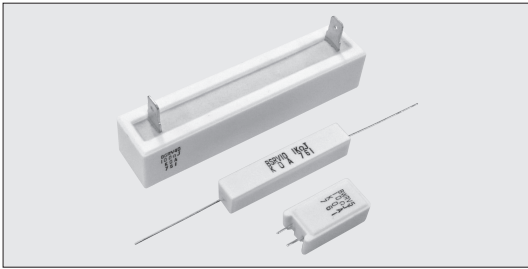
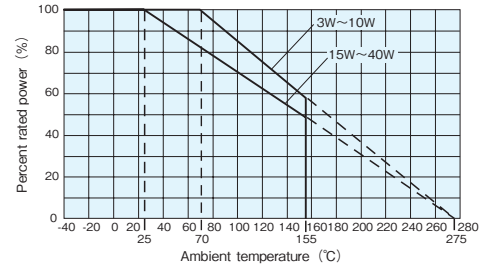


BGRV ■ Rectangular Type Wirewound Resistors With Glass Core (For Automotive)
BWRV ■ Rectangular Type Wirewound Resistors With Ceramic Core (For Automotive)
BSRV ■ Rectangular Type Metal Oxide Film Resistors (For Automotive)



Derating Curve



For resistors operated at an ambient temperature or higher, the power shall be derated in accordance with the above derating curve.

Features

- High-power resistor.
- Using flame-retardant/insulated ceramic case.
- Excellent in anti-pulse and inrush current.
- Suitable for high reliable applications like Automotives. AEC-Q200 qualified.*1
- Products meet EU-RoHS requirements.

Applications

- Pre-charge/(Passive and Active) Discharge resistors for HEV, PHEV, EV.

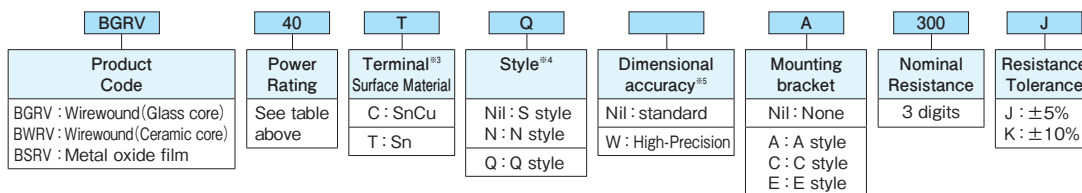
Ratings

Type	Power Rating	Pulse Energy Capacity (J) ^{※2}	Resistance Range (Ω) E24		Style & Weight (g/1pcs)					
			J : ±5%	K : ±10%	S ^{※1}	N ^{※1}	Q	QA	QC	QE
BWRV3	3W	11	1.0~390	—	3.9	5.9	—	—	—	—
BWRV5	5W	17	1.0~390	—	5.1	7.2	—	—	—	—
BWRV7	7W	52	1.0~390	—	7.5	10.8	—	—	—	—
BWRV10	10W	100	1.0~390	—	10.2	15.0	—	—	—	—
BWRV15	15W	100	1.0~390	—	18.8	—	—	—	—	—
BWRV20	20W	180	1.0~390	—	23.3	—	—	—	—	—
BWRV40	40W	549	4.3~220	—	—	—	93.5	—	—	—
BGRV5	5W	16	10~390	5.1~9.1	—	—	6.2	—	—	—
BGRV7	7W	31	10~390	5.1~9.1	—	—	7.9	—	—	—
BGRV10	10W	60	10~390	5.1~9.1	—	—	10.7	14.5	—	—
BGRV15	15W	60	10~390	5.1~9.1	—	—	18.6	24.6	—	—
BGRV20	20W	95	10~390	5.1~9.1	—	—	22.1	28.1	—	—
BGRV30	30W	161	10~390	5.1~9.1	—	—	59.6	72.4	84.6	73.9
BGRV30TQW			10~100							
BGRV40	40W	226	10~390	5.1~9.1	—	—	70.6	85.2	95.6	84.9
BGRV40TQW			10~100							
BSRV3	3W	—	430~27k	—	3.9	5.9	—	—	—	—
BSRV5	5W	—	430~51k	—	5.1	7.2	6.2	—	—	—
BSRV7	7W	—	430~56k	—	7.5	10.8	7.9	—	—	—
BSRV10	10W	—	430~75k	—	10.2	15.0	10.7	14.5	—	—
BSRV15	15W	—	430~56k	—	18.8	—	18.6	24.6	—	—
BSRV20	20W	—	430~56k	—	23.3	—	22.1	28.1	—	—

*1 S Style and N Style lead terminal products are not compatible with the AEC-Q200 vibration test only by soldered PCB mounting. When using the product, please take into account vibration measures such as fixing the product with silicone resin.
 *2 Average value between 10Ω~100Ω

Type Designation

Example



*3 Lead-Free plated terminal symbols.

C (SnCu) : S, N styles

T (Sn) : Q styles

*4 No indication on style means S style.

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

Ratings

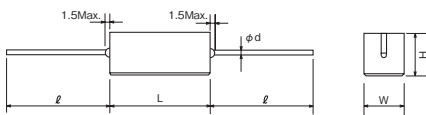
Type	Power Rating	Rated Ambient Temperature	Max. Working Voltage (V)			Max. Overload Voltage (V)			T.C.R. (×10 ⁻⁶ /K)			Operating Temp. Range			
			BGRV	BWRV	BSRV	BGRV	BWRV	BSRV	BGRV	BWRV	BSRV				
B□RV3	3W	+70°C	—	E=√P·R	300	E=√P·R·10	—	±250	±250	±300	-40°C~+155°C				
B□RV5	5W		350		600										
B□RV7	7W		500		700										
B□RV10	10W		700		1,400										
B□RV15	15W		700		1,400										
B□RV20	20W		750		1,500										
BGRV30	30W	+25°C	—	—	—	—	—	—	—						
BGRV40	40W		—		—										
BWRV40	40W		—		E=√P·R					—		E=√P·R·10	—	±250	—

Rated voltage=√Power Rating×Resistance value or Max. working voltage, whichever is lower.

Please consult with us in advance about custom-made products.

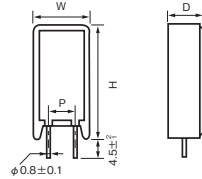
■ Dimensions

① S Style^{※2}



Type	Dimensions (mm)				
	L±1.5	W	H	ℓ±3	d±0.1
BWRV3C·BSRV3C	22.0	8.0±1.0	8.0±1.0	35	0.8
BWRV5C·BSRV5C		9.5±1.0	9.5±1.0		
BWRV7C·BSRV7C	48.0				
BWRV10C·BSRV10C		63.5	12.5±1.2	12.5±1.2	
BWRV15C·BSRV15C					
BWRV20C·BSRV20C					

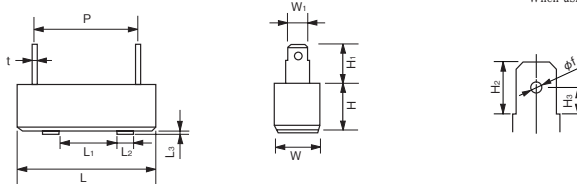
② N Style^{※2}



Type	Dimensions (mm)			
	W±1.0	D±1.0	H±1.5	P±0.2
BWRV3CN·BSRV3CN	12.0	8.0	25.0	5.0
BWRV5CN·BSRV5CN	13.0	9.0	25.5	
BWRV7CN·BSRV7CN			38.5	
BWRV10CN·BSRV10CN	16.0	12.0	35.0	7.5

※2 S Style and N Style lead terminal products are not compatible with the AEC-Q200 vibration test only by soldered PCB mounting. When using the product, please take into account vibration measures such as fixing the product with silicone resin.

③ Q Style

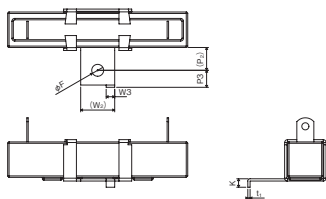


Type	Dimensions (mm)												
	L	L ₁	L ₂	L ₂ ±0.5	W	W ₁ ±0.1	H	H ₁ ±1.0	H ₂ ±0.2	(H ₂)	P	t	(φf)
BGRV5TQ·BSRV5TQ	27±1.5	—	—	—	9.5±1.0	4.75	9.5±1.0	10.5	6.5	3.3	(15.0)	0.5±0.05	2.2
BGRV7TQ·BSRV7TQ	35±1.5	—	—	—							(22.5)		
BGRV10TQ·BSRV10TQ	48±1.5	25±1.0	4.5	1.0	12.5±1.2	6.3	12.5±1.5	13.0	6.35	3.15	(35.0)	0.8±0.08	1.4
BGRV15TQ·BSRV15TQ			7.0								(34.5)		
BGRV20TQ·BSRV20TQ	63.5±2	—	—	—	19.0±1.0	6.3	19.0±1.0	12.0	8.0	4.1	(49.5)	0.8±0.08	1.7
BGRV30TQ	75±1.0	40±1.0	10.0	1.0							19.0±1.0		
BGRV30TQW ^{※5}	75±0.5	40±0.5			19.0±1.0	19.0±0.5	19.0±1.0	19.0±0.5	19.0±1.0	19.0±0.5	(71.0)		
BGRV40TQ	90±1.0	40±1.0	10.0	1.0	20.0±0.5	6.3	20.0±0.5	12.0	8.0	4.1	71.0±0.5	0.8±0.08	1.7
BGRV40TQW ^{※5}	90±0.5	40±0.5									19.0±0.5		
BWRV40TQ	91±1.0	—	—	—	20.0±0.5	6.3	20.0±0.5	12.0	8.0	4.1	71.0±0.5	0.8±0.08	1.7

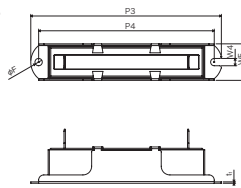
※5 High-Precision Dimension Products.

() Parenthesized dimensions are for reference.

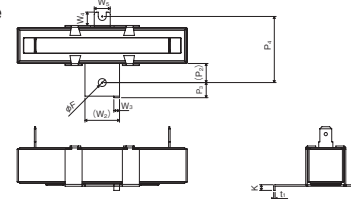
QA Style



QC Style



QE Style



Type	Dimensions (mm)									
	(P ₂)	P ₂ ±1.0	P ₂ ±1.0	(W ₂)	W ₂ ±0.3	(W ₂)	(W ₂)	K±0.3	t ₁	φF
BGRV10TQA·BSRV10TQA	8.0	6.0	—	12.0	3.0	—	—	2.8	0.6	4.0
BGRV15TQA·BSRV15TQA								3.0		
BGRV20TQA·BSRV20TQA								3.0		
BGRV30TQC·BGRV30TQWC	—	110	101	—	—	4.2	21.0	—	0.8	4.2
BGRV40TQC·BGRV40TQWC										
BGRV30TQE·BGRV30TQWE	10.0	8.0	35.0	18.0	3.0	7.0	8.5	3.0	0.8	4.2
BGRV40TQE·BGRV40TQWE										

■ Performance

Test Items	Performance Requirements ΔR±%		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C and +25°C/+125°C
Resistance to soldering heat	1 : BWRV, BSRV 2 : BGRV	0.5 : BWRV, BSRV 1.0 : BGRV	350°C±10°C, 3.5s
Moisture resistance	3 : BWRV, BGRV 5 : BSRV	2.0 : BWRV, BGRV 2.5 : BSRV	Power rating×1/10, 40°C, 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 25°C or 70°C	3 : BWRV 5 : BGRV, BSRV	2.0 : BWRV 2.5 : BGRV, BSRV	25°C or 70°C, rated voltage, 1000h 1.5h ON/0.5h OFF cycle

■ Precautions for Use

- In case of using them for an AC circuit, abnormal phenomena like oscillation etc. occasionally happen as they have an inductance or a parasitic capacitance because of their wiring structures. Use them by taking the dispersion of constants of other components into the consideration.
- The products attached by ionic impurities negatively affects their moisture resistance, corrosion resistance, etc. Please pay careful attention to products handling as well as storage, mounting conditions and environment.
- When the pulse including surge is impressed to the resistor, it may cause disconnection. Please confirm us about the conditions for use in advance.