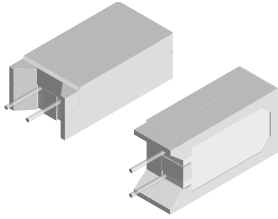


## Wirewound/Metal Film Resistors, Commercial Power, Vertical Mount



### FEATURES

- Space saving
- Direct mounting on printed circuit board
- Meets or exceeds requirements of EIA-Standard RS-344
- High power to size ratio
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package



**RoHS\***  
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	HISTORICAL MODEL	POWER RATING <i>P</i> <sub>70 °C</sub> W	TOLERANCE ± %	RESISTANCE RANGE Ω	WEIGHT (typical) g
CPCL02	CPCL-2	2	5, 10	0.01 - 0.10	3.5
CPCC02	CPCC-2	2	5, 10	0.1 - 500	3.5
CPCP02	CPCP-2	2	1, 5	0.1 - 4K	3.5
CPCF02	CPCF-2	2	1, 5, 10	501 - 150K	3.5
CPCL03	CPCL-3	3	5, 10	0.01 - 0.10	5.5
CPCC03	CPCC-3	3	5, 10	0.1 - 800	5.5
CPCP03	CPCP-3	3	1, 5	0.1 - 5K	5.5
CPCF03	CPCF-3	3	1, 5, 10	801 - 150K	5.5
CPCL05	CPCL-5	5	5, 10	0.01 - 0.10	6.9
CPCC05	CPCC-5	5	5, 10	0.1 - 800	6.9
CPCP05	CPCP-5	5	1, 5	0.1 - 5K	6.9
CPCF05	CPCF-5	5	1, 5, 10	801 - 150K	6.9
CPCP07	CPCP-7	7	3, 5, 10	0.1 - 430	9.2
CPCL10	CPCL-10	10	5, 10	0.01 - 0.10	14.3
CPCC10	CPCC-10	10	5, 10	0.1 - 1.5K	14.3
CPCP10	CPCP-10	10	1, 5	0.1 - 8K	14.3

**Note**

- Non-inductively wound types are available on the CPCP series signified by a 1 in the special character on part number such as CPCC0510R00FB321. Max. resistance value will be ½ of the standard CPCP.

TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	CPCLxx	CPCCxx	CPCPxx	CPCFxx
Temperature Coefficient	ppm/°C	0.01 Ω - 0.049 Ω = ± 400 0.05 Ω - 0.1 Ω = ± 100	0.1 Ω - 0.99 Ω = ± 600 1.0 Ω and above = ± 300	0.1 Ω - 0.99 Ω = ± 90 1.0 Ω - 9.9 Ω = ± 50 10 Ω and above = ± 20	± 50 all values
Short Time Overload	-	5 x rated power for 5 s			
Maximum Working Voltage	V	$(P \times R)^{1/2}$			
Operating Temperature Range	°C	- 65 to + 275			- 65 to + 225
Terminal Strength	lb	10 minimum			
Dielectric Withstanding Voltage	V <sub>AC</sub>	1000			

GLOBAL PART NUMBER INFORMATION					
New Global Part Numbering: CPCC0515R00JB32 (preferred part number format)					
C	P	C	C	0	5
1	5	R	0	0	J
B	3	2			
GLOBAL MODEL (See Standard Electrical Specifications Global Model column for options)	VALUE R = Decimal K = Thousand R1500 = 0.15 Ω 1K500 = 1500 Ω	TOLERANCE F = ± 1.0 % H = ± 3.0 % J = ± 5.0 % K = ± 10.0 %	PACKAGING E32 = Lead (Pb)-free two layer bulk E01 = Lead (Pb)-free skin pack B32 = Tin/lead two layer bulk J01 = Tin/lead skin pack	SPECIAL (Dash Number) (up to 3 digits) From 1 - 999 as applicable	
Historical Part Number Example: CPCC-5 15 Ω 5 % B32 (will continue to be accepted for tin/lead product only)					
CPCC-5	15 Ω	5 %	B32		
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING		

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

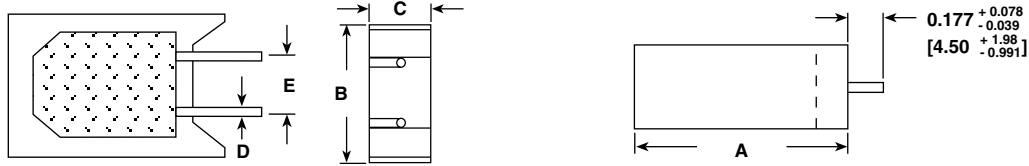


# CPCL, CPCC, CPCP, CPCF

Wirewound/Metal Film Resistors, Commercial Power,  
Vertical Mount

Vishay Dale

## DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]				
	A ± 0.031 [0.794]	B ± 0.031 [0.794]	C + 0.043 [1.09] - 0.012 [0.305]	D ± 0.005 [0.127]	E ± 0.040 [1.02]
CPCL02 CPCC02 CPCP02 CPCF02	0.807 [20.50]	0.433 [11.00]	0.276 [7.01]	0.032 [0.813]	0.197 [5.00]
CPCL03 CPCC03 CPCP03 CPCF03	0.984 [24.99]	0.472 [11.99]	0.315 [8.00]	0.032 [0.813]	0.197 [5.00]
CPCL05 CPCC05 CPCP05 CPCF05	1.003 [25.48]	0.512 [13.00]	0.354 [8.99]	0.032 [0.813]	0.197 [5.00]
CPCP07	1.535 ± 0.059 [39.00 ± 1.50]	0.512 ± 0.043 [13.00 ± 1.10]	0.354 ± 0.043 [9.00 ± 1.10]	0.032 ± 0.005 [0.813 ± 0.127]	0.197 + 0.079/-0.039 [5.00 + 2.0/- 1.0]
CPCL10 CPCP10	1.372 [34.85]	0.633 [16.08]	0.485 [12.32]	0.040 [1.02]	0.290 [7.37]
CPCC10				0.036 [0.914]	

## MATERIAL SPECIFICATIONS

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

**CPCL: Element:** Self-supporting copper-nickel alloy or nickel-chrome alloy, depending on resistance value

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

**Terminals:** Tinned copper

**CPCC: Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Woven fiberglass

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

**End Caps:** Tin plated steel

**Terminals:** Tinned copper

**CPCP: Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Ceramic

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

**End Caps:** Stainless steel (CPCP07 is tin plated CRS)

**Terminals:** Tinned Copperweld® (CPCP07 is tin plated copper)

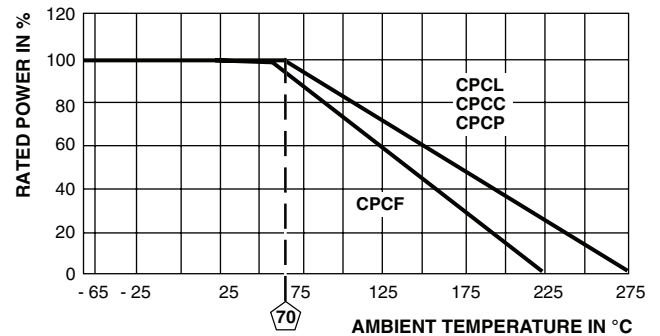
**CPCF: Element:** Metal film - nickel-chrome alloy

**Core:** Alumina ceramic

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

**End Caps:** Brass alloy

**Terminals:** Solder-coated copper



**Derating**

PERFORMANCE			
TEST	CONDITIONS OF TEST	CPCP TEST LIMITS	CPCC, CPCL, CPCF TEST LIMITS
Thermal Shock	- 55 °C to + 275 °C, 5 cycles, 30 min dwell time	± (2.0 % + 0.05 Ω) ΔR	± (5.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (2.0 % + 0.05 Ω) ΔR	± (4.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V <sub>rms</sub> for 1 min	± (0.1 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C, full rated working voltage for 45 min	± (2.0 % + 0.05 Ω) ΔR	± (3.0 % + 0.05 Ω) ΔR
Bias Humidity	75 °C, 90 % - 100 % RH, 240 h	± (2.0 % + 0.05 Ω) ΔR	± (5.0 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, + 40 °C, 1.5 h "ON", 0.5 h "OFF"	± (5.0 % + 0.05 Ω) ΔR	± (5.0 % + 0.05 Ω) ΔR
Terminal Strength	5 to 10 s 10 pound pull test	± (1.0 % + 0.05 Ω) ΔR	± (1.0 % + 0.05 Ω) ΔR
Resistance to Solder Heat	Terminal immersed 3.5 s in molten solder up to body	± (1.0 % + 0.05 Ω) ΔR	± (4.0 % + 0.05 Ω) ΔR



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