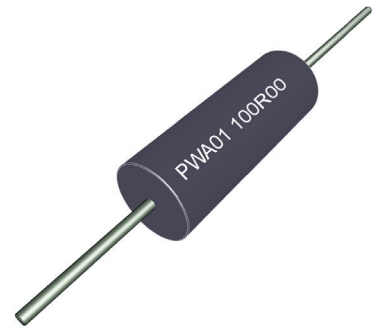


PWA - Series

Precision Wire - Wound Resistors

FEATURES

- Resistance from 0,01Ω
- Temperature Coefficients to ±2 to ±6000ppm/°C
- Resistance Tolerances to ±0,005%
- Power Rating to 2Watt
- Low Inductive Design
- 10 Quick Production Service
- RoHS - compliant



RATED VALUES (IEC 60115-1)

Resistance Range	Ω	0,01Ω to 6MΩ
Resistance Tolerance	%	Depending on Type/Power Rating 0,005% to 1,0%
Temperature Coefficient	ppm/°C	±10 > 100Ω; ±20 to 10Ω - 100Ω; ±30 from 1Ω - 9,9Ω; ±90 < 1Ω
Operating Voltage (U _{max})	V	√(P x R)
Insulation Resistance (R _{ins})	Ω	1G
Operating Temperature Range (T)	°C	55°C bis 125°C

Type	U _{max} (V)	Power (W)	Tolerance- /Resistance Range			
			±0,1% / Ω	±0,05% / Ω	±0,01% / Ω	±0,005% / Ω
PWA01	75	0,060	1 - 75K0	10 - 75K0	50 - 75K0	1K - 75K0
PWA02	100	0,080	1 - 150K	10 - 150K	50 - 150K	1K - 150K
PWA03	100	0,100	1 - 250K	10 - 250K	50 - 250K	1K - 250K
PWA04	150	0,120	1 - 400K	10 - 400K	50 - 400K	1K - 400K
PWA05	200	0,150	1 - 500K	10 - 500K	50 - 500K	1K - 500K
PWA06	200	0,175	1 - 750K	10 - 750K	50 - 750K	1K - 750K
PWA07	200	0,200	1 -1M00	10 - 1M00	50 - 1M00	1K - 1M00
PWA08	300	0,250	1 -1M20	10 - 1M20	50 - 1M20	1K - 1M20
PWA09	400	0,330	1 -2M50	10 - 2M50	50 - 2M50	1K - 2M50
PWA10	300	0,400	1 -3M80	10 - 3M80	50 - 3M80	1K - 3M80
PWA11	400	0,500	1 -3M80	10 - 3M80	50 - 3M80	1K - 3M80
PWA12	600	0,750	1 -6M00	10 - 6M00	50 - 6M00	1K - 6M00
PWA13	800	1,000	1 -6M00	10 - 6M00	50 - 6M00	1K - 6M00
PWA14	900	1,500	1 -6M00	10 - 6M00	50 - 6M00	1K - 6M00
PWA15	1000	2,000	1 -6M00	10 - 6M00	50 - 6M00	1K - 6M00

- For achieving a best possible long-term stability (change in value relative to the nominal values at delivery), it must be ensured that the resistor is working at an ambient temperature of 25 ° C max. The power should be selected so that the self-heating (surface temperature) is below 70 ° C. In addition, the long-term stability can be optimized by artificial aging (Option HS).

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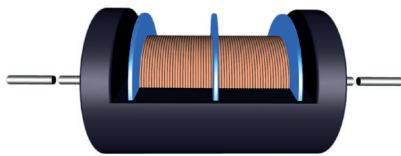
PWA - Series

Precision Wire - Wound Resistors

CONSTRUCTION

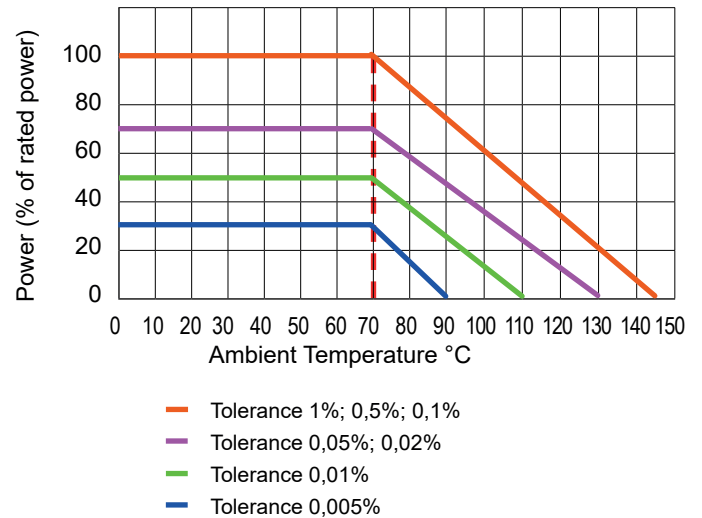
Resistance Material	Wire, Special Alloy
Winding	Wire Windings on Ceramics
Coating	Epoxy Moulding
Lead Wires	Tin Plated Copper Wire
Marking	Lacquer, solvent-resistant

MULTI CHAMBER WINDINGS



Ayrton - Perry Winding
(Standard)

POWER DERATING CURVE



PERFORMANCE

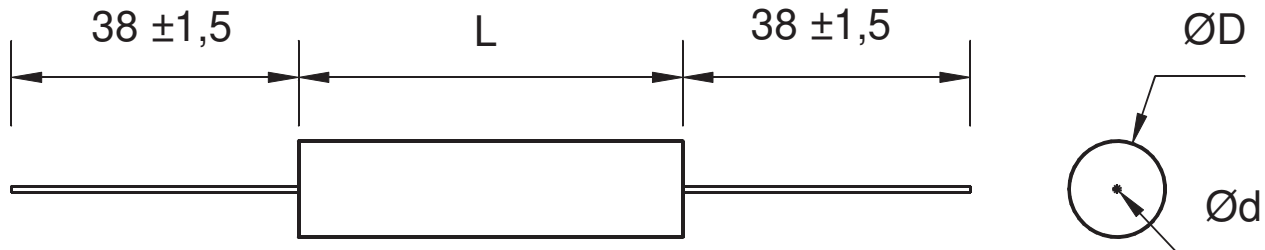
IEC 60115-1	Test	Conditions of Test	Specification ΔR
4.23	Moisture Resistance	+85°C, 85% R.H., Rated Voltage, 1000h	$\pm(0,25\% R + 0,05\Omega)$
4.19	Thermal Shock	-55°C 15 Minutes, +150°C 15 Minutes, 5 Cycles	$\pm(0,1\% R + 0,01\Omega)$
4.6	Dielectric Strength	U_{ins} 500V for OAS010/015/020; other 1000V for 1 Minute	10G Ω
4.13	Short Time Overload	5x Rated Voltage U_{max} , 5s	$\pm(0,1\% R + 0,01\Omega)$
4.25	Endurance	+70°C, U_{max} 1,5h „ON“ and 0,5h „OFF“, 2000h	$\pm(0,25\% R + 0,05\Omega)$
4.22	Vibration	Frequency 10Hz to 500Hz, in x,y,z Direction	$\pm(0,1\% R + 0,01\Omega)$
4.16	Shock	5 Impulses at 100g for 5ms	$\pm(0,1\% R + 0,01\Omega)$
4.18	Soldering Resistance	260°C, max. 5s	$\pm(0,1\% R + 0,01\Omega)$

Measuring distance 9,5 mm from the end of the body.

OPTIONENS

Resistance Values < 1 Ω	Depending on Availability of Resistance Wires
Optimised Long Term Stability (HS)	Maximum age-related change of the resistance value < $\pm 20\text{ppm}/^\circ\text{C}$
Special Temperature Coefficients	$\pm 5\text{ppm}/^\circ\text{C}$ to $\pm 6000\text{ppm}/^\circ\text{C}$, on request
Special Connecting Wires	Example: for contact welding, on request
Resistor - Sets	Selection of resistors according to temperature coefficient and tolerance

DIMENSIONS



	D	L	d		D	L	d
PWA01	2,5 ±0,15	5,3 ±0,65	0,511 ±0,05	PWA09	6,4 ±0,15	19,1 ±0,65	0,643 ±0,05
PWA02	3,2 ±0,15	6,6 ±0,65	0,511; 0,643 ±0,05	PWA09	6,4 ±0,15	19,1 ±0,65	0,643 ±0,05
PWA03	3,2 ±0,15	9,5 ±0,65	0,511 ±0,05	PWA10	9,5 ±0,15	12,7 ±0,65	0,813 ±0,05
PWA04	4,7 ±0,15	6,4 ±0,65	0,511 ±0,05	PWA11	9,5 ±0,15	19,1 ±0,65	0,813 ±0,05
PWA05	4,7 ±0,15	7,5 ±0,65	0,643 ±0,05	PWA12	9,5 ±0,15	29,4 ±0,65	0,813 ±0,05
PWA06	4,7 ±0,15	9,5 ±0,65	0,643 ±0,05	PWA13	12,7 ±0,15	24,4 ±0,65	0,813 ±0,05
PWA07	6,4 ±0,15	9,5 ±0,65	0,643; 0,813 ±0,05	PWA14	12,7 ±0,15	38,1 ±0,65	0,813 ±0,05
PWA08	6,4 ±0,15	12,7 ±0,65	0,643; 0,813 ±0,05	PWA15	12,7 ±0,15	50,8 ±0,65	0,813 ±0,05

All Dimension in mm

- Note: Resistors in the narrower precision range (resistance tolerance <0.1% in combination with resistance values ≤ 1Ω) should be soldered in the hand soldering procedure by trained personnel, otherwise a change in value of the nominal specifications may result.

ORDERING INFORMATION

PWA01 100R00 0,1% TK20 (PWA01 100Ω; ±0,1%; ±20ppm/°C)

Type	Special	Resistance Value	Tolerance	Temperature Coefficient	Power	Options	Packaging
PWA01	- XXX	0R1000 100R00 10K000 1M0000	0,005% 0,01% 0,02% 0,05% 0,1% 0,25% 0,5% 1,0%	TK10 TK20 TK50 TK90 (TK2; TK5 on request)	-	- HS K	-

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