Resistors

General Purpose Cement Coated Wirewound Resistors

WA80 Series

Features

- Surface mount ZI-form option
- Flameproof protection
- Can replace carbon comp. in many applications
- Resistance values down to 0.01 ohms
- Ideal for pulse handling applications

All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

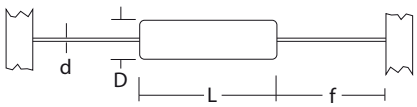
Electrical Data

		WA82	WA83	WA835	WA84	WA85
Power rating at 25˚c	watts	1	2.0	2.5	3.0	5
Power rating at 70˚c	watts	.86	1.6	2.0	2.5	4.3
Resistance range	ohms	0R068 to 430	0R05 to 900R	0R05 to 900R	0R01 to 2K2	0R015 to 6K8
Limiting element voltage	volts	50	50	75	100	150
Isolation voltage	volts	250	250	250	350	500
TCR	ppm/˚C	<1Ω:350			>1Ω:200	
Resistance tolerance	%	<20R: 5, 10 ≥20R: 1, 2, 5, 10				
Values		E24 preferred				
Thermal impedance	˚C/watt	140	110	90	82	54
Ambient temperature range	˚C	- 55 to 200				

Physical Data

Dimensions (mm) and Weight (g)

Type	L max.	D max.	f min.	d nom.	PCB mounting centres	Min bend radius	Wt nom.
WA82	6.2	2.8	21.20	0.6	10.20	0.6	0.22
WA83	9.0	3.6	19.80	0.8	12.50	1.2	0.50
WA835	12.5	4.5	17.80	0.8	17.50	1.2	0.50
WA84	14.5	5.2 (Note 1)	24.55	0.8	20.00	1.2	1.10
WA85	16.5	7.0 (Note 2)	23.55	0.8	22.00	1.2	1.75



Note 1: 5.4 for values ≤0R1 Note 2: 7.2 for values ≤0R1

Construction

A high quality ceramic substrate is assembled with interference fit end caps to which are welded the termination wires. The resistive element is wound on the substrate and welded to the caps. Cement protection is applied to the resistor body before marking with indelible ink.

Terminations

Material Hot tin dipped copper wire

Strength The terminations meet requirements of IEC 68.2.21.

Solderability The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2.

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Marking
WA85 resistors are legend marked with type reference, resistance value and tolerance. In conformance with IEC 62.

WA82, 83, 835 and 84 resistors 0R1 and above are colour coded with 4 bands in conformance with IEC 62. Values below 0R1 are 3 band marked, two digits and tolerance, there is no multiplier band.

Solvent Resistance
The body protection and marking are resistant to all normal industrial cleaning fluids suitable for printed circuits.

Flammability
The resistor coating will not burn under any condition of applied temperature or component overload.

Performance Data

		Maximum	Typical
Load at rated power: 1000 hrs at 25 or 70˚c	ΔR%	5.0 + .001Ω	3.0
Dry heat: 1000 hrs at 200˚c	ΔR%	5.0 + .001Ω	3.0
Derating from rated power at 25˚c		See derating curve	
Short term overload	ΔR%	5.0 + .001Ω	1.0
Climatic	ΔR%	5.0 + .001Ω	2.0
Climatic category	ΔR%	55/200/56	
Long term damp Heat: 56 days	ΔR%	5.0 + .001Ω	1.0
T.R.C. & Vibration	ΔR%	5.0 + .001Ω	1.0
Robustness & Solder Heat	ΔR%	5.0 + .001Ω	1.0
Pulse Handling		See: https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/ApplicationNotes/Wirewound-Pulse-Overload-Resistors.pdf	

Application Notes

Care must be taken when determining clearance between the resistor body and the P.C.B. or other components. Resistance is measured 6mm from body.

Packaging
All resistors are supplied tape packed ready for loading onto automatic sequencing and insertion machines. The critical dimensions are shown in figure 2.

Component wires will not protrude beyond the outside edge of the tapes.

All taped resistors will be supplied either on reels or in ammopacks, depending upon quantities orderded.

WA80 resistors can be supplied with radial, goalpost or lancet pre-formed leads- see
https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/ApplicationNotes/TN008-resistors-Leadform-Capability.pdf.
WA83, 84 and 85 is also available in ZI-form SMD format packed in blister tape- see
https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/ZI-form.pdf

WA80 Series Derating Curve

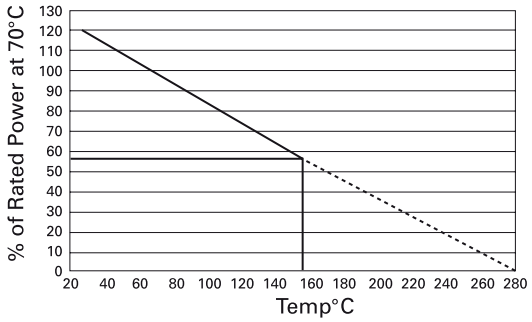
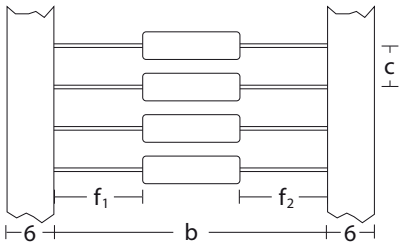


Figure 2



Type	WA82	WA83	WA835	WA84	WA85
b	52	52	52	67	63
c	5	5	5	10	10

Ordering Procedure

Example: WA83-470RJI (WA83, 470 ohms ±5%, Pb-free)

W	A	8	3		-	4	7	0	R	J	I
1						2				3	4

1 Type	2 Value	3 Tolerance	4 Packing			
WA82	E24 = 3/4 characters	F = ±1%	I	Ammo	WA82	5000/box
WA83	R = ohms	G = ±2%			WA83	2500/box
WA835	K = kilohms	J = ±5%			WA835	1500/box
WA84		K = ±10%			WA84	1000/box
WA85				Tape	WA85	750/reel

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