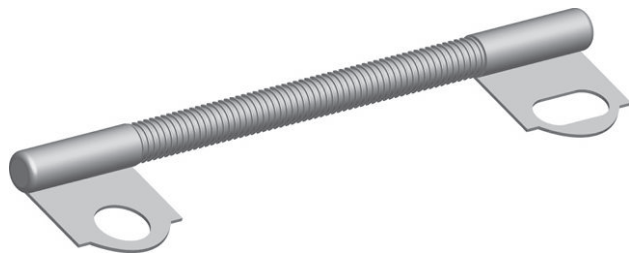




Wirewound Resistors, Commercial Power, Tab Type Terminals



FEATURES

- Variety of core diameters and length
- Numerous mounting hole sizes and shapes
- High performance for low cost
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

APPLICATIONS

Appliance applications include food mixers, coffee makers, electric and electronic ranges, electric blankets, actuating heaters for bi-metal switches, toasters and deep fryers. Other applications include toys, entertainment devices such as television, radio and amplifiers.

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL ⁽¹⁾	HISTORICAL MODEL ⁽¹⁾	POWER RATING $P_{25^{\circ}\text{C}}$ W	RESISTANCE RANGE Ω	TOLERANCE $\pm \%$	WEIGHT (typical) g
CL4095	CL-4095	3.8	0.10 to 685	5, 10	1.08
CL4100	CL-4100	4	0.11 to 740	5, 10	1.09
CL4125	CL-4125	5	0.15 to 1.02K	5, 10	1.16
CL4150	CL-4150	6	0.19 to 1.35K	5, 10	1.23
CL4200	CL-4200	8	0.27 to 1.86K	5, 10	1.37
CL4225	CL-4225	9	0.31 to 2.14K	5, 10	1.44
CL4300	CL-4300	12	0.43 to 2.99K	5, 10	1.65
CL6095	CL-6095	5.7	0.10 to 175	5, 10	2.30
CL6100	CL-6100	6	0.10 to 190	5, 10	2.35
CL6133	CL-6133	8	0.13 to 285	5, 10	2.68
CL6167	CL-6167	10	0.18 to 380	5, 10	2.97
CL6200	CL-6200	12	0.22 to 475	5, 10	3.35
CL6233	CL-6233	14	0.27 to 570	5, 10	3.68
CL6300	CL-6300	18	0.35 to 765	5, 10	4.35

Note

⁽¹⁾ CL4000 and CL6000 model numbers are calculated from the CL4000 power rating of 4 W per inch and CL6000 power rating of 6 W per inch. The last three digits of the model number represent the mounting center spacing of the resistor in inches (decimal is between the first and second digit, mounting center spacing is available between 0.95" [24.13 mm] and 3.00" [76.20 mm]). Example: CL6133 = 1.33 inches x 6 W per inch = 8 W.

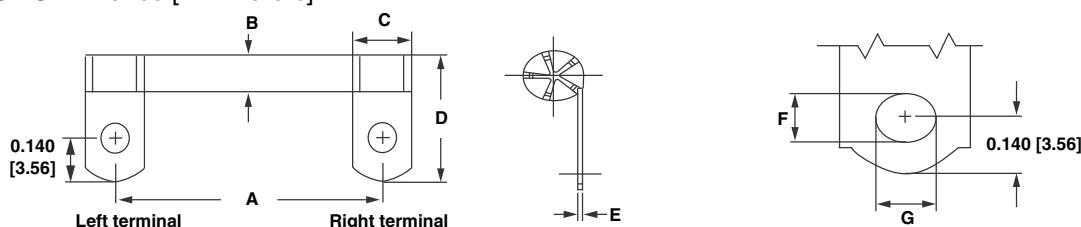
TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CL RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/ $^{\circ}\text{C}$	± 300 for 1.0 Ω and above; ± 600 below 1.0 Ω
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 +375
Terminal Strength	lb	10 minimum

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: CL4100XX100RJB1410

C	L	4	1	0	0	X	X	1	0	0	R	J	B	1	4	1	0
GLOBAL MODEL (see Standard Electrical Specifications Global Model column for options)	LEFT TERMINAL A B C D E F X = custom		RIGHT TERMINAL A B C D E F X = custom		VALUE R = decimal K = thousand R150 = 0.15 Ω 1K00 = 1000 Ω		TOLERANCE J = ± 5.0 % K = ± 10.0 %		PACKAGING B14 = lead (Pb)-free bulk B31 = lead (Pb)-free four layer bulk		SPECIAL (dash number) (up to 2 digits) from 1 to 99 as applicable						
Historical Part Numbering example: CL-4100XX-10 100 Ω 5 % B14																	
CL-4100XX-10		100 Ω		5 %		B14											
HISTORICAL MODEL		RESISTANCE VALUE		TOLERANCE CODE		PACKAGING											

**DIMENSIONS** in inches [millimeters]

GLOBAL MODEL	DIMENSIONS in inches [millimeters]				
	A ± 0.020 [0.508]	B TYPICAL	C ± 0.010 [0.254]	D ± 0.010 [0.254]	E ± 0.005 [0.127]
CL4095	0.95 [24.13]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4100	1.00 [25.40]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4125	1.25 [31.75]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4150	1.50 [38.10]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4200	2.00 [50.80]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4225	2.25 [57.15]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL4300	3.00 [76.20]	0.105 [2.67]	0.344 [8.73]	0.475 [12.07]	0.015 [0.38]
CL6095	0.95 [24.13]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6100	1.00 [25.40]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6133	1.33 [33.78]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6167	1.67 [42.42]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6200	2.00 [50.80]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6233	2.33 [59.18]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]
CL6300	3.00 [76.20]	0.170 [4.32]	0.344 [8.73]	0.575 [14.61]	0.018 [0.46]

GLOBAL MODEL	TERMINAL HOLE OPTIONS AND DIMENSIONS in inches [millimeters]					
	LEFT OPTION	F ± 0.010 [0.254]	G ± 0.010 [0.254]	RIGHT OPTION	F ± 0.010 [0.254]	G ± 0.010 [0.254]
CL4000	A	0.130 [3.30]	0.160 [4.06]	A	0.130 [3.30]	0.160 [4.06]
	B	0.172 [4.37]	0.210 [5.33]	B	0.172 [4.37]	0.210 [5.33]
	C	0.200 [5.08]	0.220 [5.59]	D	0.128 [3.25]	0.128 [3.25]
	D	0.128 [3.25]	0.128 [3.25]	E	0.200 [5.08]	0.210 [5.33]
CL6000	A	0.130 [3.30]	0.160 [4.06]	A	0.130 [3.30]	0.160 [4.06]
	B	0.172 [4.37]	0.210 [5.33]	B	0.172 [4.37]	0.210 [5.33]
	C	0.200 [5.08]	0.220 [5.59]	E	0.200 [5.08]	0.210 [5.33]
	F	0.180 [4.57]	0.180 [4.57]	F	0.180 [4.57]	0.180 [4.57]

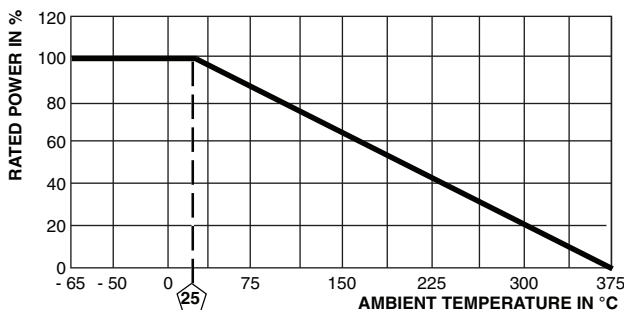
MATERIAL SPECIFICATIONS

Element: nickel-chrome alloy or copper-nickel alloy, depending on resistance value

Core: woven fiberglass

Terminals: electro tin plated steel

Part Marking: resistance is stamped on terminal in two places, maximum of three characters

DERATING

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS (EIA RS-344)
Thermal Shock	-55 °C to +275 °C, 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
Low Temperature Operation	-65 °C, full rated working voltage for 45 min	± (3.0 % + 0.05 Ω) ΔR
Humidity	75 °C, 90 % to 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
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



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.