

1. Scope :

This specification is applies to Coat Insulated Miniature Wire Wound Resistors for use current detection.

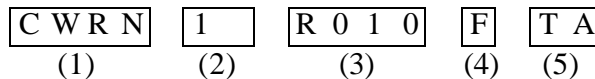
2. Application :

- Computer
- Automotive
- AC Adapter
- Power supply
- Battery pack
- Battery charger
- DC-DC converter
- Printer equipment
- General purpose application



3. Product code system :

EX :



(1) Product code

Product series code
 CWRN is for non-inductive type
 CWRI is for inductive type

(2) Power rating

3= 3 watts
 (It is 2 watts maximum for power load circuit.)

(3) Resistance

Resistance range : (lead length 2 mm)
 10m to 200 for non-inductive type
 10m to 500 for inductive type

3 digits or 4 digits
 R010: 10m
 101: 100

(4) Resistance tolerance

D= $\pm 0.5\%$; F= $\pm 1\%$; G= $\pm 2\%$; J= $\pm 5\%$

(5) Packaging code

TA : Taping and Ammo pack
 BK : Bulk

4. Rating :

	Power Rating	Resistance Range ()	T.C.R. (X 10 ⁻⁶ /K)	Dielectric Withstanding Voltage	Max. Current Rating	Rated Ambient Temperature	Operating Temperature
CWRN	3W	10m ~ 200	100	500	10	70	-55 ~ 170
CWRI		10m ~ 500					

* Rated voltage = \sqrt{PR} or maximum working voltage, whichever is lower.

4.1. Rated Voltage :

Resistors shall have a rated direct-current (DC) continuous working voltage or approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial-line frequency and waveform corresponding to the power rating as determined from the following formula:

$$E = \sqrt{PR}$$

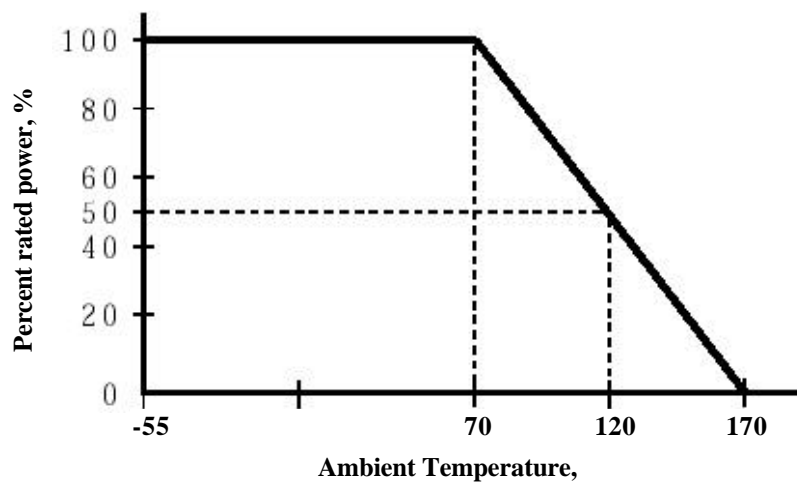
E: Rated voltage [V]

P: Rated Power [W]

R: Nominal resistance []

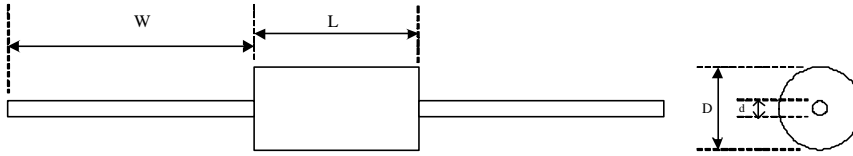
4.2. Power derating curve :

For temperature in excess of 70 , the load shall be derated in accordance with the following figure.



5. Outline :

5.1. Dimensions :



unit : mm

Symbol	Dimension	Tolerance
L	7.0	± 0.1
W	26.0	± 0.3
D	3.0	± 0.5
d	0.6	± 0.1

5.2. Marking :

Resistance and tolerance

6. Performance :

6.1. Electrical characteristics

No.	Test	Specification	Testing condition
1	Resistance	Within tolerance	@25
2	Temperature coefficient of resistance	± 100 ppm/	+25 ~ +125
3	Short time overload	R/R $\pm 1.0\%$	5 times rated power for 5s

6.2. Mechanical characteristics

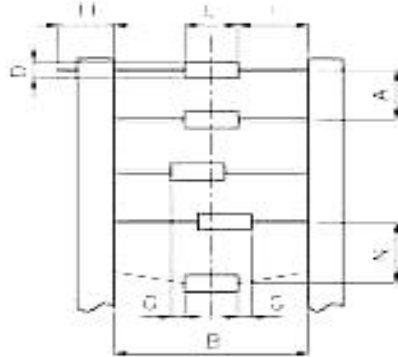
No.	Test	Specification	Testing condition
1	Resistance to soldering heat	R/R $\pm 1.0\%$ No visible damage	260 ± 5 ; 10s ± 1 s
2	Solderability	More than 95% of surface of the termination must be covered with new solder.	Immersed for 2 ± 0.5 s in a solder bath at 235 \pm
3	Resistance to solvent	No visible damage	IPA or H ₂ O ₂ followed by brushing in accordance with "MIL-STD-202F"

6.3. Environmental characteristics

No.	Test	Specification	Testing condition
1	Moisture resistance	R/R $\pm 1.0\%$	MIL-STD-202, Method 106, 0% power, 7a and 7b no required
2	Temperature cycling	R/R $\pm 1.0\%$	30 minutes at -55 and 30minutes at 150 ; 10cycles
3	Damp heat (steady state)	R/R $\pm 2.0\%$	40 ± 2 ; 90~95% RH 56days
4	Endurance (Rated load)	R/R $\pm 2.0\%$	70 ± 2 ; 1000 hours

7. Taping :

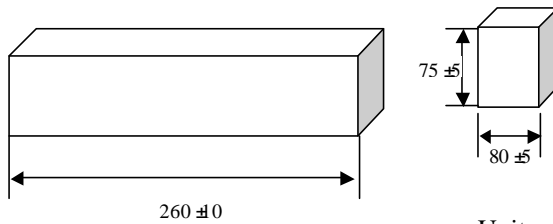
7.1. Dimension of taping



Unit : mm

Symbol	Dimension	Tolerance
D	3.0	± 0.5
L	7.0	± 1.0
A	5.0	± 0.5
H	6.0	± 1.0
G	0.8	Max.
N	1.2	Max.
B	52.0	± 1.5

7.2. Dimensions of Ammopack



Unit: mm