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DIRECT

Electronics Tech.

(BWW)

High Precision Wire wound Resistor

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▶ Product Introduction**(BWW) Precision Power Resistors****Operate in Harsh Environments.****Features :**

- Axial Moulded
- Excellent load life stability
- Insulation, Moisture Proof
- High Precision and reliability
- Meets the Standards of MIL-R-93
- RoHS compliant with 100% lead free

Applications :

- Electrical loads, Filament dropping
- DC/DC converters, AC/DC inverters
- High-voltage bleeders, Dynamic braking
- Capacitor charging/discharging regulation
- Motor speed controls, Voltage divider networks
- Bias supply, Current shunts, Voltage dropping, Crow-bar circuits

The new BWW series moulded axial leaded wire wound resistors from Direct use high-purity alumina ceramic cores with wire winding which spot are welded by precision CNC machine tools to ensure total operational consistency throughout.

Also, using advanced encapsulation die/mould technologies, these precision power resistors are encapsulated with epoxy molding compound.

The BWW models possess a wide resistance value from 0.1Ω to 39KΩ and meet the stringent requirements of MIL-R-93. Ayrton Perry non-inductive windings are available on request. The BWW precision version has low Ohmic values for current sensing applications.

All versions are miniaturized for better power to dimension ratios and are available in 0.5W to 10W rated power at 25°C. Tolerance is available in ±0.1%, ±0.25%, ±0.5%, ±1% and ±2% with TCR ±25PPM/°C, ±50PPM/°C and ±150PPM/°C which makes them ideally suited for use in precision applications.

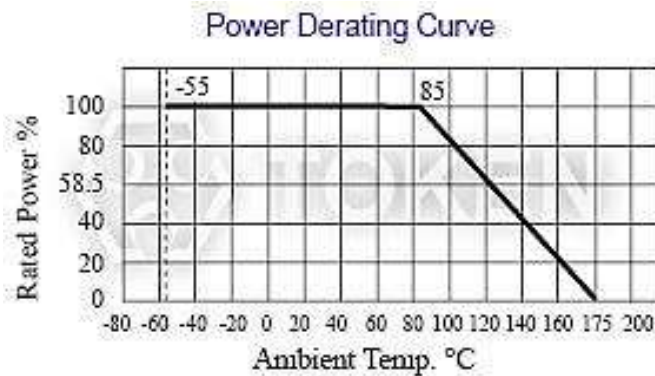
The BWW series is RoHS compliant with 100% Sn (lead free) coated terminals. To address your need for technical and economic success in a timely manner, our custom solutions are the best option. Contact us with your specific needs. Or link to Direct official website "[General Purpose Resistors](#)" for more information.



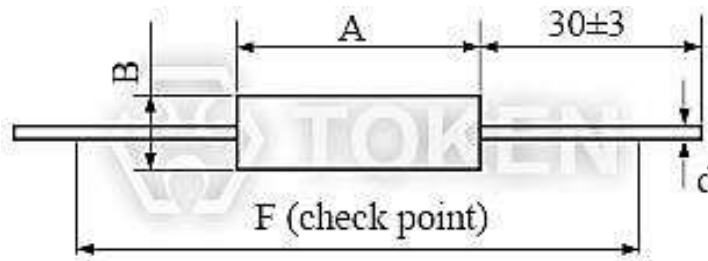
► **Technical Specifications**

Technical Specifications (BWW)

Type	Rated Watts at 25°C (W)	Resistance Range (Ω)		Tolerance (%)	TCR (PPM/°C)	Dimensions (Unit: mm)			
		Min	Max			A±0.25	ΦB±0.25	Φd	F
BWW-0.5	0.5	0.1	100	±0.1 ±0.25 ±0.5 ±1 ±2 ±5	±25 ±50 ±150	7.0	3.0	0.8	27.0
BWW-1	1.0	0.1	1K			11.0	3.0	0.8	31.0
BWW-3	3.0	0.1	10K			15.0	5.2	0.8	34.0
BWW-4	4.0	0.1	15K			18.0	6.5	0.8	38.0
BWW-5	5.0	1	24K			24.0	8.4	1.0	44.0
BWW-10	10.0	1	39K			46.5	10.0	1.0	66.0



BWW) Power Derating Curve



Precision Wire wound (BWW) Dimensions



Electrical Performance

Electrical Performance (BWW)

Test Items	Test Conditions	Specifications
Operating Temp. Range		-55°C ~ 175°C
Insulation Resistance	500V	>1GΩ
Dielectric Withstanding Voltage	500V AC 1 Min.	$\Delta R \leq \pm 0.1\%R$
Load Life	70°C on~off cycle 1000 Hrs.	$\Delta R \leq \pm 1\%R$
Moisture-Proof Load Life	40°C 95% RH on~off cycle 21 Hrs.	$\Delta R \leq \pm 0.2\%R$
Resistance to soldering heat	350°C, 3.5s	$\Delta R \leq \pm 0.1\%R$
Solderability	235±5°C, 5s(solder bath method)	IEC68-2-20(1968)

Application Notes

Application Notes of Wire wounds (BWW)

- When being used in AC circuits, some wirewound structures give inductance ingredients or parasitic capacity, so they may cause unusual phenomena such as oscillations etc. Quorum deviations of other components should be carefully taken into account for use.
- Application and Placement: Wire wound resistors use different gauges of wire as resistance elements. Sometimes the gauge is extremely thin (finer than a strand of human hair) and very susceptible to breakage in environments containing salts, ash, dust and corrosives. Avoid utilization in such environments.
- Do not install in dusty areas because the accumulation will cause shorts and poor conductance.

Order Codes

Order Codes (BWW)

BWW	-	1W	100R	F	D	P				
Part Number		Rated Power (W)	Resistance Value (Ω)		Resistance Tolerance (%)		TCR (PPM/°C)		Package	
BWW			0R1	0.1Ω	B	±0.1%	C	±25PPM/°C	P	Bulk
			100R	100Ω	C	±0.25%	D	±50PPM/°C		
			1K	1000Ω	D	±0.5%	K	±150PPM/°C		
					F	±1%				
					G	±2%				



► General Information

General Purpose Resistors with Customized Service

Direct Electronics is expanding business to include a broad range of General Purpose Resistor products designed for high volume applications. This expanded range of commercial resistor presents a more comprehensive product offering for Customer Experience Management (CEM) and other high volume customers that require quality products at competitive pricing.

Backed by the same customer service, technical support and quality assurance that Direct has always provided, these new commercial products enable you the opportunity to source a wider range of resistors from a trusted supplier.

General Use

When an ambient temperature exceeds a rated ambient temperature, resistor shall be applied on the derating curve by derating the load power. General purpose resistor under overloads is not combustion resistant and is likely to emit, flame, gas, smoke, red heat, etc. Flame retardant resistor generally emits smoke and red heat in a certain power and over but do not emit fire or flame.

When resistors are shielded or coated with resin etc., stress from the storage heat and the resins are applied. So, performance and reliability should be checked well before use.

When a voltage higher than rated is applied in a short time (single pulse, repeated pulses, surge, etc.), it does not necessarily ensure safety that an effective wattage is not higher than a rated wattage. Then consult with us with your specified pulse wave shape. Resistors shall be used in a condition causing no dew condensation.

Keep temperature from rising by choosing resistor with a higher rated capacity; do not use a component having the exact load value required. For considerations of safety in extended period applications, the rating should be more than four times higher than the actual wattage involved, but never use resistors at less than 25% of its rated power.

In applications where resistors are subject to intermittent current surges and spikes, be sure in advance that the components selected are capable of withstanding brief durations of increased load.

Do not exceed the recommended rated load. Resistor must use within the rated voltage range to prevent the shortening of service life and/or failure of the wound resistance elements.

Minimum load: Resistor must be utilized at 1/10 or more of the rated voltage to prevent poor conductance due to oxidation build-up. For basic particulars for cautions, refer to EIAJ Technical Report RCR-2121 "Guidance for care note on fixed-resistors".

