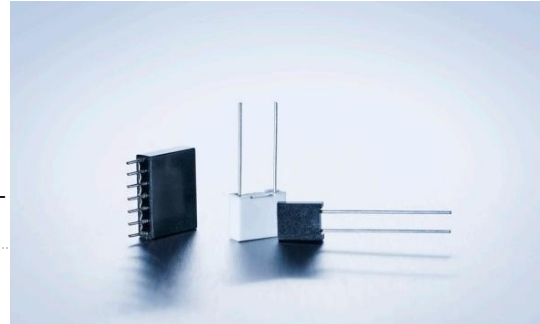


Series UPR/UPSC High Precision Metal Film Resistors

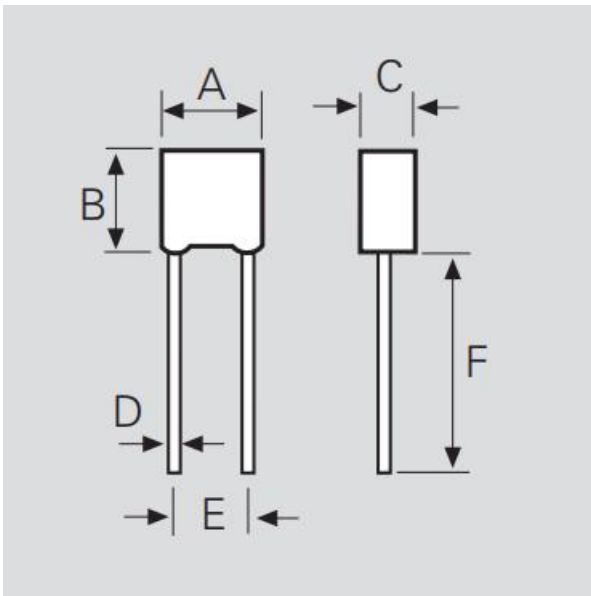
Radial resistors, extremely precise

- High precision ohmic values
- Low temperature coefficient precision resistors
- Long-term stability
- Ohmic range $10\ \Omega$ to $5\ M\Omega$
- Non-inductive design
- ROHS compliant



Product Detail:

59. Dimensions in millimeters



Dimensions	Dimensions in millimeter (inches)	
	UPSC	UPR
A	7.50 ± 0.20 (0.295 ± 0.008)	10.50 ± 0.30 (0.413 ± 0.012)
B	8.50 ± 0.20 (0.335 ± 0.008)	9.00 ± 0.30 (0.354 ± 0.012)
C	2.50 ± 0.20 (0.098 ± 0.008)	4.00 ± 0.30 (0.157 ± 0.012)
D	0.63 ± 0.20 (0.025 ± 0.008)	0.63 ± 0.05 (0.025 ± 0.002)
E	3.81 ± 0.38 (0.150 ± 0.015)	7.62 ± 0.38 (0.300 ± 0.015)
F	25 ± 1 (0.98 ± 0.04)	18 ± 5 (0.71 ± 0.196)

60. Technical and standard electrical specifications

Resistance value	UPSC: $40 \Omega \leq 5 \text{ M}\Omega$ UPR: $10 \Omega \leq 5 \text{ M}\Omega$
Resistance tolerance	$\pm 1 \%$ standard tolerances to $\pm 0.01 \%$ on special request
Temperature coefficient	$\pm 2 \text{ ppm}/^\circ\text{C}$ to $\pm 25 \text{ ppm}/^\circ\text{C}$
Long-term stability	better than $\pm 0.05 \%$ per 2,000 hours of operation
Std. operating temperature	-55°C to $+85^\circ\text{C}$
TC temperature range	-10°C to $+70^\circ\text{C}$ (at $+85^\circ\text{C}$ ref. to $+25^\circ\text{C}$)
	6.25 times rated power for 5 seconds at voltage
Overload	not to exceed 1.5 times maximum rated working voltage, ΔR less than $0.1 \% + 0.01 \Omega$
Load life	2,000 hours at 125°C ΔR less than $0.5 \% + 0.01 \Omega$
Moisture resistance	MIL-STD-202, method 106 ΔR less than $0.4 \% + 0.01 \Omega$
Thermal shock	MIL-STD-202, method 107, Cond. B, ΔR less than $0.2 \% + 0.01 \Omega$
Insulation resistance	$> 10,000 \text{ M}\Omega$ at 250 V DC
Low temperature operation	ΔR less than $0.15 \% + 0.01 \Omega$
Dielectric withstanding voltage	ΔR less than $0.15 \% + 0.01 \Omega$
Vibration	ΔR less than $0.2 \% + 0.01 \Omega$
Shock	ΔR less than $0.2 \% + 0.01 \Omega$

61. Specifications

Tests	Conditions	MIL-R-55182/9	Typical drifts
Power conditioning (108)	100 hours/rated power at $+125^\circ\text{C}$ 90'/30' cycle	/	$\pm 0.02\%$ combined
Thermal shock (107)	5 cycles -65°C / $+150^\circ\text{C}$	$\pm 0.2 \% + 0.01 \Omega$	test

Short time overload	6.25 times rated power / 5 sec	combined test	
Low temperature storage	1h stor. 45 min rated power at -65°C	± 0.15 % + 0.01 Ω	/
and operation	24h stor. 45 min rated power at -65°C	/	+0.01%
Terminal strength (211)	2lb pull test	± 0.2 % + 0.01 Ω	+0.01%
Dielectric withstanding voltage (301)	300 V atmospheric 200 V / 100.000 ft.	± 0.15 % + 0.01 Ω	+0.01%
Resist to soldering (210)	260°C / 5 sec	± 0.1 % + 0.01 Ω	+0.01%
Moisture resistance (106)	10 days	± 0.4% + 0.01 Ω	+0.01%
Shock	10 shocks 100g 6ms sawtooth	± 0.2 % + 0.01 Ω	+0.01%
Vibration (204)	10 to 2000 Hz. 20g 8 hours	± 0.2 % + 0.01 Ω	+0.01%
Load life (108)	2000 hours at rated power at +25°C, +85°C or +125°C	± 0.5 % + 0.01 Ω	+0.05%
	10,000 hours at rated power at +125°C	± 2 % + 0.01 Ω	+0.2%
Storage life	10,000 hours no load at room conditions	/	+0.005%

62. Ordering Information

Type	ohmic Value	TOL	TCR
UPR	20K	0.1%	25PPM