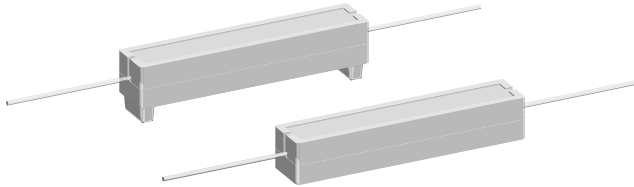


## Wirewound/Metal Oxide Resistors, Commercial Power, Axial Lead



### FEATURES

- High performance for low cost
- Meets or exceeds requirements of EIA Standard RS-344
- High power to size ratio
- Ceramic cases are available with circuit board stand-offs (designated with a -3 model ending)
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package



**RoHS\***  
COMPLIANT

STANDARD ELECTRICAL				
GLOBAL MODEL	POWER RATING $P_{40}^{\circ C}$ W	RESISTANCE RANGE ( $\Omega$ ) $\pm 10\%$ standard, $\pm 5\%$ available		WEIGHT (typical) g
		WIREWOUND (1)	METAL OXIDE (1)	
CP0002	2	0.1 - 1K	100 - 12K	2.0
CP0002...3	2	0.1 - 1K	100 - 12K	2.2
CP0003	3	0.1 - 2K	150 - 22K	3.4
CP0003...3	3	0.1 - 2K	150 - 22K	3.6
CP0005	5	0.1 - 2.4K	150 - 27K	4.8
CP0005...3	5	0.1 - 2.4K	150 - 27K	5.0
CP0007	7	0.1 - 5K	1K - 35K	6.8
CP0007...3	7	0.1 - 5K	1K - 35K	7.0
CP0010	10	0.1 - 7K	1K - 40K	9.5
CP0010...3	10	0.1 - 7K	1K - 40K	9.9
CP0015	15	0.1 - 8K	1K - 40K	16.8
CP0015...3	15	0.1 - 8K	1K - 40K	17.4
CP0020	20	0.1 - 10K	1K - 45K	22.8
CP0020...3	20	0.1 - 10K	-	23.6
CP0022	22	0.1 - 10K	-	24.5
CP0022...3	22	0.1 - 10K	-	25.3
CP0025	25	0.1 - 10K	-	37.0

**Note**

(1) To specifically order a Wirewound sub-assembly for resistance values that overlap between the Wirewound and Metal Oxide technologies, the model will be a CPxxx...85 for standard body and CPxxx...91 for body with stand-offs. To specifically order a Metal Oxide sub-assembly for resistance values that overlap between the Wirewound and Metal Oxide technologies, the model will be a CPxxx...100 for a standard body and CPxxx...101 for body with stand-offs. If no dash type is specified, either technology may be supplied.

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	WIREWOUND CHARACTERISTICS
Temperature Coefficient	ppm/ $^{\circ}C$	$\pm 600$ below 1 $\Omega$ , $\pm 300$ 1 $\Omega$ and above
Short Time Overload	-	5 x rated power for 5 s
Terminal Strength	lb	10 minimum
Operating Temperature Range	$^{\circ}C$	- 65 to + 275
Dielectric Withstanding Voltage	$V_{AC}$	1000
Maximum Working Voltage	V	$(P \times R)^{1/2}$
PARAMETER	UNIT	METAL OXIDE CHARACTERISTICS
Temperature Coefficient	ppm/ $^{\circ}C$	$\pm 300$ for CP0002 to CP0005; $\pm 400$ for CP0007 to CP0020
Short Time Overload	-	5 x rated power for 5 s
Terminal Strength	lb	10 minimum
Operating Temperature Range	$^{\circ}C$	- 65 to + 225
Dielectric Withstanding Voltage	$V_{AC}$	1000
Maximum Working Voltage	V	$(P \times R)^{1/2}$

**Note**

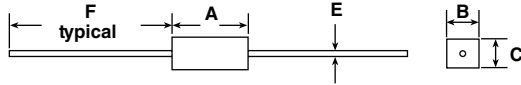
- Wirewound CP resistors can reliably function as a fuse and as a resistor. Such components involve compromise between fusing and resistive functions; therefore, each design should be tailored to the application to ensure optimum performance. Contact factory by using the e-mail address at the bottom of this page for design assistance.

GLOBAL PART NUMBER INFORMATION																	
New Global Part Numbering: CP000515R00JB143 (preferred part number format)																	
C	P	0	0	0	5	1	5	R	0	0	J	B	1	4	3		
GLOBAL MODEL (See Standard Electrical Specifications Global Model column for options)		VALUE R = Decimal K = Thousand R1500 = 0.15 $\Omega$ 1K500 = 1500 $\Omega$		TOLERANCE H = $\pm 3.0\%$ J = $\pm 5.0\%$ K = $\pm 10.0\%$		PACKAGING E14 = Lead (Pb)-free bulk pack E31 = Lead (Pb)-free four layer bulk pack B14 = Bulk pack B31 = Four layer bulk pack			SPECIAL (Dash Number) (up to 3 digits) From 1 - 999 as applicable								
Historical Part Number Example: CP-5-3 15 $\Omega$ 5% B14 (will continue to be accepted)																	
CP-5-3		15 $\Omega$		5%			B14										
HISTORICAL MODEL		RESISTANCE VALUE		TOLERANCE CODE			PACKAGING										

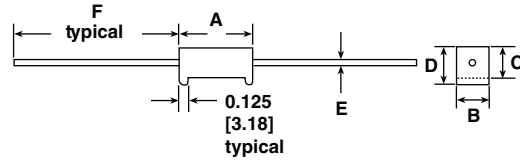
\* Pb containing terminations are not RoHS compliant, exemptions may apply

**DIMENSIONS** in inches [millimeters]

CPxxxx



CPxxxx...3



GLOBAL MODEL	DIMENSIONS in inches [millimeters]							
	A <sup>(1)</sup> ± 0.031 [0.794]	B ± 0.031 [0.794]	C ± 0.031 [0.794]	D ± 0.031 [0.794]	± 0.001 [0.025]		F	
					WIREWOUND	METAL OXIDE	± 0.125 [3.175]	METAL OXIDE MINIMUM
CP0002	0.688 [17.46]	0.250 [6.35]	0.250 [6.35]	-	0.032 [0.813]	0.0236 [0.600]	1.500 [38.10]	0.750 [19.05]
CP0002...3	0.688 [17.46]	0.250 [6.35]	0.250 [6.35]	0.313 [7.94]	0.032 [0.813]	0.0236 [0.600]	1.500 [38.10]	0.750 [19.05]
CP0003	0.875 [22.22]	0.313 [7.94]	0.313 [7.94]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0003...3	0.875 [22.22]	0.313 [7.94]	0.313 [7.94]	0.375 [9.52]	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0005	0.875 [22.22]	0.375 [9.52]	0.344 [8.73]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0005...3	0.875 [22.22]	0.375 [9.52]	0.344 [8.73]	10.32 [0.406]	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0007	1.391 [35.32]	0.375 [9.52]	0.344 [8.73]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0007...3	1.391 [35.32]	0.375 [9.52]	0.344 [8.73]	0.469 [11.91]	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0010	1.875 [47.62]	0.375 [9.52]	0.344 [8.73]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0010...3	1.875 [47.62]	0.375 [9.52]	0.344 [8.73]	0.469 [11.91]	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0015	1.875 [47.62]	0.500 [12.70]	0.500 [12.70]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0015...3	1.875 [47.62]	0.500 [12.70]	0.500 [12.70]	15.87 [0.625]	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0020 <sup>(2)</sup>	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	-	0.036 [0.914]	0.032 [0.813]	1.500 [38.10]	1.000 [25.40]
CP0020...3	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	0.625 [15.87]	0.036 [0.914]	-	1.500 [38.10]	-
CP0022	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	-	0.036 [0.914]	-	1.500 [38.10]	-
CP0022...3	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	0.625 [15.87]	0.036 [0.914]	-	1.500 [38.10]	-
CP0025	2.500 [63.50]	0.625 [15.87]	0.625 [15.87]	-	0.040 [1.016]	-	1.500 [38.10]	-

**Notes**

- (1) Potting compound may extend outside of ceramic case up to 1.52 [0.060] maximum per side.  
 (2) Dimensions for the metal oxide are: A = 2.360 [59.94], B = 0.570 [14.48], C = 0.530 [13.46], E = 0.032 [0.813], F = 1.000 [25.40]

**MATERIAL SPECIFICATIONS**

**Element:** Wirewound = Copper-nickel alloy or nickel-chrome alloy, depending on resistance value  
 Metal Oxide = High temperature fired metal oxide film

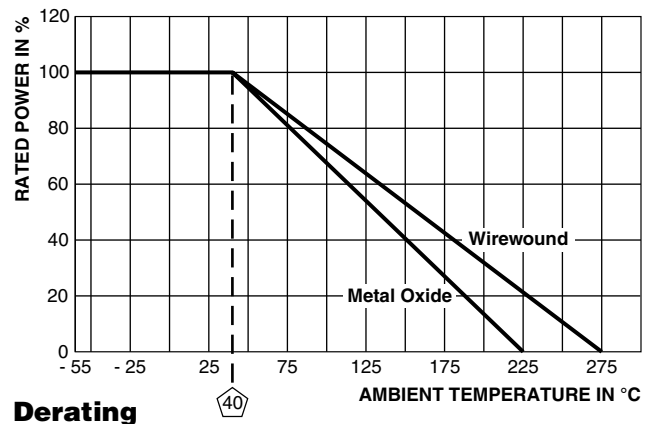
**Core:** Wirewound = Woven fiberglass  
 Metal Oxide = Alumina ceramic

**Body:** Steatite ceramic case with inorganic potting compound

**End Caps:** Tin plated steel

**Terminals:** Tinned copper

**Part Marking:** DALE, model, wattage, value, tolerance, date code



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS (EIA-344)
Thermal Shock	- 55 °C to + 275 °C (+ 225 °C for Metal Oxide), 5 cycles, 30 min dwell time	± (5.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (4.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V <sub>rms</sub> , for 1 min	± (2.0 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C, full rated working voltage for 45 min	± (3.0 % + 0.05 Ω) ΔR
Humidity	75 °C, 90 % - 100 % RH, 240 h	± (5.0 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (10.0 % + 0.05 Ω) ΔR
Terminal Strength	5 pounds for 30 s; body twisted about axis, 3 x 360° rotations	± (2.0 % + 0.05 Ω) ΔR
Resistance to Solder Heat	Terminal immersed 3.5 s in molten solder at 1/8" to 3/16" from body	± (4.0 % + 0.05 Ω) ΔR



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