega \leq R < 10\Omega$ -600~-1500: $10\Omega \leq R < 100\Omega$ -700~-1800: $100\Omega \leq R < 1k\Omega$ -900~-1900: $1k\Omega \leq R < 100k\Omega$ -900~-2000: $100k\Omega \leq R < 200k\Omega$ -900~-2200: $200k\Omega \leq R \leq 390k\Omega$	—	+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	—	The resistor mounted to the test circuit as below is applied with high voltage impulse 10,000 cycles. <table><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="4">PCF1/2</td><td>10kV: $4.7\Omega \leq R < 10k\Omega$</td><td>5</td></tr><tr><td>10kV: $10k\Omega \leq R < 33k\Omega$</td><td>10</td></tr><tr><td>10kV: $33k\Omega \leq R < 100k\Omega$</td><td>25</td></tr><tr><td>4kV: $10k\Omega \leq R < 100k\Omega$</td><td>5</td></tr><tr><td rowspan="3">PCF1</td><td>14kV: $3.3\Omega \leq R < 30k\Omega$</td><td>5</td></tr><tr><td>14kV: $30k\Omega \leq R < 390k\Omega$</td><td>10</td></tr><tr><td>7kV: $30k\Omega \leq R < 390k\Omega$</td><td>5</td></tr><tr><td rowspan="2">PCF2</td><td>20kV: $3.3\Omega \leq R < 10k\Omega$</td><td>5</td></tr><tr><td>20kV: $10k\Omega \leq R < 390k\Omega$</td><td>10</td></tr><tr><td></td><td>11kV: $10k\Omega \leq R < 390k\Omega$</td><td>5</td></tr></tbody></table> Protection resistor SW 1 sec ON 1 sec OFF DC (Max. pulse voltage) C=1000pF Rx (In insulation oil)		Type	Test Voltage	Performance Requirements $\Delta R \pm(\% + 0.05\Omega)$	PCF1/2	10kV: $4.7\Omega \leq R < 10k\Omega$	5	10kV: $10k\Omega \leq R < 33k\Omega$	10	10kV: $33k\Omega \leq R < 100k\Omega$	25	4kV: $10k\Omega \leq R < 100k\Omega$	5	PCF1	14kV: $3.3\Omega \leq R < 30k\Omega$	5	14kV: $30k\Omega \leq R < 390k\Omega$	10	7kV: $30k\Omega \leq R < 390k\Omega$	5	PCF2	20kV: $3.3\Omega \leq R < 10k\Omega$	5	20kV: $10k\Omega \leq R < 390k\Omega$	10		11kV: $10k\Omega \leq R < 390k\Omega$	5
Type	Test Voltage	Performance Requirements $\Delta R \pm(\% + 0.05\Omega)$																													
PCF1/2	10kV: $4.7\Omega \leq R < 10k\Omega$	5																													
	10kV: $10k\Omega \leq R < 33k\Omega$	10																													
	10kV: $33k\Omega \leq R < 100k\Omega$	25																													
	4kV: $10k\Omega \leq R < 100k\Omega$	5																													
PCF1	14kV: $3.3\Omega \leq R < 30k\Omega$	5																													
	14kV: $30k\Omega \leq R < 390k\Omega$	10																													
	7kV: $30k\Omega \leq R < 390k\Omega$	5																													
PCF2	20kV: $3.3\Omega \leq R < 10k\Omega$	5																													
	20kV: $10k\Omega \leq R < 390k\Omega$	10																													
	11kV: $10k\Omega \leq R < 390k\Omega$	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.																												

Mouser Electronics

Authorized Distributor

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[PCF1/4CT52R101K](#) [PCF1C101K](#) [PCF1C270K](#) [PCF1C472K](#) [PCF1C562K](#) [PCF1C5R6K](#) [PCF1CT631R102K](#)
[PCF1CT631R152K](#) [PCF1CT631R270K](#) [PCF2C101K](#) [PCF2C183K](#) [PCF2C270K](#) [PCF2C273K](#) [PCF2C330K](#)
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[PCF2CT631R3R3K](#) [PCF2CT631R4R7K](#) [PCF2CT631R562K](#) [PCF1/2CT52R102K](#) [PCF1CT631R274K](#) [PCF1C4R7K](#)
[PCF2CT631R470K](#) [PCF2CT631R151K](#) [PCF1C330K](#) [PCF2CT631R560K](#) [PCF2CT631R270K](#) [PCF1/2C102K](#)
[PCF1C100K](#) [PCF1C102K](#) [PCF1C103K](#) [PCF1C104K](#) [PCF1C120K](#) [PCF1C121K](#) [PCF1C122K](#) [PCF1C123K](#)
[PCF1C151K](#) [PCF1C152K](#) [PCF1C153K](#) [PCF1C180K](#) [PCF1C181K](#) [PCF1C182K](#) [PCF1C183K](#) [PCF1C220K](#)
[PCF1C221K](#) [PCF1C222K](#) [PCF1C223K](#) [PCF1C271K](#) [PCF1C272K](#) [PCF1C273K](#) [PCF1C331K](#) [PCF1C333K](#)
[PCF1C390K](#) [PCF1C391K](#) [PCF1C392K](#) [PCF1C393K](#) [PCF1C3R3K](#) [PCF1C3R9K](#) [PCF1C470K](#) [PCF1C471K](#)
[PCF1C473K](#) [PCF1C560K](#) [PCF1C561K](#) [PCF1C563K](#) [PCF1C680K](#) [PCF1C681K](#) [PCF1C682K](#) [PCF1C683K](#)
[PCF1C6R8K](#) [PCF1C820K](#) [PCF1C821K](#) [PCF1C822K](#) [PCF1C823K](#) [PCF1C8R2K](#) [PCF2C100K](#) [PCF2C102K](#)
[PCF2C103K](#) [PCF2C104K](#) [PCF2C120K](#) [PCF2C121K](#) [PCF2C122K](#) [PCF2C123K](#) [PCF2C124K](#) [PCF2C150K](#)
[PCF2C151K](#) [PCF2C152K](#) [PCF2C153K](#) [PCF2C154K](#) [PCF2C180K](#)