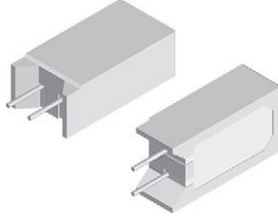


## Wirewound / Metal Film Resistors, Commercial Power, Vertical Mount



### FEATURES

- Board space saving due to vertical design
- 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
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS\***  
Available

**HALOGEN FREE**  
Available

**GREEN**  
(5-2008)  
Available

### Note

\* This datasheet provides information about parts that are RoHS-compliant and /or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS					
GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{70^{\circ}\text{C}}$ W	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm \%$	WEIGHT (typical) g
CPCL02	CPCL-2	2	0.01 to 0.10	5, 10	3.5
CPCC02	CPCC-2	2	0.1 to 500	5, 10	3.5
CPCP02	CPCP-2	2	0.1 to 4K	1, 5	3.5
CPCF02	CPCF-2	2	501 to 150K	1, 5, 10	3.5
CPCL03	CPCL-3	3	0.01 to 0.10	5, 10	5.5
CPCC03	CPCC-3	3	0.1 to 800	5, 10	5.5
CPCP03	CPCP-3	3	0.1 to 5K	1, 5	5.5
CPCF03	CPCF-3	3	801 to 150K	1, 5, 10	5.5
CPCL05	CPCL-5	5	0.01 to 0.10	5, 10	6.9
CPCC05	CPCC-5	5	0.1 to 800	5, 10	6.9
CPCP05	CPCP-5	5	0.1 to 5K	1, 5	6.9
CPCF05	CPCF-5	5	801 to 150K	1, 5, 10	6.9
CPCL10	CPCL-10	10	0.01 to 0.10	5, 10	14.3
CPCC10	CPCC-10	10	0.1 to 1.5K	5, 10	14.3
CPCP10	CPCP-10	10	0.1 to 8K	1, 5	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 CPCP0510R00FB321. Maximum resistance value will be  $\frac{1}{2}$  of the standard CPCP

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

GLOBAL PART NUMBER INFORMATION				
Global Part Numbering Example: CPCC0515R00JB32				
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 K1500 = 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 to 999 as applicable
Historical Part Numbering Example: CPCC-5 15 Ω 5 % B32				
CPCC-5	15 Ω	5 %	B32	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	

**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]
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

**Terminals:** tinned Copperweld®

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

**Core:** Alumina ceramic

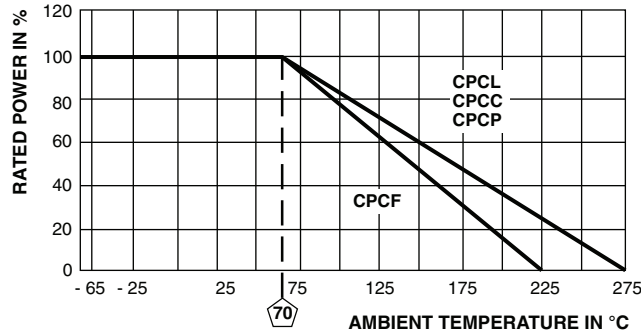
**Body:** steatite ceramic case with inorganic potting compound

**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 (+225 °C for CPCF), 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 % to 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 s 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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