MINIATURE WIREWOUND RESISTORS 200 SERIES 1 to 10 Watt



RESISTOR

FEATURES

- Significant space savings!
 Tolerance to ±0.010%, TCR to 5ppm/°C
- Wide resistance range: 0.005Ω to 250K
- All sizes available on Tape & Reel

OPTIONS

- Opt. X: Low Inductance
 Opt. P: Increased Pulse Capability
 Opt. F: Flameproof Coating (UL94V-0)
- Opt. ER: 100-Hour Burn-In
- Opt. E: Low Thermal EMF
- ۲ Other: Matched Sets, Cut & Formed Leads, Special Marking, 4-Terminal, Hi-Rel Screening, Hermetic Seal, Non-Standard Values, Increased Dielectric Strength, etc.



Typically half the size of conventional resistors! Type 202 is world's smallest wirewound resistor!

Series 200 resistors offer the same MIL-grade construction as Series 100 resistors except utilize proprietary materials and processing, enabling significant size reductions. Series 200 resistors are ideal when PCB real estate is at a premium! Highest grade materials enable excellent stability and environmental performance. Mil-Spec screening available.

		BAA V		DIMENSIONS In (mm)				
RCD	RATING		RESISTANCE	Δ.	В	C 2	етр	d ODT
	(**)	(•)	KANGE	A	INIAA	<u> </u>	510	061.
202	1	30	0.010Ω - 2K	0.150±0.032 [3.81±0.80]	0.200 [5.08]	0.064±0.020 [1.63±0.50]	0.020 [0.50]	N/A
210	2	40	0.010Ω - 10K	0.250±0.040 [6.35±1.0]	0.300 [7.62]	0.093±0.025 [2.36±0.60]	0.020 [0.50]	0.024 [0.60] (<i>Opt. 22</i>)
232	3	60	0.005Ω - 20K	0.350±0.040 [8.9±1.0]	0.480 [12.2]	0.140±0.032 [3.56±0.80]	0.031 [0.80]	N/A
235	5	157	0.005Ω - 40K	0.500±0.040 [12.7±1.0]	0.595 [15.1]	0.188±0.032 [4.78±0.80]	0.031 [0.80]	0.040 [1.0] (<i>Opt. 18</i>)
255	7	210	0.005Ω - 80K	0.625±0.040 [15.9±1.0]	0.765 [19.4]	0.232±0.032 [5.89±0.80]	0.040 [1.0]	N/A
272	10	600	0.005Ω - 250K	1.040±0.048 [26.4±1.2]	1.125 [28.6]	0.350±0.032 [8.89±0.80]	0.040 [1.0]	N/A

¹ Volt Rating determined by E = $\sqrt{(PR)}$, E not to exceed max. rating. Increased ratings available. Multiply by 0.70 for **Opt. X**.

² Allow 0.032" additional for Opt. X and values below 1.0Ω.

³ Lead Length applies to bulk packaged parts units, parts supplied on tape may be shorter (refer to taping specifications)

DERATING 100 80 RATED POWER 60 40 20 0 % -55 25 50 75 100 125 150 175 200 AMBIENT TEMPERATURE (°C) 225 250 275 300

Power resistors reach elevated temperatures when operated near full wattage, and therefore should be mounted off the PCB and derated according to required stability levels.

TYPICAL SIZE COMPARISON



PART NUMBER DERIVATION

<u>210</u> - <u>1001</u> - <u>F B</u> W
Options: X, P, F, ER, E, 22, 18, 33(leave blank if standard)
Resistance Code: ≤1%; 3 signif, digits & mult.
ex: R100 = 0.10Ω, 1R00 = 1Ω, 1000 = 100Ω, 1001 = 1KΩ
2% - 10%: 2 signif. digits & mult.
ex: R10 = 0.10Ω, 1RŎ = 1Ω, 100 = 10Ω, 102 = 1ΚΩ
Tolerance: K = ±10%, J = ±5%, H = ±3% G = ±2%, F = ±1%, D = ±0.50%,
C = ±0.25%, B = ±0.10%, A = ±0.050%, Q = ±0.020%, T = ±0.010%
Packaging: B = Bulk, T = Tape & Reel
Optional TC: 5 = 5ppm, 10 = 10ppm, 20 = 20ppm, 30 = 30ppm,
50 = 50 ppm $101 = 100$ ppm $201 = 200$ ppm (leave blank if standard)
Termination: W = RoHS (standard), Q = Tin/Lead (leave blank if both are acceptable)

FA014F

TYPICAL PERFORMANCE⁴

	0.00500 0.00000	600ppm (standard)					
	0.005012 - 0.009912	200ppm, 300ppm (Opt.)					
	0.0400 0.0400	300ppm (standard)					
	0.01002 - 0.04902	100ppm, 200ppm (Opt.)					
	0.0500 0.0000	200ppm (standard)					
Temperature Coefficient TYP	0.05002 - 0.09902	50ppm, 100ppm (Opt.)					
(Consult factory for TC on Opt. P)		90ppm (standard)					
	0.1002 - 0.9902	20ppm, 30ppm, 50ppm (Opt.)					
		50ppm (standard)					
	1.002 - 9.902	10ppm, 20ppm, 30ppm (Opt.)					
	40.0.0.1	20ppm (standard)					
	1002 & above	5ppm, 10ppm (Opt.)					
Inductance Standard	1µH to 50µH TYP						
	(depends on size & resistance value)						
		≤50Ω	>50Ω				
Inductance. Opt. X	Type 202X - 235X	0.20µH MAX	0.37µH MAX				
(levels as low as 20nH available)	Type 255X	0.30µH MAX	0.60µH MAX				
	Type 272X	0.60µH MAX	1.0µH MAX				
Dielectric Strength	500V (300V Type 202), 1KV available (<i>Opt. 33</i>) ⁵						
Overload (5 sec.)	5X rated W 202-235, 10X rated W 255-272						

⁴ Dependent on value, options, etc.

⁵ Allow 0.020" additional to *Opt.* 33 body diameter. (excludes type 202)

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