

# CPCP, CPCF

Vishay Dale

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



www.vishay.com

#### **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









#### 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 <sub>70 °C</sub> W	RESISTANCE RANGE $\Omega$	TOLERANCE ± %	WEIGHT (typical)
CPCP02	CPCP-2	2	0.1 to 4K	1, 5	3.5
CPCF02	CPCF-2	2	501 to 150K	1, 5, 10	3.5
CPCP03	CPCP-3	3	0.1 to 5K	1, 5	5.5
CPCF03	CPCF-3	3	801 to 150K	1, 5, 10	5.5
CPCP05	CPCP-5	5	0.1 to 5K	1, 5	6.9
CPCF05	CPCF-5	5	801 to 150K	1, 5, 10	6.9
CPCP10	CPCP-10	10	0.1 to 8K	1, 5	14.3

#### Note

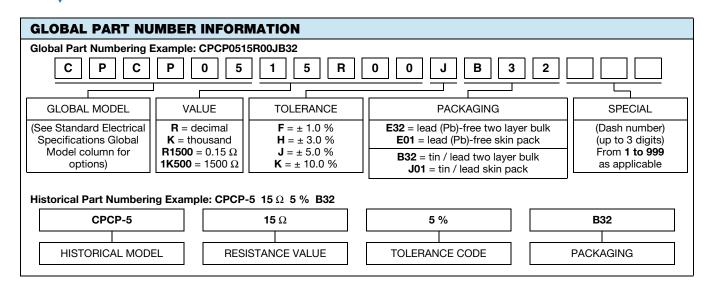
 Non-inductively wound types are available on the CPCP series signified by a 1 in the special character on part number such as CPCP0510R00FB321. Maximum resistance value will be ½ of the standard CPCP

TECHNICAL SPECIFICATIONS				
PARAMETER	UNIT	CPCPxx	CPCFxx	
Temperature Coefficient	ppm/°C	$\pm$ 20 = 10 $\Omega$ and above, $\pm$ 50 = 1.0 $\Omega$ to 9.9 $\Omega$ , $\pm$ 90 = 0.1 $\Omega$ to 0.99 $\Omega$	± 50 all values	
Short Time Overload	-	5 x rated power for 5 s		
Maximum Working Voltage	V	(P x R) <sup>1/2</sup>		
Operating Temperature Range	°C	-65 to +275	-65 to +225	
Terminal Strength	lb	10 minimum		
Dielectric Withstanding Voltage	V <sub>AC</sub>	1000		

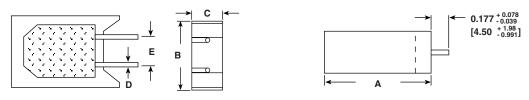


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### **DIMENSIONS** in inches [millimeters]



	DIMENSIONS in inches [millimeters]					
GLOBAL MODEL	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]	
CPCP02, CPCF02	0.807 [20.50]	0.433 [11.00]	0.276 [7.01]	0.032 [0.813]	0.197 [5.00]	
CPCP03, CPCF03	0.984 [24.99]	0.472 [11.99]	0.315 [8.00]	0.032 [0.813]	0.197 [5.00]	
CPCP05, CPCF05	1.003 [25.48]	0.512 [13.00]	0.354 [8.99]	0.032 [0.813]	0.197 [5.00]	
CPCP10	1.372 [34.85]	0.633 [16.08]	0.485 [12.32]	0.040 [1.02]	0.290 [7.37]	

#### **MATERIAL SPECIFICATIONS**

### Part Marking:

DALE, model, wattage, value, tolerance, date code

#### 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

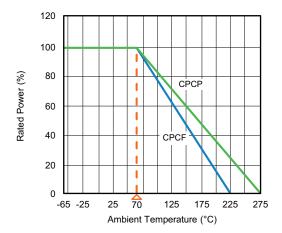
Terminals: solder-coated copper





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PERFORMANCE					
TEST	CONDITIONS OF TEST	CPCP TEST LIMITS	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	$\pm$ (5.0 % + 0.05 Ω) ΔR		
Short Time Overload	5 x rated power for 5 s	$\pm$ (2.0 % + 0.05 $\Omega$ ) $\Delta R$	$\pm$ (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	$\pm$ (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	$\pm$ (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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