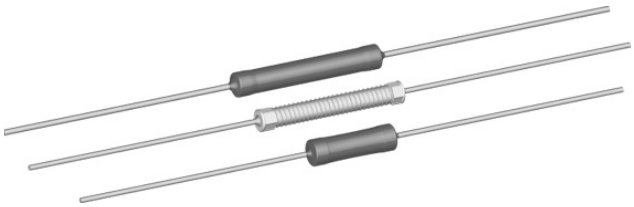
Wirewound Resistors, Commercial Power, Axial Lead



FEATURES

- High performance for low cost
- Auto insertable
- CA0001, CA0002 and CA5000 models are supplied with a high temperature silicone coating for additional environmental protection
- Lead forming available

Pb-free Available

e3

RoHS* COMPLIANT

APPLICATIONS

Kitchen appliances: Percolators, blenders, mixers, ranges, toasters, deep fryers. Automotive devices: Horns, ignitions, windshield wipers, voltage regulators, instrument gauges. Entertainment devices: Radios, televisions, computers and power supplies.

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL [1] MODEL	HISTORICAL [1] MODEL	POWER RATING $P_{25\ °C}$ W	RESISTANCE RANGE Ω ± 10 % Standard, ± 5 % Available	WEIGHT (Typical) g
CA0001	CA-1	1.0	0.1 - 1K	0.65
CA0002	CA-2	2.0	0.1 - 2.4K	0.80
CA4050/CA5050	CA-4050/CA-5050	2.0/2.5	0.1 - 170/0.1 - 2.7K	0.64/0.78
CA4055/CA5055	CA-4055/CA-5055	2.2/2.75	0.1 - 195/0.1 - 3.1K	0.65/0.80
CA4060/CA5060	CA-4060/CA-5060	2.4/3.0	0.1 - 220/0.1 - 3.5K	0.66/0.82
CA4070/CA5070	CA-4070/CA-5070	2.8/3.5	0.1 - 270/0.1 - 4.3K	0.68/0.86
CA4080/CA5080	CA-4080/CA-5080	3.2/4.0	0.1 - 320/0.1 - 5.1K	0.70/0.90
CA4090/CA5090	CA-4090/CA-5090	3.6/4.5	0.1 - 370/0.1 - 5.9K	0.72/0.94
CA4100/CA5100	CA-4100/CA-5100	4.0/5.0	0.15 - 420/0.15 - 6.7K	0.74/0.98
CA4150/CA5150	CA-4150/CA-5150	6.0/7.5	0.2 - 630/0.2 - 7K	0.84/1.19
CA4200/CA5200	CA-4200/CA-5200	8.0/10.0	0.2 - 920/0.2 - 7K	0.94/1.40
CA4220/CA5220	CA-4220/CA-5220	8.8/11.0	0.2 - 1.02K/0.2 - 7K	0.98/1.48

Note

[1] CA4000 and CA5000 model numbers are calculated from the CA4000 power rating of 4 W per inch and CA5000 power rating of 5 W per inch. The last three digits of the model number are the body length of the resistor in inches (decimal is between the first and second digit). Example: CA5150 = 1.50 inches x 5 W per inch = 7.5 W.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CA0001	CA0002	CA4000	CA5000
Temperature Coefficient	ppm/°C	± 600 below 1 Ω, ± 300 1 Ω and above			
Power Rating	W	1	2	4 per inch	5 per inch
Short Time Overload	-	5 x rated power for 5 s			
Maximum Working Voltage	V	$(P \times R)^{1/2}$			
Dielectric Withstanding Voltage	V_{AC}	1000	1000	1000	1000
Operating Temperature Range	°C	- 65/+ 275	- 65/+ 275	- 65/+ 275	- 65/+ 275
Terminal Strength (minimum)	lb	10	10	10	10

Note

- Wirewound CA resistors can reliably function as a fuse and as a resistor. Such components involve compromise between fusing and resistive functions; therefore, each design should be tailored to the application to ensure optimum performance. Contact factory by using the e-mail address at the bottom of this page for design assistance.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CA000150R00JR05 (preferred part number format)

C	A	0	0	0	1	5	0	R	0	0	J	R	0	5			

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
(See Standard Electrical Specifications Global Model column for options)	**R** = Decimal **K** = Thousand **R1500** = 0.15 Ω **1K500** = 1500 Ω	**H** = ± 3.0 % **J** = ± 5.0 % **K** = ± 10.0 %	**E14** = Lead (Pb)-free bulk **E05** = Lead (Pb)-free tape and reel **B14** = Tin/lead bulk **R05** = Tin/lead tape and reel	(Dash Number) (up to 3 digits) From **1 - 999** as applicable

Historical Part Number example: CA-1 50 Ω 5 % R05 (will continue to be accepted for tin/lead product only)

CA-1	50 Ω	5 %	R05
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

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

For technical questions, contact: ww2aresistors@vishay.com

DIMENSIONS in inches [millimeters]

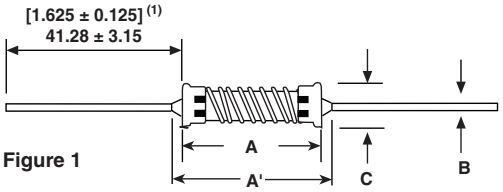


Figure 1

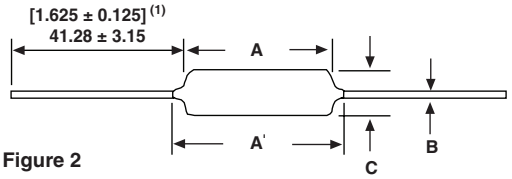


Figure 2

Note

(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown.

GLOBAL MODEL	DIMENSIONS in inches [millimeters]				
	A ± 0.031 [0.794]	A' (Maximum)	B ± 0.001 [0.025]	C	FIGURE
CA0001	0.400 [10.16]	0.460 [11.68]	0.032 [0.813]	0.170 maximum [4.32 maximum]	2
CA0002	0.570 [14.48]	0.630 [16.00]	0.032 [0.813]	0.170 maximum [4.32 maximum]	2
CA4050	0.500 [12.70]	0.594 [15.09]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4055	0.550 [13.97]	0.644 [16.36]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4060	0.600 [15.24]	0.694 [17.63]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4070	0.700 [17.78]	0.794 [20.17]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4080	0.800 [20.32]	0.894 [22.71]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4090	0.900 [22.86]	0.994 [25.25]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4100	1.00 [25.40]	1.094 [27.79]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4150	1.50 [38.10]	1.594 [40.49]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4200	2.00 [50.80]	2.094 [53.19]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA4220	2.20 [55.88]	2.294 [58.27]	0.032 [0.813]	0.140 ± 0.031 [3.56 ± 0.794]	1
CA5050	0.500 [12.70]	0.625 [15.88]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5055	0.550 [13.97]	0.675 [17.15]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5060	0.600 [15.24]	0.725 [18.42]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5070	0.700 [17.78]	0.825 [20.96]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5080	0.800 [20.32]	0.925 [23.50]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5090	0.900 [22.86]	1.025 [26.04]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5100	1.00 [25.40]	1.125 [28.58]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5150	1.50 [38.10]	1.625 [41.28]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5200	2.00 [50.80]	2.125 [53.98]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2
CA5220	2.20 [55.88]	2.325 [59.06]	0.036 [0.914]	0.170 ± 0.031 [4.32 ± 0.794]	2

MATERIAL SPECIFICATIONS

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

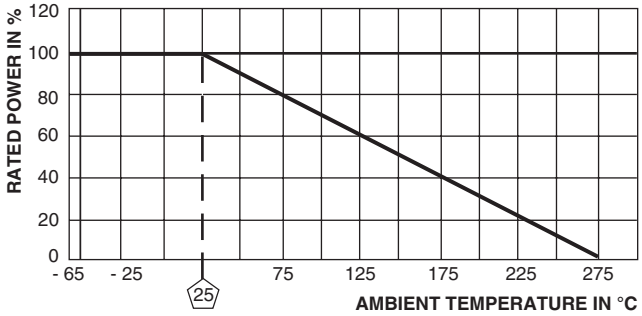
Core: Woven fiberglass

Coating: Special high temperature silicone (CA4000 series is not coated)

Terminals: Tin/lead electroplated copper (Lead (Pb)-free will be 100 % tin)

End Caps: Tin plated steel

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



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) Δ*R*
Short Time Overload	5 x rated power for 5 s	± (4.0 % + 0.05 Ω) Δ*R*
Dielectric Withstanding Voltage	600 V_{AC}, (CA0001, CA0002) for 1 min	± (2.0 % + 0.05 Ω) Δ*R*
Low Temperature Storage	- 65 °C, full rated working voltage for 45 min	± (3.0 % + 0.05 Ω) Δ*R*
Humidity	75 °C, 90 % - 100 % RH, 240 h	± (5.0 % + 0.05 Ω) Δ*R*
Load Life	1000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (10.0 % + 0.05 Ω) Δ*R*
Terminal Strength	10 pounds for 30 s; body twisted about axis, 3 360° rotations	± (2.0 % + 0.05 Ω) Δ*R*
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) Δ*R*

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