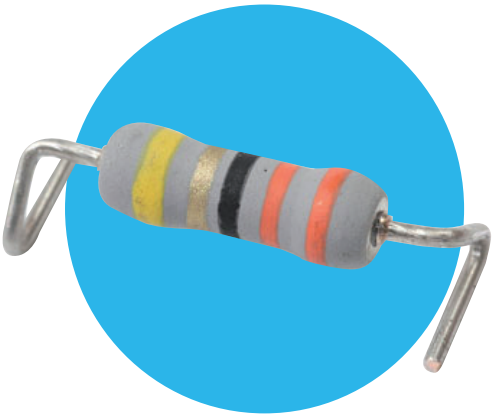
Resistors

Cement Coated Surface Mount Wirewound Resistors

WA80Z Series



Features

- All welded construction
- Suitable for automatic pick and place
- Excellent pulse handling capability
- Fuses safely under fault conditions
- Competitive cost
- Performance equivalent to 2, 3 & 5W axial resistors

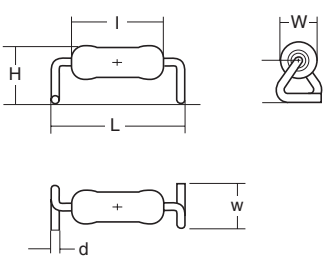
All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

		WA83Z	WA84Z	WA85Z
Power rating at 25˚C	watts	2	3	5
Resistance range	ohms	0R05 to 900R	0R01 to 2K2	0R015 to 6K8
Limiting element voltage	volts	50	100	150
Isolation voltage	volts	250	350	500
TCR	ppm/°C	≤1R0:350 >1R0:200		
Resistance tolerance	%	<20R: 5, 10 ≥20R: 1, 2, 5, 10		
Standard values		E24 series preferred		
Ambient temperature range	°C	-55 to 155		

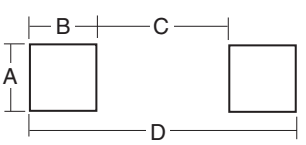
Physical Data

Dimensions (mm)						
Type	L	W	H	l	w	d
WA83Z	13.4±0.2	3.6 max	6.25 max	9.0 max	4.5±0.6	0.8 nom
WA84Z	18.7±0.2	5.2 max	6.9 max	14.5 max	6.5±0.6	0.8 nom
WA85Z	18.7±0.2	7.0 max	7.9 max	16.5 max	6.5±0.6	0.8 nom



Recommended Pad Sizes

Dimensions (mm)				
Type	A	B	C	D
WA83Z	5.5	2.5 min	10 max	15 min
WA84Z	7.5 min	2.5 min	15 max	20 min
WA85Z	7.5 min	2.5 min	15 max	20 min



Construction

A high purity ceramic substrate is assembled with interference fit end caps to which are welded the terminations. The resistive element is wound on the substrate and welded to the caps. Flameproof silicone cement coating is applied prior to marking with indelible ink and lead forming.

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.
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Marking
WA83Z and WA84Z resistors R10 and above are marked with four colour bands in conformance with IEC62. Values below R10 are marked with three bands (two digits and tolerance); there is no multiplier band. WA85Z resistors are legendmarked "WA85" plus resistance value and tolerance in conformance with IEC62.

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

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

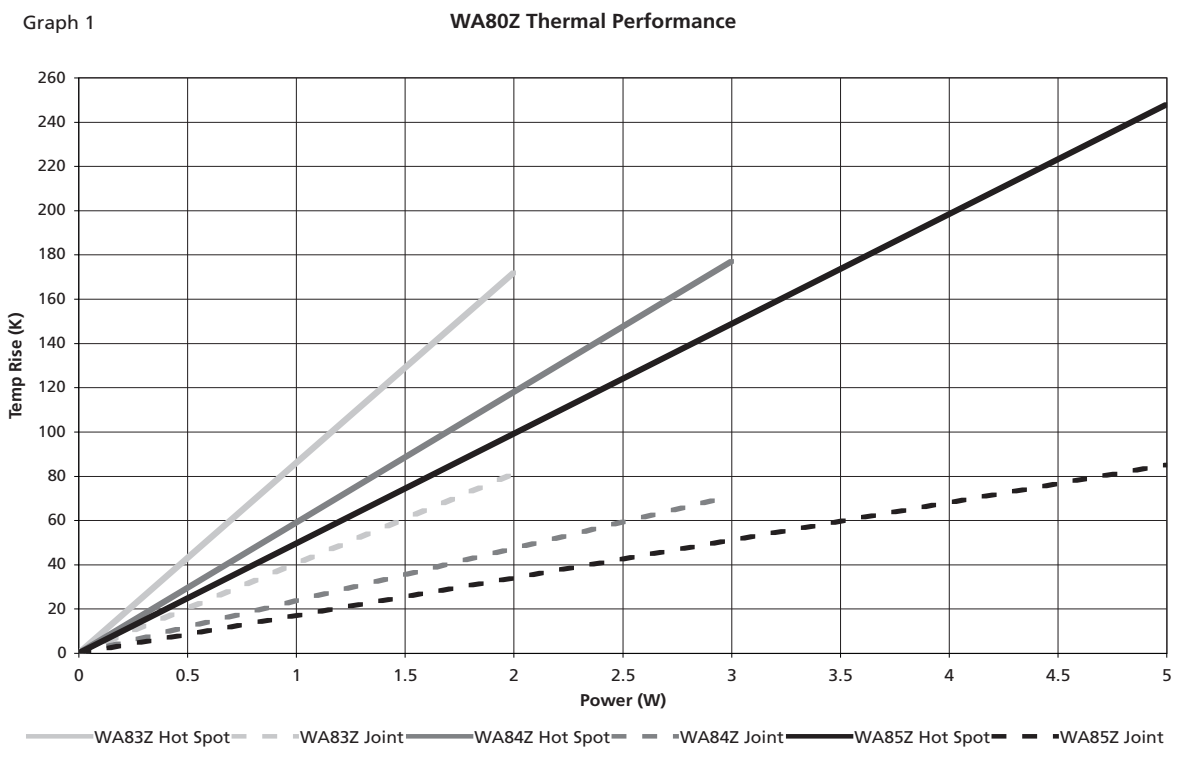
Performance Data

		Maximum	Typical
Load at rated power: 1000hrs @ 25 or 70°C	ΔR%	5 +0.001Ω	3
Dry heat: 1000hrs @ 200°C	ΔR%	5 +0.001Ω	3
Short term overload	ΔR%	5 +0.001Ω	1
Derating from rated power @ 25°C		Zero at 155°C	
Climatic	ΔR%	5 +0.001Ω	2
Climatic category		55/200/56	
TRC & Vibration	ΔR%	5 +0.001Ω	1
Robustness & solder heat	ΔR%	5 +0.001Ω	1
Long term damp heat	ΔR%	5 +0.001Ω	1
Temperature rise		See Graph 1	
Pulse handling		See Graph 2	

Note: Testing was performed on FR4 test boards measuring 50mm x 50mm, with 1oz/ft² (300g/m²) copper pads. The track area close to each pad was 120mm². If a lower grade of PCB or less track area is used, derating of the power may be necessary.

Temperature Rise

Graph 1



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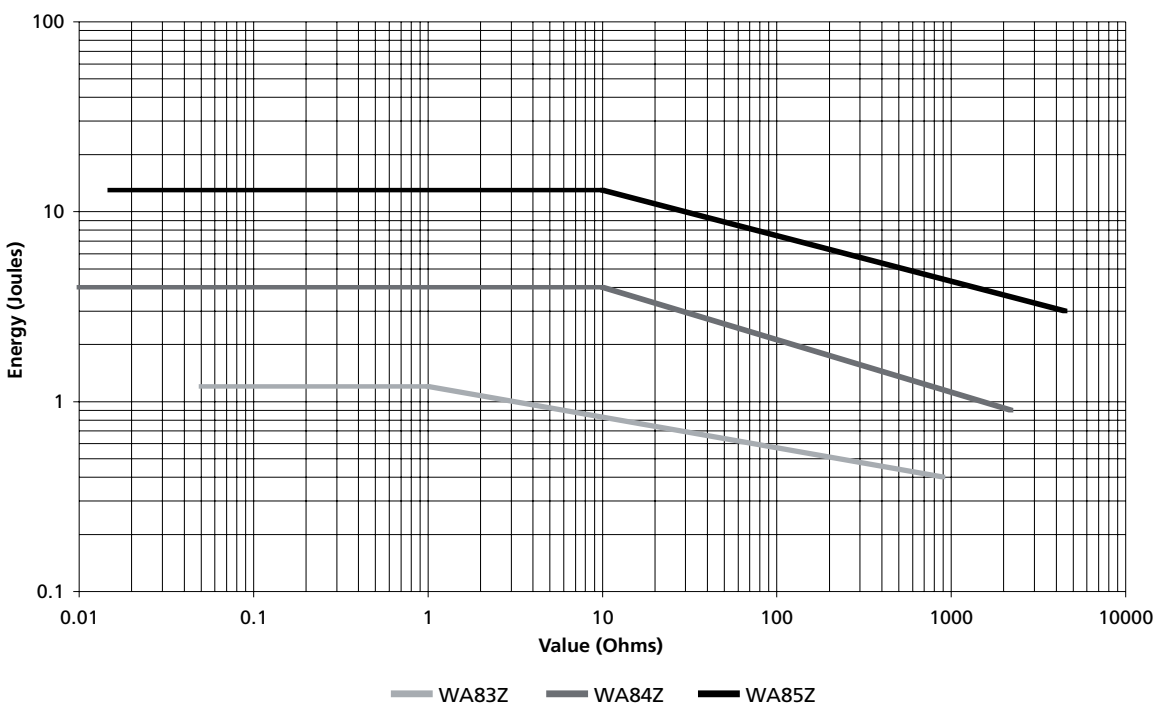
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Pulse Handling

The graph below shows the energy handling capability of WA80Z resistors for single short pulses (<100mS). For longer pulses of duration up to 5 Seconds, up to 5 times the rated power may be applied. Note that forced-air cooling and heatsinking by PCB tracks have no effect on energy ratings. If higher energy ratings than those shown are needed, it is normally possible to design a pulse withstand variant.

Graph 2

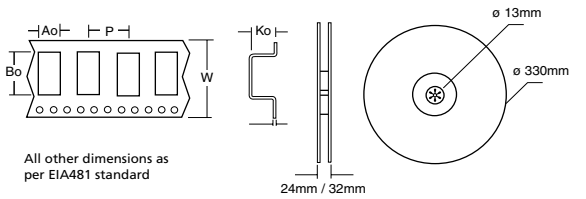
WA80Z Energy Capability Graph



Packaging

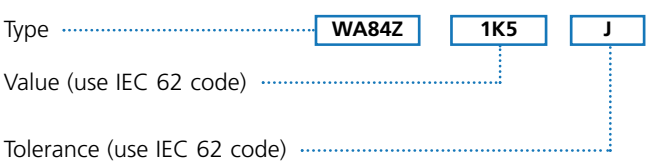
WA80Z products are supply on standard carrier tape and 330mm diameter reels suitable for automatic pick and place machines. Carrier tape dimensions and standard reels quantities are given below.

Dimensions (mm)							Quantity Per reel
Type	Ao	Bo	Ko	W	P	T	
WA83Z	5.3	13.9	6.3	24	12	0.4	750
WA84Z	7.3	19.2	7.1	32	12	0.4	750
WA85Z	7.4	19.2	8.2	32	12	0.4	650



Ordering Procedure

Specify type reference, value and tolerance as shown in this example of WA84Z at 1.5KOhms 5%:



F	1%
G	2%
J	5%
K	10%

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