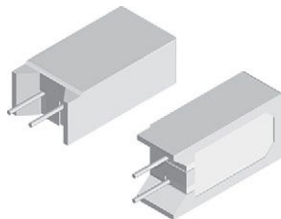




## Wirewound / Metal Film Resistors, Commercial Power, Vertical Mount



### 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
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

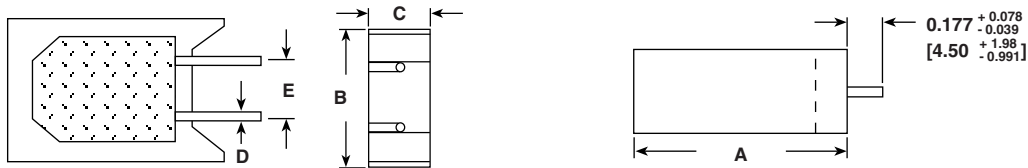
- Non-inductively wound types are available on the CPCP series signified by a 1 in the special character on part number such as CPCP0510R00FB321. Maximum resistance value will be  $\frac{1}{2}$  of the standard CPCP

TECHNICAL SPECIFICATIONS			
PARAMETER	UNIT	CPCPxx	CPCFxx
Temperature Coefficient	ppm/ $^{\circ}\text{C}$	$\pm 20 = 10 \Omega$ and above, $\pm 50 = 1.0 \Omega$ to $9.9 \Omega$ , $\pm 90 = 0.1 \Omega$ to $0.99 \Omega$	$\pm 50$ 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: CPCP0515R00JB32				
C	P	C	P	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 to 999 as applicable
Historical Part Numbering Example: CPCP-5 15 Ω 5 % B32				
CPCP-5	15 Ω	5 %	B32	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	

**DIMENSIONS** in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]				
	± 0.031 [0.794] A	± 0.031 [0.794] B	+ 0.043 [1.09] - 0.012 [0.305] C	± 0.005 [0.127] D	± 0.040 [1.02] E
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

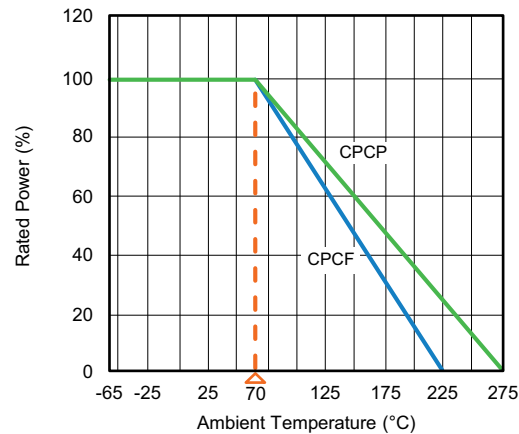
**Body:** steatite ceramic case with inorganic potting compound

**End Caps:** brass alloy

**Terminals:** solder-coated copper



## DERATING



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	± (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



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.