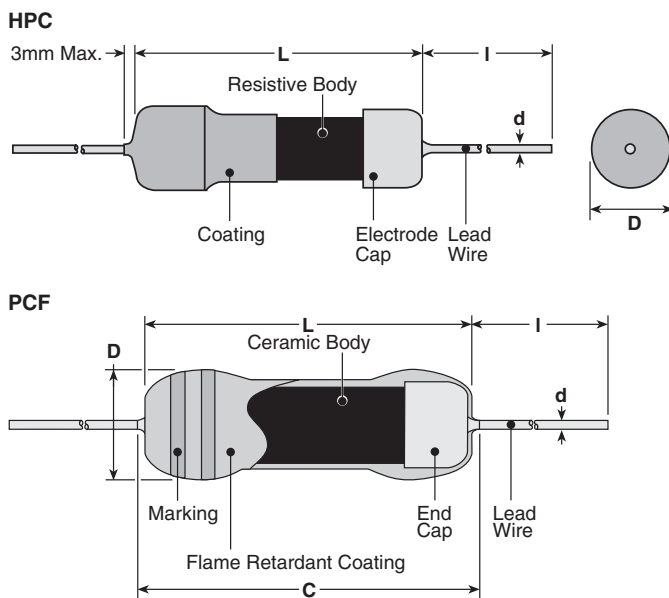


### features

- 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

### dimensions and construction



Type	Dimensions inches (mm)				
	L	C (max.)	D	d (nom.)	I
HPC1/2	.433±.039 (11.0±2.0)	—	.138±.039 (3.5±0.1)	.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)		
HPC5	1.73±.039 (44.0±2.0)	—	.295±.039 (7.5±1.0)	.039 (1.0)	1.18±.118 (30.0±3.0)
PCF1/2	.354±.039 (9.0±1.0)	.437 (11.1)	.138±.02 (3.5±0.5)	.028 (0.7)	
PCF1	0.65±.039 (16.5±1.0)	.748 (19.0)	.217±.039 (5.5±1.0)	.031 (0.8)	
PCF2	.748±.039 (19.0±1.0)	.886 (22.5)	.276±.039 (7.0±1.0)		1.50±.118 (38.0±3.0)

### ordering information

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

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

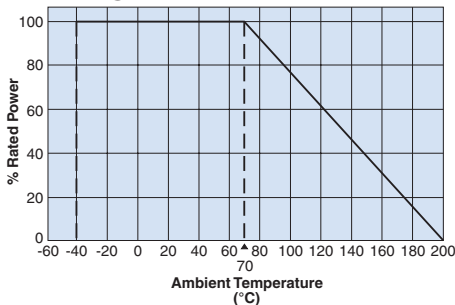
## applications and ratings

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

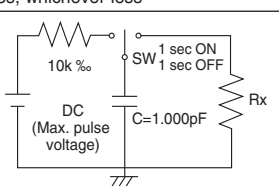
\* Resistance to pulse: change shall be  $\pm 5\%$  of the pre-test values. 1 sec. ON, 1 second OFF, 20,000 cycles. The voltage is applied with maximum pulse voltage.

## environmental applications

### Derating Curve



### Performance Characteristics

Parameter	Requirement		Test Method	
	Limit	Typical		
Resistance	Within regulated to tolerance	—	Resistance	
			3.3Ω-8.2Ω	Measurement voltage
			10Ω-82Ω	0.3V
			100Ω-390kΩ	1.0V
T.C.R.	HPC: -900 $\pm$ 300 $\times 10^{-6}$ /K: R<100Ω -1200 $\pm$ 300 $\times 10^{-6}$ /K:R $\geq$ 100Ω PCF: -900 $\pm$ 300:R<100Ω -1300 $\pm$ 300:R $\geq$ 100Ω	—	+25°C/-40°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. 20,000 cycles. The voltage is applied with maximum pulse voltage. <div style="text-align: right;">  </div>	
Resistance to soldering heat	2	0.8	350°C $\pm$ 10°C, 3.5s $\pm$ 0.5s	
Rapid change of temperature	2	0.4	-40°C(30min.)/+85°C(30min.), 5 cycles	
Moisture resistance	5	0.6	40°C $\pm$ 2°C, 90%-95%RH, 1000h, 1.5h ON/0, 5h OFF cycles	
Load life	5	0.4	HPC: 40°C $\pm$ 2°C, 1000h, 1.5h ON/0, 5h OFF cycles PCF: 70°C $\pm$ 3°C, 1000h, 1.5h ON/0, 5h OFF cycles	