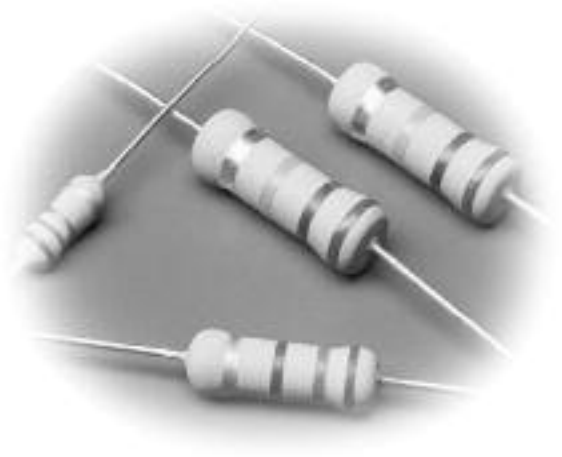
KOA SPEER ELECTRONICS, INC.

HPC/PCF

ceramic fixed power type leaded resistor

EU RoHS COMPLIANT

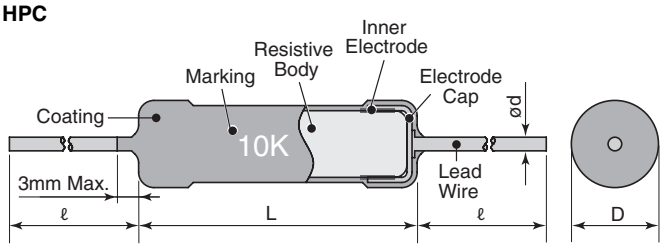


features

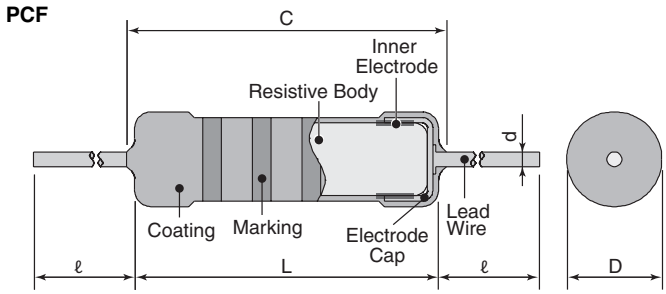
- PCF series: Coated with UL94V0 flameproof material
- Suitable for automatic machine insertion
- Able to replace carbon composition resistors in most applications
- Marking: HFC size: Reddish brown body color with alpha-numeric marking, PCF size: Light green body color with color-coded bands
- Products with lead-free terminations meet EU RoHS requirements
- Higher reliability against disconnection compared to wirewound resistors and film resistors
- AEC-Q200 Qualified: HPC only

dimensions and construction

HPC



PCF



Type	Dimensions inches (mm) L	C (max.)	D	d (nom.)	l
HPC1/2	.433±.039 (11.0±2.0)	—	.138±.039 (3.5±1.0)	.031 (0.8)	1.50±.118 (38.0±3.0)
HPC1	0.630±.039 (16.0±2.0)	—	.177±.039 (4.5±1.0)		
HPC2	.827±.039 (21.0±2.0)	—	.197±.039 (5.0±1.0)		
HPC3	1.02±.039 (26.0±2.0)	—	.236±.039 (6.0±1.0)		
HPC4	1.50±.039 (38.0±2.0)	—	.276±.039 (7.0±1.0)	.039 (1.0)	
HPC5	1.73±.039 (44.0±2.0)	—	.295±.039 (7.5±1.0)		
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)		

ordering information

Part #	PCF	1/2	C	T631	R	102	K
	Type	**Power Rating**	**Termination Material**	**Taping**	**Packaging**	**Nominal Resistance**	**Tolerance**
	HPC PCF	1/2: 0.5W 1: 1W 2: 2W 3: 3W 4: 4W 5: 5W	C: SnCu	1/2: T52 1: T631	A: Ammo R: Reel	2 significant figures + 1 multiplier	K: ±10% M: ±20%

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

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use. 12/24/13

applications and ratings

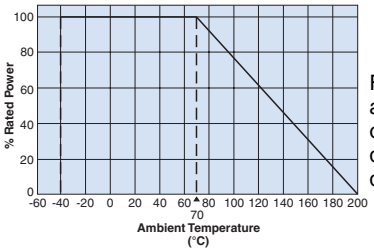
Part Designation	Power Rating @ 70°C	Minimum Dielectric Withstanding Voltage	Resistance Range E-12 (±10%) E-6 (±20%)	Resistance Tolerance	T.C.R. (ppm/°C)	Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage	Absolute Maximum Pulse Voltage*	Rated Ambient Temp.	Operating Temp. Range
HPC1/2	0.5W	—	10Ω - 390KΩ (+10%) 3.3Ω - 330KΩ (+20%)	K: ±10% M: ±20%	-900±300: R<100Ω -1200±300: R≥100Ω	200V	400V	8kV	+40°C	-40°C to +200°C
HPC1	1.0W	—				300V	600V	15kV		
HPC2	2.0W	—				400V	800V	25kV		
HPC3	3.0W	—				450V	900V	25kV		
HPC4	4.0W	—				500V	1000V	25kV		
HPC5	5.0W	—				550V	1100V	25kV		
PCF1/2	0.5W	500V	4.7Ω - 100KΩ		-900±300: R<100Ω -1300+300: R≥100Ω	200V	400V	10kV		
PCF1	1.0W		3.3Ω - 390KΩ			300V	600V	14kV		
PCF2	2.0W	700V				400V	800V	20kV		

* Resistance to pulse: change shall be ±5% of the pre-test values. 1 sec. ON, 1 second OFF, 10,000 cycles. The voltage is applied with maximum pulse voltage.

environmental applications

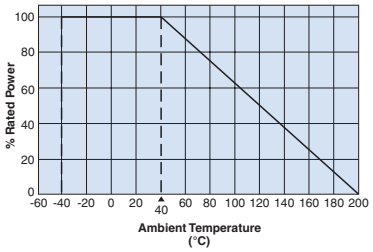
Derating Curve

PCF



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

HPC



For resistors operated at an ambient temperature of 40°C or above, a power rating shall be derated in accordance with the derating curve.

Performance Characteristics

Parameter	Requirement Δ R ±(% + 0.05Ω) Limit	Typical	Test Method
Resistance	Within regulated to tolerance	—	Resistance / Measurement voltage 3.3Ω~8.2Ω / 0.3V 10Ω~82Ω / 1.0V 100Ω~390kΩ / 3.0V 25°C
T.C.R	HPC: -900±300x10⁻⁶/K: R<100Ω -1200±300x10⁻⁶/K:R≥100Ω PCF: -900±300:R<100Ω -1300±300:R>100Ω	—	HPC: +25°C/-40°C and +25°C/+125°C PCF: +25°C/-40°C, +25°C/+75°C and +25°C/+125°C
Voltage Coefficient (Apply for over 1kΩ)	0~-0.2%/V (HPC1/2, PCF) 0~-0.1%/V (HPC1) 0~-0.05%/V (HPC2,3,4,5)	—	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	5%	—	The resistor mounted to the test circuit as below. 1 sec. ON and 1 sec. OFF. 10,000 cycles. The voltage is applied with maximum pulse voltage. Protection resistor; SW 1 sec ON 1 sec OFF; DC (Max. pulse voltage); C=1.000pF; Rx (HPC: In insulation oil)
Resistance to soldering heat	2%	0.8%	350°C±10°C, 3.5s±0.5s
Rapid change of temperature	2%	0.4%	-40°C(30min.)/+85°C(30min.), 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%	HPC: 40°C±2°C, 1000h, 1.5h ON/0, 5h OFF cycles PCF: 70°C±3°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.
High Temperature Exposure	HPC only: 5%	HPC only: 1.7%	HPC only: +200°C, 1000 hours

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ООО «ЛайфЭлектроникс» “LifeElectronics” LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

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