

rectangular type wirewound resistors with glass core  
 rectangular type wirewound resistors with ceramic core  
 rectangular type metal oxide film resistors

## features

- High Power Resistors
- Uses flame-retardant insulated ceramic case
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- Excellent in anti-pulse and in rush current



## applications and ratings

Type	Power Rating	Resistance Range (Ω) E24				Style & Weight (g/1 piece)													
		F±1%	G±2%	J±5%	K±10%	S	N	E	P	X	Y	YS	Z	H	Q	HA	HB	QA	QB
BWR1	1W	1~56	0.22~75	0.1~75	—	1.3	—	—	—	—	—	—	—	—	—	—	—	—	—
BWR2	2W	1~160	0.22~200	0.1~200	—	2.1	3.9	—	—	—	—	—	—	—	—	—	—	—	—
BWR3	3W	1~300	0.22~390	0.1~390	—	3.9	5.9	—	—	—	—	—	—	—	—	—	—	—	—
BWR5	5W	1~300	0.22~390	0.1~390	—	5.1	7.2	5.7	5.6	—	—	—	—	—	—	—	—	—	—
BWR7	7W	1~360	0.22~390	0.1~390	—	7.5	10.8	—	—	—	—	—	—	—	—	—	—	—	—
BWR10	10W	1~390	0.22~390	0.1~390	—	10.2	15.0	—	—	—	—	—	—	—	—	—	—	—	—
BWR15	15W	1~390	0.22~390	0.1~390	—	18.8	—	—	—	—	—	—	—	—	—	—	—	—	—
BWR20	20W	1~390	0.22~390	0.1~390	—	23.3	—	—	—	—	—	—	—	—	—	—	—	—	—
BGR5	5W	—	—	10~390	0.39~9.1	—	—	—	—	6.1	7.6	6.6	7.6	—	—	—	—	—	—
BGR7	7W	—	—	10~390	0.39~9.1	—	—	—	—	8.2	9.1	7.8	9.1	—	—	—	—	—	—
BGR10	10W	—	—	10~390	0.39~9.1	—	—	—	—	11.0	12.4	10.4	11.4	9.9	—	13.6	—	—	—
BGR15	15W	—	—	10~390	0.51~9.1	—	—	—	—	18.8	—	—	20.5	18.4	18.6	24.4	27.5	24.6	27.7
BGR20	20W	—	—	10~390	0.51~9.1	—	—	—	—	22.3	—	—	24.0	21.9	22.1	27.9	31.0	28.1	31.3
BGR30	30W	—	—	10~390	2.2~9.1	—	—	—	—	—	—	—	—	59.3	—	73.9	73.5	—	—
BGR40	40W	—	—	10~390	2.2~9.1	—	—	—	—	—	—	—	—	70.4	—	85.0	84.6	—	—
BSR2	2W	—	—	430~13k	—	2.1	3.8	—	—	—	—	—	—	—	—	—	—	—	—
BSR3	3W	—	—	430~27k	—	3.9	5.9	—	—	—	—	—	—	—	—	—	—	—	—
BSR5	5W	—	—	430~39k	—	5.1	7.2	5.7	—	6.1	7.6	6.6	7.6	—	—	—	—	—	—
BSR7	7W	—	—	430~56k	—	7.4	10.8	—	—	8.2	9.1	7.8	9.1	—	—	—	—	—	—
BSR10	10W	—	—	430~75k	—	10.2	15.0	—	—	11.0	12.4	10.4	11.4	10.9	—	13.7	—	—	—
BSR15	15W	—	—	430~56k	—	18.8	—	—	—	18.5	—	—	20.5	18.4	—	24.4	27.5	—	—
BSR20	20W	—	—	430~56k	—	23.3	—	—	—	22.0	—	—	24.0	21.9	—	27.9	31.0	—	—

Type	Power Rating	Max. Working Voltage (V)		Max. Overload Voltage (V)		T.C.R. (x10 <sup>-6</sup> /K)			Rated Ambient Temperature	Operating Temperature Range					
		BSR	BGR,BWR	BSR	BGR,BWR	BWR	BSR	BGR							
BWR1	1W	—	E=√P•R	—	E=√P•R•10	±100	—	±250	+70°C	-40°C to +155°C					
B□R2	2W	250		500											
B□R3	3W	300		600											
B□R5	5W	350		700											
B□R7	7W	500		1000											
B□R10	10W	700		1400											
B□R15	15W	700		1400											
B□R20	20W	750		1500											
BGR30	30W	—		—			—				—	—	—	+25°C	
BGR40	40W	—		—			—				—	—	—		

Rated voltage=  $\sqrt{\text{Power Rating} \times \text{Resistance value}}$  or Max. working voltage, whichever is lower.

□ Represents the space to designate product type via character G, W, or S.

## ordering information

New Part #

<b>BWR</b>	<b>3</b>	<b>C</b>	<b>N</b>	<b>100</b>	<b>J</b>
<b>Type</b>	<b>Power Rating</b>	<b>Termination<sup>1</sup> Material</b>	<b>Style</b>	<b>Nominal Resistance</b>	<b>Tolerance</b>
BGR: Wirewound (glass core) BWR: Wirewound (ceramic core) BSR: Metal oxide film	See table	C: SnCu  T: Sn	Blank: S style <sup>2</sup> N: N style E: E style P: P style  X: X style Y: Y style YS: YS style Z: Z style H: H style Q: Q style HA: HA style HB: HB style QA: QA style QB: QB style	F: 4 digits G,J,K: 3 digits	F: ±1% G: ±2% J: ±5% K: ±10%

<sup>1</sup> Lead-Free plated terminal symbols.

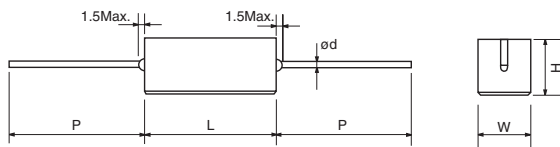
C (SnCu) N, E, S and P styles

T (Sn) X, Y, YS, Z, H and Q styles

<sup>2</sup> No indication on style means S style.

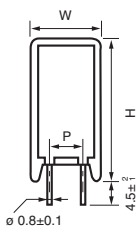
## dimensions and construction

### S Style

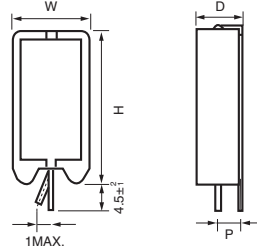


Type	Dimensions millimeters				
	L	W	H	P	D
BWR1	13.0±1.0	5.5±1.0	5.5±1.0	30.0±3.0	0.6±0.1
BWR2, BSR2	18.0±1.5	6.3±1.0	6.3±1.0	35.0±3.0	0.8±0.1
BWR3, BSR3	22.0±1.5	8.0±1.0	8.0±1.0		
BWR5, BSR5		9.5±1.0	9.5±1.0		
BWR7, BSR7	35.0±1.5			12.5±1.2	12.5±1.2
BWR10, BSR10	48.0±1.5	12.5±1.5	12.5±1.5		
BWR15, BSR15	63.5±1.5			12.5±1.5	12.5±1.5
BWR20, BSR20					

### N Style



### E Style

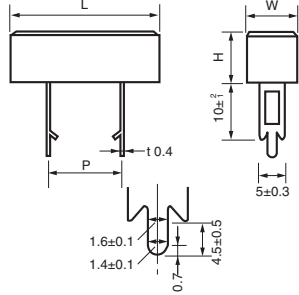


Type	Dimensions millimeters			
	W	D	H	P
BWR2N, BSR2N	11.0±1.0	7.0±1.0	20.5±1.5	5.0 <sup>±2</sup>
BWR3N, BSR3N	12.0±1.0	8.0±1.0	25.0±1.5	
BWR5N, BSR5N	13.0±1.0	9.0±1.0	25.5±1.5	
BWR7N, BSR7N			38.5±1.5	
BWR10N, BSR10N	16.0±1.0	12.0±1.0	35.0±1.5	7.5 <sup>±2</sup>
BWR5E, BSR5E	9.5±1.0	9.5±1.0	23.5±1.5	5.0 <sup>±2</sup>

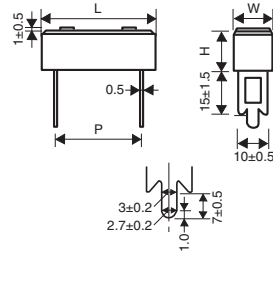
rectangular type wirewound resistors with glass core  
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## dimensions and construction (continued)

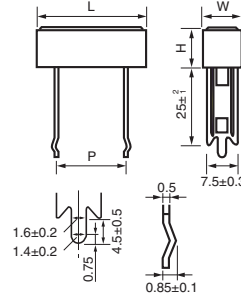
### X Style (5W, 10W)



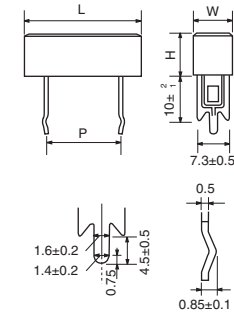
### (15W, 20W)



### Y Style

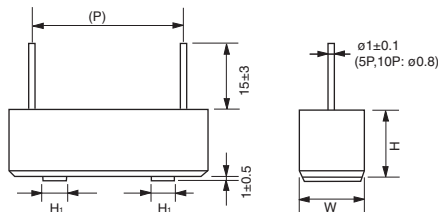


### YS Style



Type	Dimensions millimeters		
	L	W, H	P
BGR5X, BSR5X, BGR5Y, BSR5Y, BGR5YS, BSR5YS	27.0±1.5	9.5±1.0	15.0±1.5
BGR7X, BSR7X, BGR7Y, BSR7Y, BGR7YS, BSR7YS	35.0±1.5		22.5±1.5
BGR10X, BSR10X, BGR10Y, BSR10Y, BGR10YS, BSR10YS	48.0±1.5	12.5±1.0	35.0±1.5
BGR15X, BSR15X	63.5±1.5		32.5±1.5
BGR20X, BSR20X			47.5±1.5

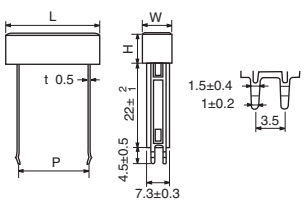
### P Style



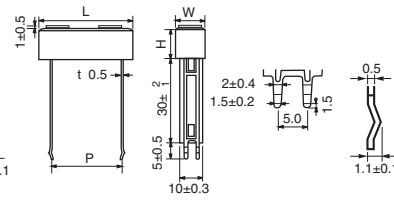
Type	Dimensions millimeters				
	L	W	H	H <sub>1</sub>	(P)
BWR5P	23.0±1.5	9.5±1.5	9.5±1.5	—	20

Parenthesized dimensions are for reference.  
 Please refrain from using these parts as a board-insertion type.  
 \* Soldering only does not allow enough joint strength.  
 Additional fixation is recommended.

### Z Style (5W, 10W)

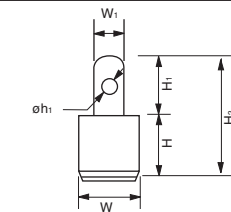
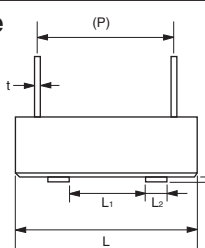


### (15W, 20W)

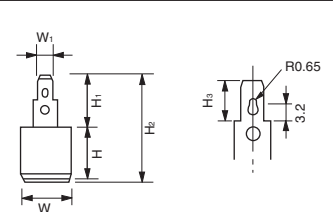
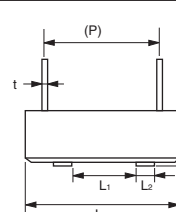


Type	Dimensions millimeters			
	L	W	H	P
BGR5Z, BSR5Z	27.0±1.5	9.5±1.0	9.5±1.0	15.0 <sup>+5</sup> <sub>-2</sub>
BGR7Z, BSR7Z	35.0±1.5			22.5 <sup>+5</sup> <sub>-2</sub>
BGR10Z, BSR10Z	48.0±1.5	12.5±1.0	12.5±1.0	35.0 <sup>+5</sup> <sub>-2</sub>
BGR15Z, BSR15Z	63.5±1.5			32.5 <sup>+4</sup> <sub>-0</sub>
BGR20Z, BSR20Z				47.5 <sup>+4</sup> <sub>-0</sub>

### H Style



### Q Style



Type	Dimensions millimeters											
	L	L <sub>1</sub>	L <sub>2</sub>	W	W <sub>1</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	(P)	t	øh <sub>1</sub>
BGR10H, BSR10H	48.0±1.5	25.0±1.0	4.5	9.5±1.0	5	9.5±1.0	6.0 <sup>+2</sup> <sub>-0</sub>	16.5 <sup>+2</sup> <sub>-1</sub>	—	35	0.4	2.0
BGR15H, BSR15H			7.0	12.5±1.2	6	12.5±1.5	7.5 <sup>+2</sup> <sub>-0</sub>	21.0 <sup>+2</sup> <sub>-1</sub>		32.5		
BGR20H, BSR20H	63.5±2.0		7.0	12.5±1.2	6	12.5±1.5	7.5 <sup>+2</sup> <sub>-0</sub>	21.0 <sup>+2</sup> <sub>-1</sub>		47.5		
BGR30H	75.0±2.5	40.0±1.2	10.0	19.0±1.5	7.5	19.0±1.5	10.0 <sup>+2</sup> <sub>-0</sub>	30.0 <sup>+2.5</sup> <sub>-1.5</sub>	—	56	0.5	3.0
BGR40H	90.0±2.5		10.0	19.0±1.5	7.5	19.0±1.5	10.0 <sup>+2</sup> <sub>-0</sub>	30.0 <sup>+2.5</sup> <sub>-1.5</sub>		71		
BGR15Q	48.0±1.5	25.0±1.0	7.0	12.5±1.2	4.75	12.5±1.5	12.0 <sup>+2</sup> <sub>-0</sub>	25.0 <sup>+2</sup> <sub>-1</sub>	6.35	32.5	—	—
BGR20Q	63.5±2.0		7.0	12.5±1.2	4.75	12.5±1.5	12.0 <sup>+2</sup> <sub>-0</sub>	25.0 <sup>+2</sup> <sub>-1</sub>		47.5		

Parenthesized dimensions are for reference.

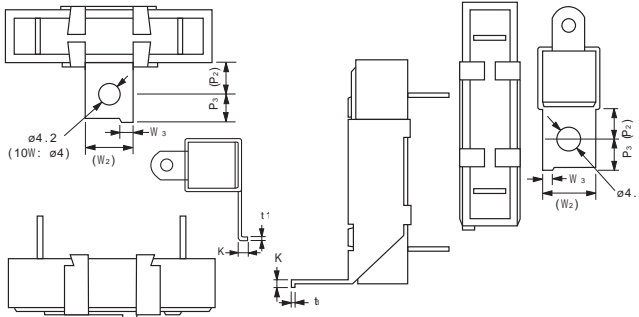
Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

11/11/15

## dimensions and construction (continued)

HA, QA Style

HB, QB Style

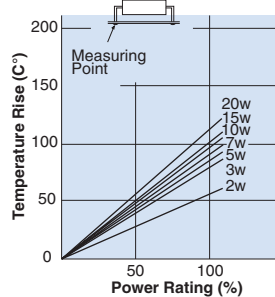
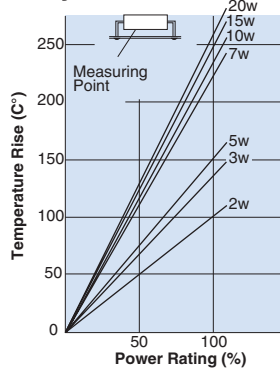


Type	Dimensions millimeters					
	(P <sub>2</sub> )	P <sub>3</sub>	(W <sub>2</sub> )	W <sub>3</sub>	K	t <sub>1</sub>
BGR10HA, BSR10HA	8.0	6.0±1.0	12.0	3.0±0.3	2.8±0.3	0.6
BGR15HA, BSR15HA, BGR15QA BGR15HB, BSR15HB, BGR15QB						0.8
BGR20HA, BSR20HA, BGR20QA BGR20HB, BSR20HB, BGR20QB						0.8
BGR30HA, BGR30HB						0.8
BGR40HA, BGR40HB	10.0	8.0±1.0	18.0	3.0±0.3	3.0±0.3	

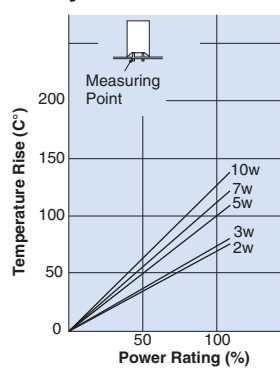
Parenthesized dimensions are for reference.

## Derating Curve

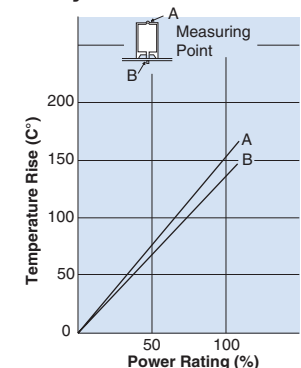
S Style



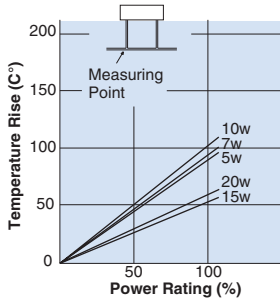
N Style



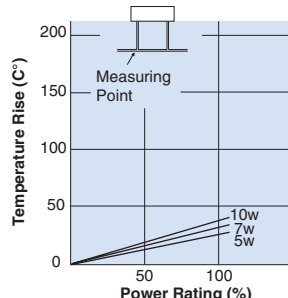
E Style



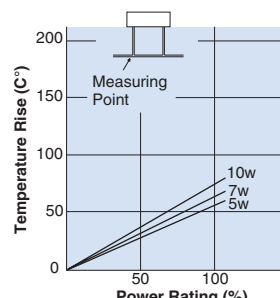
X Style



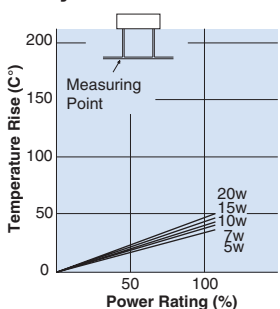
Y Style



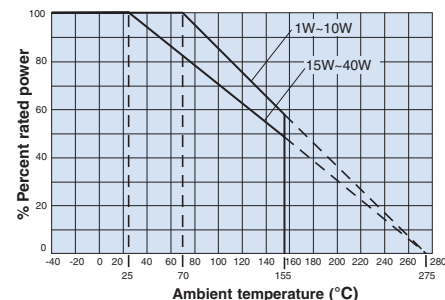
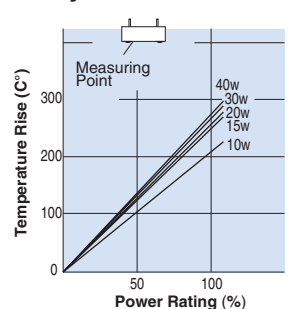
YS Style



Z Style



H Style



## environmental applications

### Performance Characteristics

Parameter	Requirement $\Delta R \pm\%$		Test Method
	Limit	Typical	
Resistance	Within regulated tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C and +25°C/+125°C
Resistance to Solder Heat	1%: BWR, BSR 2%: BGR	0.8%: BWR 1.7%: BGR 0.9%: BSR	350°C $\pm$ 10°C for 3.5 seconds
Moisture Resistance	3%: BWR, BGR 5%: BSR	2.4%: BWR 2.55%: BGR 4.5%: BSR	Power rating x 1/10, 40°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance @ 70°C	3%: BWR 5%: BGR, BSR	2.4%: BWR 4.25%: BGR 4.5%: BSR	Rated voltage, 70°C, 1000 hours, 1.5 hours ON/ 0.5 hours OFF cycle



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

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