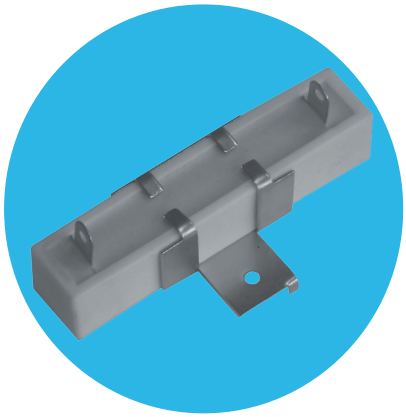
Wirewound Power Radial Terminal Resistor

WPRT Series



- 10 to 50 watts
- Quick connect or soldered tag terminals
- Optional mounting bracket
- High overload capability
- AEC-Q200 qualified
- Flameproof case
- RoHS compliant

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

Electrical Data

		WPRT10	WPRT15	WPRT20	WPRT30	WPRT40	WPRT50
Power rating at 25°C	watts	10	15	20	30	40	50
Power rating at 70°C	watts	10	12.3	16.4	24.6	32.8	41
5s overload rating at 25°C	watts	50	75	100	150	200	250
Resistance range	ohms	1R0 - 820R	1R0 – 1K0	2R0 – 1K2	3R0 – 1K5	6R0 – 1K5	6R0 – 1K5
Thermal impedance	°C/watt	18	14	12	8.5	7	7
Isolation voltage	volts	1000					
TCR	ppm/°C	<20R: ±400, ≥20R: ±350					
Resistance Tolerance	%	±5					
Standard Values		E24					
Ambient temperature range	°C	-55 to +155					

Note: No LEV applies. Maximum voltage (dc or rms) is √(P x R)

Physical Data

Figure 1 - soldered tag (S) and the same with bracket (SB)

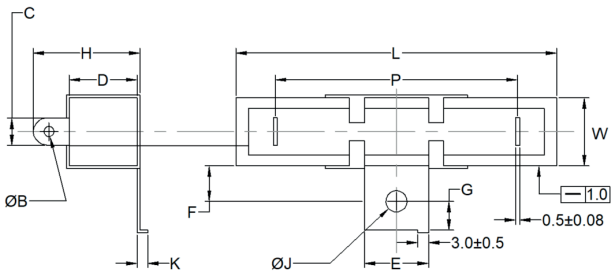
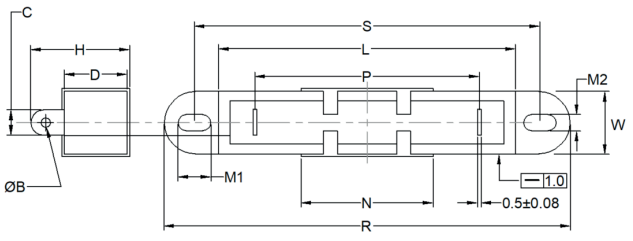


Figure 2-soldered tag with rugged bracket (SR)



All dimensions in mm and weights in g Maximum bow on length and width <1.00mm

Type	L ±1.5	W ±1.0	D	P ±1.0	ØJ ±0.2	C ±0.4	ØB ±0.2	K ±1.0	F ±0.5	G ±0.5	E ±0.5	M1 ±0.1	M2 ±0.1	H ±1.0	N ±0.2	S ±0.3	R ±0.3	Weight (nom.)		
																		S	SB	SR
WPRT10	48	10	9.0±1.0	32	4.1	5.5	2.5	3.0	8.7	5.0	12	4.2	4.2	18	23	60	72	11	16.5	18.5
WPRT15	48	12.5	11.5±1.0	32	4.1	6.2	2.5	3.0	8.0	6.0	12	4.2	4.2	21	23	60	72	18	24	27.5
WPRT20	63	12.5	13.5±1.0	44	4.1	6.2	2.5	3.0	10.0	6.0	12	4.2	4.2	21	23	74	86.5	27	34	37.5
WPRT30	75	19	19±1.0	54	4.1	7.6	3.2	4.0	9.5	7.5	18	4.2	4.2	32	39	88	105	66	80	87.5
WPRT40	90	19	19±0.6	70	4.1	7.6	3.2	4.0	9.5	7.5	18	5.2	4.5	32	39	104	122	81	94	105.5
WPRT50	90	19	19±0.6	70	4.1	7.6	3.2	4.0	9.5	7.5	18	5.2	4.5	32	39	104	122	81	94	105.5

General Note

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Physical Data

Figure 3 - quick connect “amp” tag (A) and the same with bracket (AB)

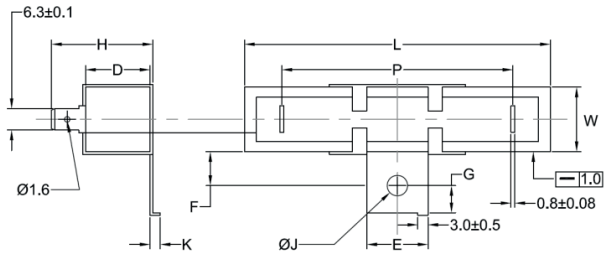
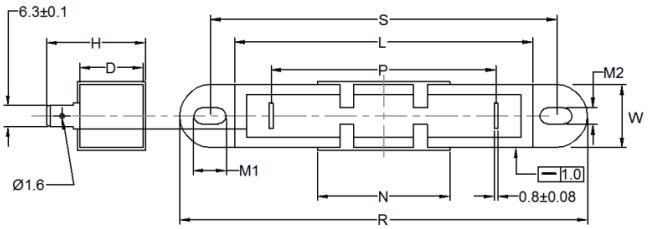


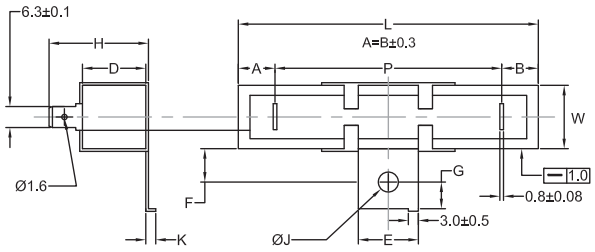
Figure 4 - quick connect “amp” tag with rugged bracket (AR)



All dimensions in mm and weights in g Maximum bow on length and width <1.00mm

Type	L ±1.5	W ±1.0	D	P ±1.0	ØJ ±0.2	K ±1.0	F ±0.5	G ±0.5	E ±0.5	M1 ±0.1	M2 ±0.1	H ±1.0	N ±0.2	S ±0.3	R ±0.3	Weight (nom.)		
																A	AB	AR
WPRT10	48	10	9.0±1.0	32	4.1	3.0	8.7	5.0	12	4.2	4.2	19	23	60	72	11	16.5	18.5
WPRT15	48	12.5	11.5±1.0	32	4.1	3.0	8.0	6.0	12	4.2	4.2	23.5	23	60	72	18	24	27.5
WPRT20	63	12.5	13.5±1.0	44	4.1	3.0	10.0	6.0	12	4.2	4.2	25	23	74	86.5	27	34	37.5
WPRT30	75	19	19±1.0	54	6.0	4.0	9.5	7.5	18	4.2	4.2	30	39	88	105	66	80	87.5
WPRT40	90	19	19±0.6	70	6.0	4.0	9.5	7.5	18	5.2	4.5	30	39	104	122	81	94	105.5
WPRT50	90	19	19±0.6	70	6.0	4.0	9.5	7.5	18	5.2	4.5	30	39	104	122	81	94	105.5

Figure 5 – as configuration A but with tighter tolerance terminal alignment (AT) and the same with bracket (AD)



All dimensions in mm and weights in g
Maximum bow on length and width <1.00mm

Type	L +0.5/-1.0	W +0.5/-1.0	D	P ±0.3	ØJ ±0.2	K ±1.0	F ±0.5	G ±0.5	E ±0.5	H ±1.0	Weight (nom.)	
											AT	AD
WPRT10	48	10	9.0 ±1.0	32	4.1	3.0	8.7	5.0	12	19	11	16.5
WPRT15	48	12.5	11.5 ±1.0	32	4.1	3.0	8.0	6.0	12	23.5	18	24
WPRT20	63	12.5	13.5 ±1.0	44	4.1	3.0	10.0	6.0	12	25	27	34
WPRT30	75	19	19 ±1.0	54	6.0	4.0	9.5	7.5	18	30	66	80
WPRT40	90	19	19 ±0.6	68	6.0	4.0	9.5	7.5	18	30	81	94
WPRT50	90	19	19 ±0.6	68	6.0	4.0	9.5	7.5	18	30	81	94

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BI Technologies IRC Welwyn

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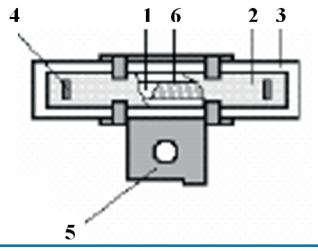
WPRT Series

Construction

A high purity ceramic rod, with force fit end caps onto which is wound a wire element. The element is fitted into a ceramic case with fireproof insulation cement. The terminal material is tin plated steel.



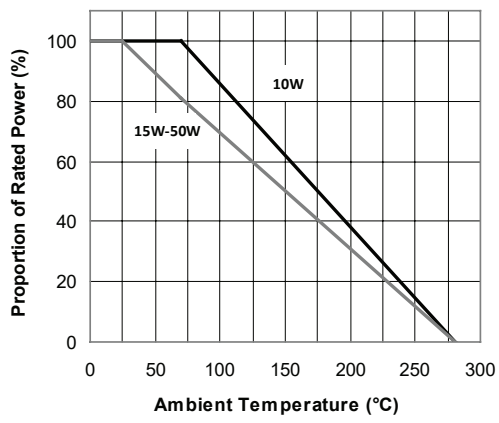
	Name	Main Material
1	Rod	Al_2O_3
2	Filling Material	SiO_2
3	Ceramic Case	Al_2O_3 CaO
4	Terminal	Steel (tin plated)
5	Bracket	Steel
6	Wire Element	Resistance Alloy

Termination Strength: The terminations meet the requirements of IEC 86.2.21
Marking: Power rating, resistance value and tolerance are legend marked.
Flammability: The resistor will not burn under any condition of applied temperature or overload.
Solvent resistance: The body protection and marking are resistant to all normal industrial solvents suitable for printed circuits.

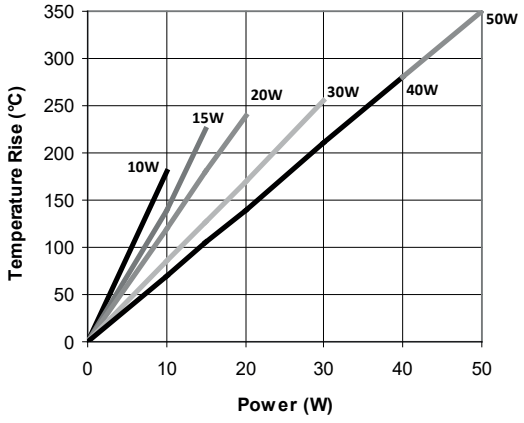
Performance Data

		Maximum
Load at rated power (1000hrs at 25°C and 70ºC)	ΔR%	5
Derating from rated power		Zero at 275ºC (see graph)
Short term overload (5 x rated power)	ΔR%	5 +0.05Ω
Damp heat steady state (56 days, 40°C, ≥90% RH)	ΔR%	5 +0.05Ω
Temperature rapid change (5 cycles -55ºC to +155ºC)	ΔR%	2 +0.05Ω
Resistance to solder heat	ΔR%	1 +0.05Ω
Voltage Proof (1kV for 60s)		No flashover, mechanical damage, arcing or breakdown
Solderability		Min. 95% coverage

Derating Curve



Temperature Rise



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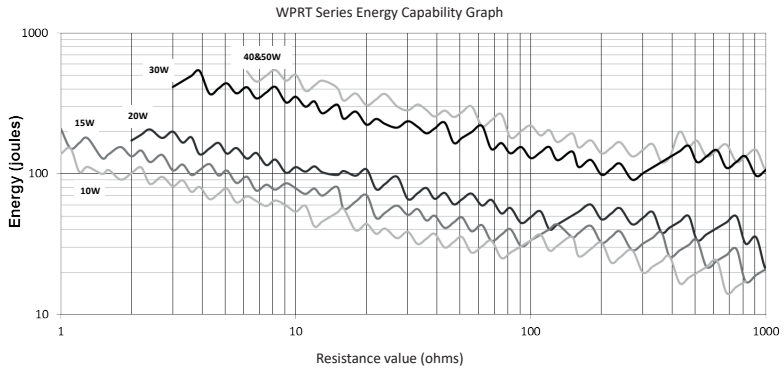
Pulse Performance

The pulse energy capacity limits in the graph below relate to pulses below 100ms duration based on an instantaneous wire temperature rise of 750ºC.



Application Notes

S, SR and SB configurations have terminals which can be soldered. However, for full power operation, due to the possibility of high terminal temperatures, it is recommended that the connections be secured mechanically, rather than relying on the solder joint alone.
AT and AD configurations are designed for use in molded housing assemblies, where the alignment of terminals and the body dimensions must be defined to a greater tolerance.

SR and AR configurations have a bracket with two fixing points rather than one, and are ideal for high shock & vibration applications.

Ordering Procedure

Example: WPRT50 at 1.2 kilohms 5% tolerance with quick connect “amp” tag terminals and bracket, bulk packed in a box of 168 pieces –

WPRT 50 AB – 1K2 J B168

Type

Power Rating

Configuration

S	Soldered tag without bracket	Figure 1
SB	Soldered tag with bracket	
SR	Soldered tag with rugged bracket	Figure 2
A	Quick connect “amp” tag without bracket	Figure 3
AB	Quick connect “amp” tag with bracket	
AR	Quick connect “amp” tag with rugged bracket	Figure 4
AT	Configuration A with tighter tolerance terminal alignment	Figure 5
AD	Configuration AB with tighter tolerance terminal alignment	

Value (use IEC62 code)

Tolerance (use IEC62 code)

J	5%

Packing

B440	Bulk	WPRT10	S / SB / A / AB / AT / AD	440 / box	Standard
B330			SR / AR	330 / box	
B400		WPRT15	S / SB / A / AB / AT / AD	400 / box	
B300			SR / AR	300 / box	
B270		WPRT20	S / SB / A / AB / AT / AD	270 / box	
B270			SR / AR	270 / box	
B240		WPRT30 / 40 / 50	S / A / AT	240 / box	
B168			SB / AB / AD	168 / box	
B160			SR / AR	160 / box	

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