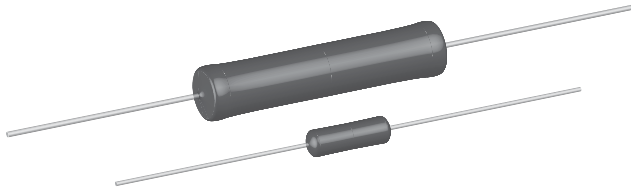


## Wirewound Resistors, High Energy, Silicone Coated, Axial Lead


**FEATURES**

- High continuous energy handling, > 106.5 J
- High temperature silicone coating
- Complete welded construction
- Excellent stability in operation
- High power to size ratio
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



STANDARD ELECTRICAL SPECIFICATIONS						
GLOBAL MODEL	POWER RATING <sup>(1)</sup> $P_{25\text{ }^\circ\text{C}}$ W CHARACTERISTIC U +250 °C	POWER RATING <sup>(1)</sup> $P_{25\text{ }^\circ\text{C}}$ W CHARACTERISTIC V +350 °C	RESISTANCE RANGE $\Omega$	MAX. CONTINUOUS ENERGY J	TOLERANCE $\pm$ %	WEIGHT (max.) g
CW02B...HE	3.0	3.75	2 to 87.5	10.4	5	0.7
CW005...HE	5.0	6.5	7.6 to 343	39.1	5	4.2
CW010...HE	10.0	13.0	20.7 to 938	106.5	5	9.0

**Note**

<sup>(1)</sup> Vishay Dale CW models have two power ratings, depending on operating temperature and stability requirements.

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CW RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	$\pm$ 30 for 10 $\Omega$ and above, $\pm$ 50 for 1.0 $\Omega$ to 9.9 $\Omega$ , $\pm$ 90 for 0.5 $\Omega$ to 0.99 $\Omega$
Short Time Overload	-	5x rated power for 5 s for CW02B...HE 10x rated power for 5 s for CW005...HE and CW010...HE
Terminal Strength	lb	10 minimum
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Operating Temperature Range	°C	Characteristic U = -65 to +250, characteristic V = -65 to +350
Power Rating	-	Characteristic U = +250 °C max. hot spot temperature, $\pm$ 0.5 % max. $\Delta R$ in 2000 h load life Characteristic V = +350 °C max. hot spot temperature, $\pm$ 3.0 % max. $\Delta R$ in 2000 h load life

GLOBAL PART NUMBER INFORMATION												
Global Part Numbering example: CW02B10R00JE12HE												
C	W	0	2	B	1	0	R	0	0	J	E	12HE
GLOBAL MODEL (5 digits)	VALUE (5 digits)	TOLERANCE (1 digit)	PACKAGING (3 digits)			SPECIAL (2 digits)						
CW02B CW005 CW010	R = Decimal K = Thousand 1R500 = 1.5 $\Omega$ 1K500 = 1.5 k $\Omega$	H = $\pm$ 3.0 % J = $\pm$ 5.0 % K = $\pm$ 10.0 %	E70 = Lead (Pb)-free, tape/reel, 1K pcs. (CW02B only) E73 = Lead (Pb)-free, tape/reel, 500 pcs. E12 = Lead (Pb)-free, bulk			HE = High energy						
			S70 = Tin/lead, tape/reel, 1K pcs. (CW02B only) S73 = Tin/lead, tape/reel, 500 pcs. B12 = Tin/lead, bulk									

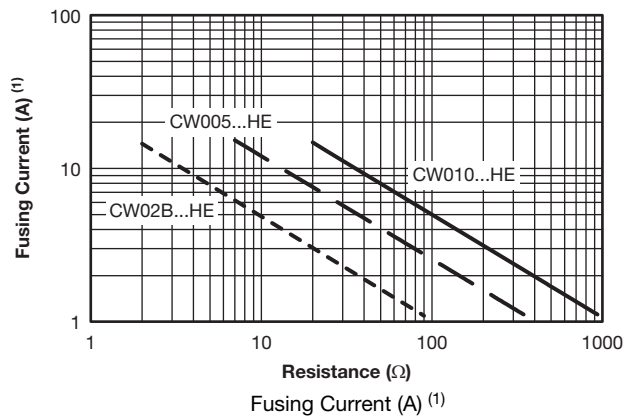
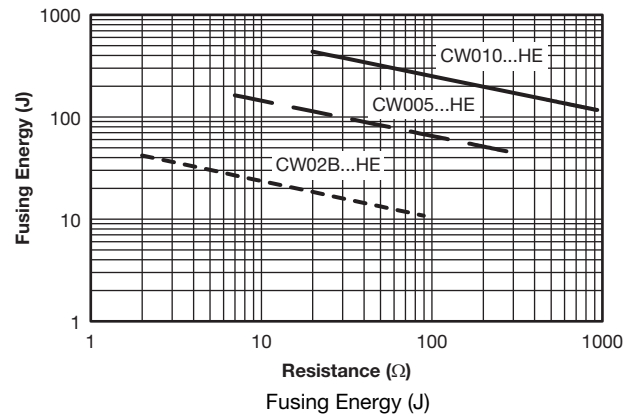
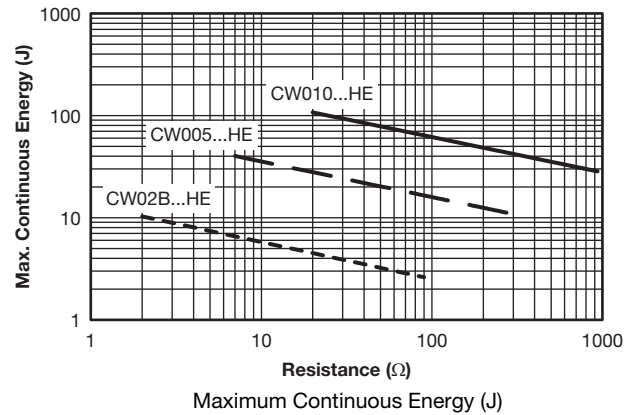


**STANDARD ENERGY PERFORMANCE CHARACTERISTICS**

GLOBAL MODEL	RES. $\Omega$	MAX. CONT. ENERGY J	FUSING ENERGY J	CURRENT TO FUSE <sup>(1)</sup> A	POWER TO FUSE <sup>(1)</sup> W
CW02B...HE	2.0	10.4	42.3	14.54	422.60
	2.8	9.2	37.5	11.58	375.28
	4.0	8.0	32.8	9.06	328.37
	5.6	7.1	29.1	7.20	290.55
	7.6	6.4	25.9	5.84	259.16
	10.8	5.6	22.8	4.59	227.94
	15.4	5.0	20.2	3.62	201.54
	21.8	4.4	17.8	2.86	178.41
	30.5	3.7	15.9	2.28	158.54
	41.7	3.5	14.2	1.85	142.20
CW005...HE	59.1	3.1	12.6	1.46	125.82
	87.5	2.7	10.9	1.12	108.87
	7.6	39.1	159.0	14.46	1590.00
	10.5	34.9	142.3	11.64	1422.54
	15.1	30.8	125.5	9.12	1255.28
	21.4	27.4	111.4	7.21	1113.71
	29.3	24.5	99.9	5.84	999.14
	41.8	21.7	88.2	4.59	882.20
	59.6	19.2	78.0	3.62	779.99
	84.6	17.0	69.2	2.86	692.37
CW010...HE	118.6	14.2	61.6	2.28	616.48
	162.3	13.6	55.3	1.85	553.45
	230.6	12.1	49.1	1.46	490.94
	343.6	10.5	42.8	1.12	427.51
	20.7	106.5	433.1	14.46	4330.65
	28.6	95.2	387.5	11.64	3874.65
	41.0	83.5	340.8	9.12	3408.72
	58.0	74.3	302.6	7.21	3025.53
	79.7	66.6	271.8	5.84	2717.79
	113.6	58.8	239.8	4.59	2397.57
162.3	52.2	212.4	3.62	2124.04	
230.5	46.3	188.6	2.86	1886.43	
323.2	38.7	168.0	2.28	1679.99	
442.7	37.0	151.0	1.85	1509.62	
629.3	32.9	134.0	1.46	1339.76	
938.0	28.7	116.7	1.12	1167.06	

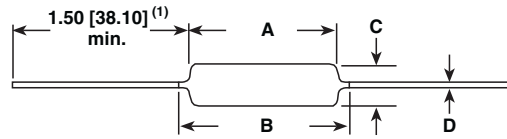
**Note**

<sup>(1)</sup> Time to fuse is 0.1 s.





**DIMENSIONS** in inches (millimeters)



MODEL	DIMENSIONS in inches [millimeters]			
	A	B [MAXIMUM] <sup>(2)</sup>	C	D
CW02B...HE	0.562 ± 0.062 [14.27 ± 1.57]	0.622 [15.80]	0.188 ± 0.032 [4.78 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
CW005...HE	0.875 ± 0.062 [22.22 ± 1.57]	1.0 [25.40]	0.312 ± 0.032 [7.92 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
CW010...HE	1.781 ± 0.062 [45.24 ± 1.57]	1.875 [47.62]	0.375 ± 0.032 [9.52 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]

**Notes**

- <sup>(1)</sup> On some standard reel pack methods, the leads may be trimmed to a shorter length than shown.
- <sup>(2)</sup> B (maximum) dimension is clean lead to clean lead.

**MATERIAL SPECIFICATIONS**

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

**Core:** Ceramic: Steatite

**Coating:** Special high temperature silicone

**Standard Terminals:** Tinned Copperweld®

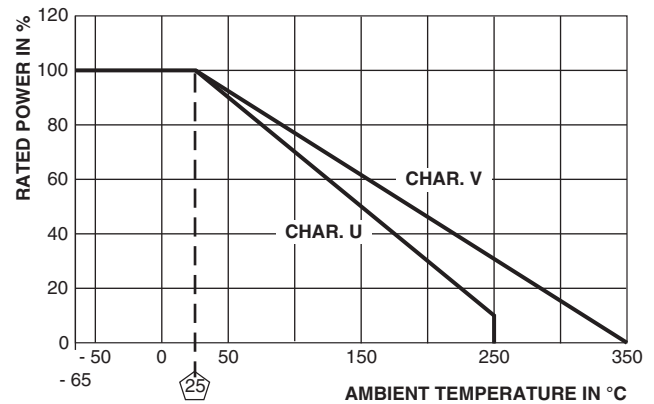
**End Caps:** Stainless steel

**Part Marking:** DALE, model, wattage <sup>(3)</sup>, value, tolerance, date code

**Note**

- <sup>(3)</sup> Wattage marked on resistor will be "V" characteristic.

**DERATING**



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS <sup>(4)</sup> (CHARACTERISTIC V)
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at -55 °C	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	5x rated power for CW02B, 10 x rated power for CW005 and CW010 for 5 s	± (2.0 % + 0.05 Ω) ΔR
High Temperature Exposure	250 h at +350 °C	± (4.0 % + 0.05 Ω) ΔR
Load Life	2000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (3.0 % + 0.05 Ω) ΔR

**Note**

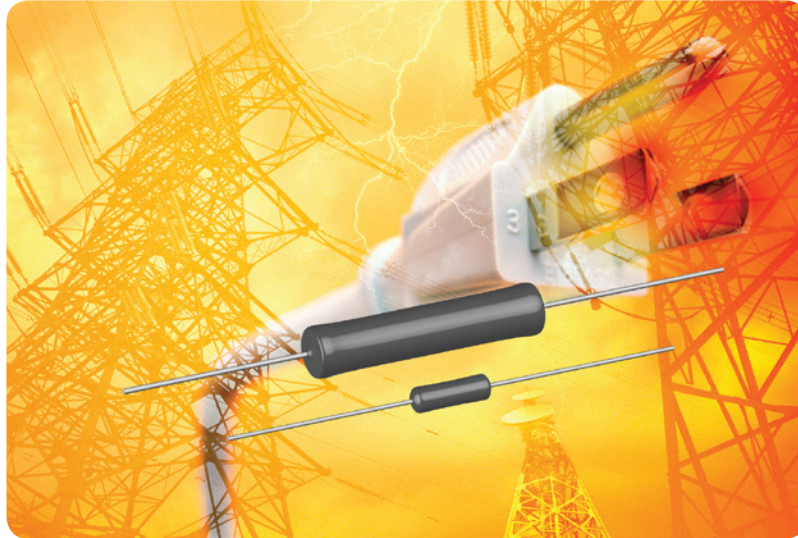
- <sup>(4)</sup> All ΔR figures shown are maximum, based upon testing requirements per MIL-PRF-26 at a maximum operating temperature of +350 °C. ΔR maximum figures are considerably lower when tested at a maximum operating temperature of +250 °C.



# WIREWOUND RESISTORS

CW - High Energy

## Wirewound Resistors, High Energy, Silicone Coated, Axial Lead



### KEY BENEFITS

- High continuous energy handling to 106.5 J
- High-temperature silicone coating
- Complete welded construction
- Excellent stability in operation
- High power to size ratio
- Meets IEC61000-4-5 (1.2 us/50 us) surge handling requirements

### APPLICATIONS

- Power supplies
- Metering
- Welding equipment
- Power tools
- White goods / appliances

### RESOURCES

- Datasheet: CW - High Energy - [www.vishay.com/doc?30286](http://www.vishay.com/doc?30286)
- For technical questions contact [resistors@vishay.com](mailto:resistors@vishay.com)
- Material categorization: For definitions please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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# WIREWOUND RESISTORS

## CW - High Energy

### Wirewound Resistors, High Energy, Silicone Coated, Axial Lead

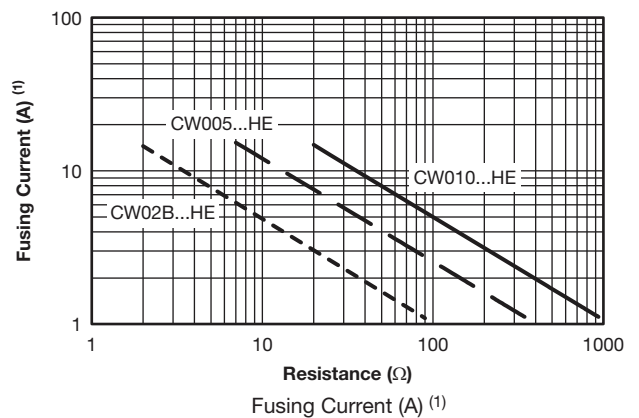
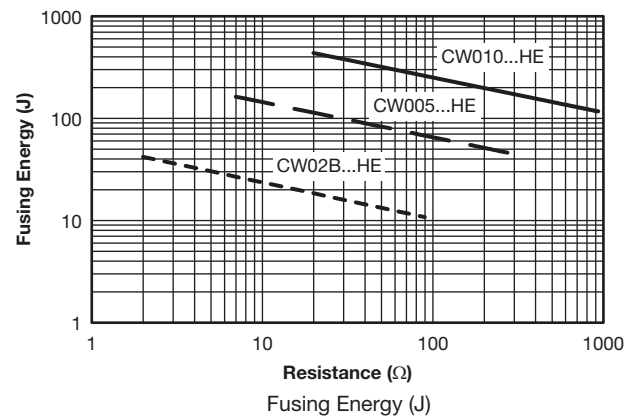
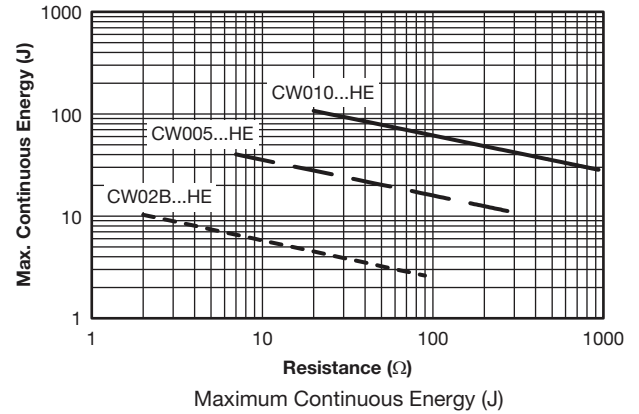
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938.0	28.7	116.7	1.12	1167.06	

Revision 26-Feb-15

**Note**

<sup>(1)</sup> Time to fuse is 0.1 s.





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