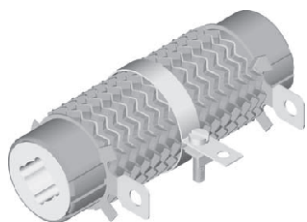


# Cemented Wirewound Resistors with Corrugated Ribbon



## FEATURES

- All welded construction
- Power rating up to 500 W
- Corrugated ribbon construction aids rapid cooling
- Available in adjustable design = "E"
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	POWER RATING $P_{40^{\circ}\text{C}}$ W	RESISTANCE RANGE <sup>(1)</sup> $\Omega$ TCR + 650 ppm/K to + 750 ppm/K WM 10	RESISTANCE RANGE <sup>(1)</sup> $\Omega$ TCR - 10 ppm/K to - 80 ppm/K WM 50	RESISTANCE RANGE <sup>(1)</sup> $\Omega$ TCR + 100 ppm/K to + 180 ppm/K WM 110	TOLERANCE $\pm$ %
ZBS 20/100 ZBS 20/100 E	50	0.13 to 0.51	0.56 to 2.2	1.3 to 6.2	10, 5
ZBS 20/165 ZBS 20/165 E	100	0.27 to 1	1.1 to 4.7	2.4 to 12	10, 5
ZBS 20/265 ZBS 20/265 E	150	0.47 to 1.8	2 to 7.5	4.3 to 22	10, 5
ZBS 30/100 ZBS 30/100 E	75	0.1 to 0.43	0.47 to 3.3	1 to 8.2	10, 5
ZBS 30/133 ZBS 30/133 E	110	0.15 to 0.62	0.68 to 5.1	1.5 to 12	10, 5
ZBS 30/165 ZBS 30/165 E	150	0.2 to 0.91	1.0 to 6.8	2 to 16	10, 5
ZBS 30/215 ZBS 30/215 E	200	0.27 to 1.1	1.2 to 9.1	2.7 to 24	10, 5
ZBS 30/265 ZBS 30/265 E	250	0.3 to 1.3	1.5 to 11	3.9 to 27	10, 5
ZBS 30/330 ZBS 30/330 E	300	0.39 to 1.8	2 to 15	5.1 to 36	10, 5
ZBS 45/370 ZBS 45/370 E	375	0.75 to 3	3.3 to 24	8.2 to 56	10, 5
ZBS 60/370 ZBS 60/370 E	500	0.91 to 3.9	4.3 to 33	10 to 75	10, 5

## Notes

- For available "Mounting Accessories for Resistors", please see: [www.vishay.com/doc?221015](http://www.vishay.com/doc?221015)
- <sup>(1)</sup> Resistance value to be selected for  $\pm 10$  % tolerance from E12 and for  $\pm 5$  % from E24

## PART NUMBER AND PRODUCT DESCRIPTION

Part Number: ZBS202S01100KLX000

Z	B	S	2	0	2	S	0	1	1	0	0	K	L	X	0	0	0
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MODEL	VARIANT/ TERMINAL	TCR/MATERIAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
<b>ZBS202S</b> = ZBS 20/100 <b>ZBS204L</b> = ZBS 20/165 <b>ZBS207D</b> = ZBS 20/265 <b>ZBS302S</b> = ZBS 30/100 <b>ZBS303P</b> = ZBS 30/133 <b>ZBS304L</b> = ZBS 30/165 <b>ZBS305Z</b> = ZBS 30/215 <b>ZBS307D</b> = ZBS 30/265 <b>ZBS308D</b> = ZBS 30/303 <b>ZBS3096</b> = ZBS 30/330 <b>ZBS45AA</b> = ZBS 45/370 <b>ZBS60AA</b> = ZBS 60/370	<b>0</b> = Neutral <b>1</b> = E <b>Z</b> = Value overflow (BV)	<b>1</b> = - 10ppm/K to - 80 ppm/K WM 50 Class 1 <b>3</b> = 100 ppm/K to 180 ppm/K WM 110 Class 3 <b>4</b> = 650 ppm/K to 750 ppm/K WM 10 Class 1  <b>See also note (1)</b>	<b>2 digit value</b> <b>1 digit multiplier</b> <b>MULTIPLIER</b> 8 = *10 <sup>-2</sup> 9 = *10 <sup>-1</sup> 0 = *10 <sup>0</sup>	<b>J</b> = ± 5.0 % <b>K</b> = ± 10.0 %	<b>LX</b> = Loose pack, without quantity	<b>000</b> = Standard <b>3 digit code</b> = Special <sup>(1)</sup>

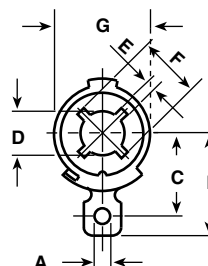
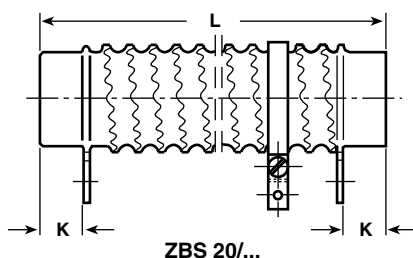
Product Description: ZBS 20/100 50 10R 10 % LX

ZBS 20/100	50	10R	10 %	LX
MODEL <sup>(2)</sup>	TCR/MATERIAL <sup>(2)</sup>	VALUE <sup>(2)</sup>	TOLERANCE CODE <sup>(2)</sup>	PACKAGING DESCRIPTION <sup>(3)</sup>

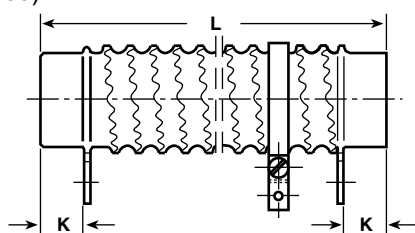
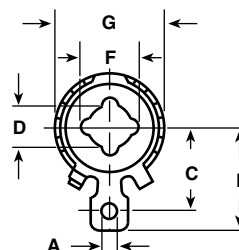
### Notes

- (1) For special variants or special winding, please contact: [ww1resistors@vishay.com](mailto:ww1resistors@vishay.com)  
(2) See "Part Number" above  
(3) See "Packaging Code" above

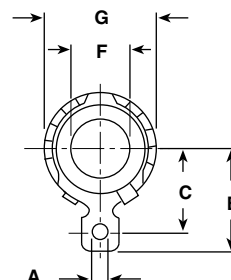
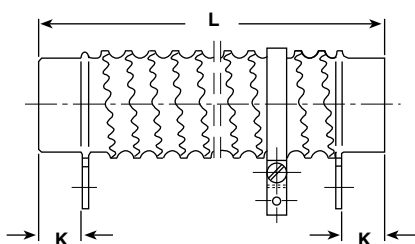
## DIMENSIONS



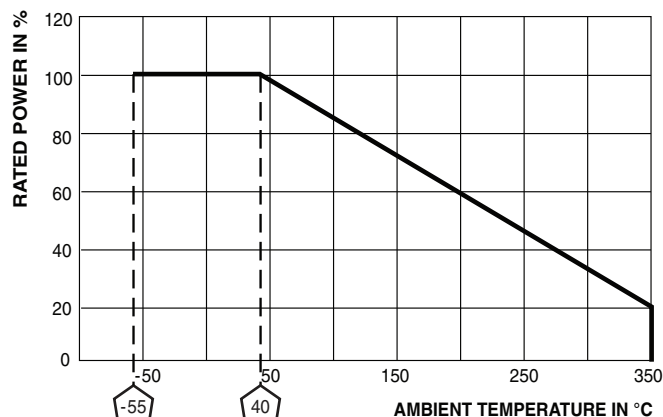
MODEL	DIMENSIONS in millimeters [inches]									
	L	K	A	B	C	D	E	F	G	MASS (g)
<b>ZBS 20/100</b> <b>ZBS 20/100 E</b>	100 ± 2.5 [3.937 ± 0.098]	15 [0.591]	4.2 [0.165]	26.5 [1.043]	22 [0.866]	10 [0.394]	1.5 [0.059]	14 [0.551]	24 [0.945]	100
<b>ZBS 20/165</b> <b>ZBS 20/165 E</b>	165 ± 4 [6.496 ± 0.157]	15 [0.591]	4.2 [0.165]	26.5 [1.043]	22 [0.866]	10 [0.394]	1.5 [0.059]	14 [0.551]	24 [0.945]	150
<b>ZBS 20/265</b> <b>ZBS 20/265 E</b>	265 ± 6.6 [10.433 ± 0.260]	15 [0.591]	4.2 [0.165]	26.5 [1.043]	22 [0.866]	10 [0.394]	1.5 [0.059]	14 [0.551]	24 [0.945]	250

**DIMENSIONS** (continued)

**ZBS 30/...**


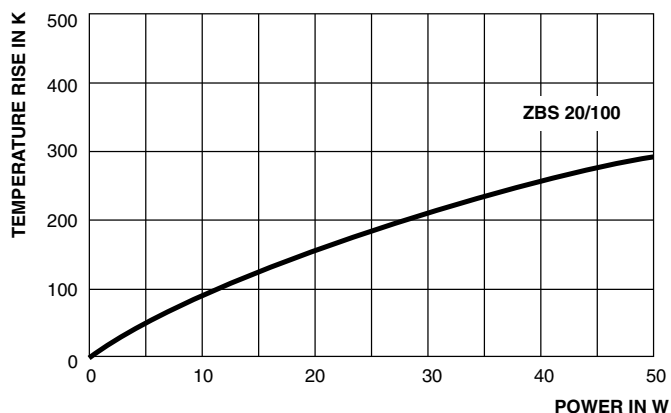
MODEL	DIMENSIONS in millimeters [inches]								MASS (g)
	L	K	A	B	C	D	F	G	
<b>ZBS 30/100</b> <b>ZBS 30/100 E</b>	100 ± 2.5 [3.937 ± 0.098]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	200
<b>ZBS 30/133</b> <b>ZBS 30/133 E</b>	133 ± 3.3 [5.236 ± 0.130]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	250
<b>ZBS 30/165</b> <b>ZBS 30/165 E</b>	165 ± 4 [6.496 ± 0.157]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	300
<b>ZBS 30/215</b> <b>ZBS 30/215 E</b>	215 ± 5.4 [8.465 ± 0.213]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	400
<b>ZBS 30/265</b> <b>ZBS 30/265 E</b>	265 ± 6.6 [10.433 ± 0.260]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	500
<b>ZBS 30/330</b> <b>ZBS 30/330 E</b>	330 ± 8 [12.992 ± 0.315]	15 [0.591]	5.2 [0.205]	34 [1.339]	28 [1.102]	14 [0.551]	18.5 [0.728]	37 ± 1 [1.457 ± 0.039]	600


**ZBS 45/370, ZBS 60/370**

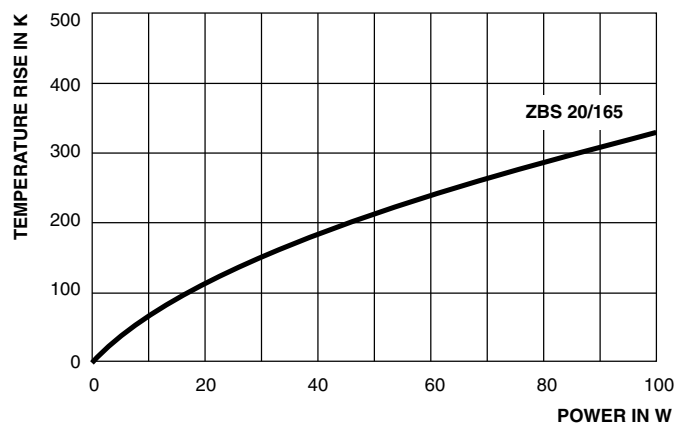
MODEL	DIMENSIONS in millimeters [inches]							MASS (g)
	L	K	A	B	C	F	G	
ZBS 45/370 ZBS 45/370 E	370 ± 9 [14.567 ± 0.354]	15 [0.591]	5.2 [0.205]	42.5 [1.673]	37 [1.457]	30 [1.181]	52 ± 1 [2.047 ± 0.039]	1000
ZBS 60/370 ZBS 60/370 E	370 ± 9 [14.567 ± 0.354]	15 [0.591]	5.2 [0.205]	51.5 [2.028]	45.5 [1.791]	45 [1.772]	67 ± 1 [2.638 ± 0.039]	1200



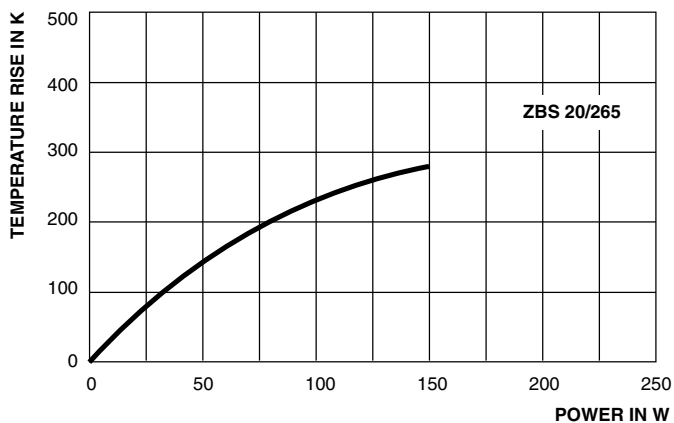
Derating



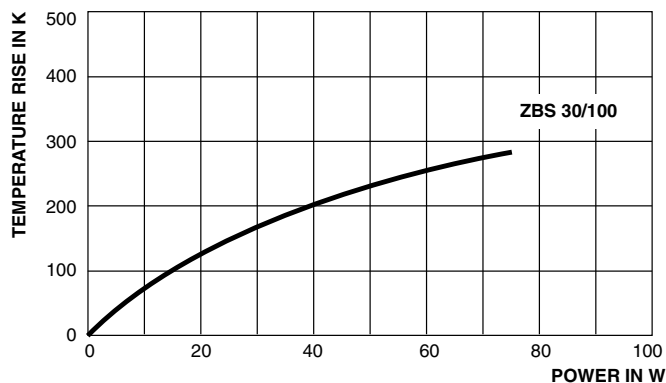
Temperature Rise



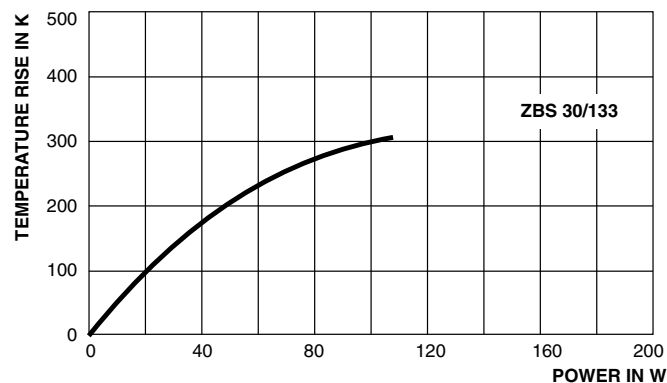
Temperature Rise



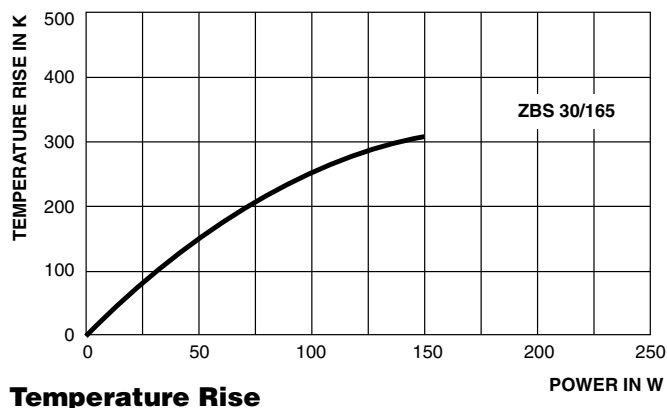
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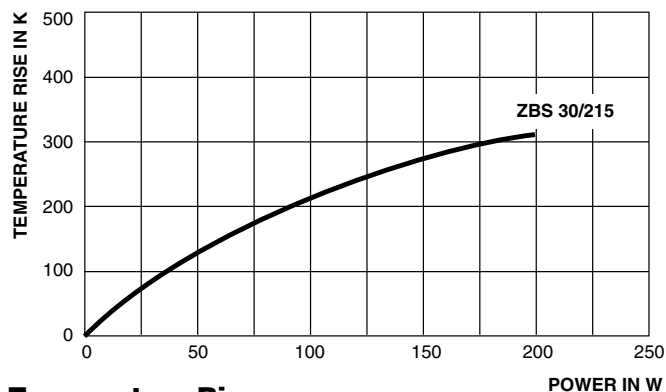
Temperature Rise



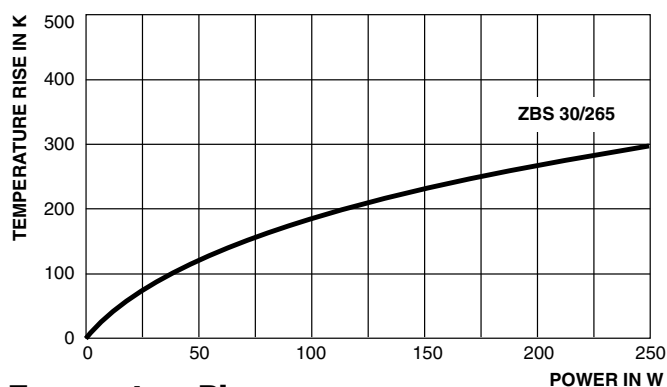
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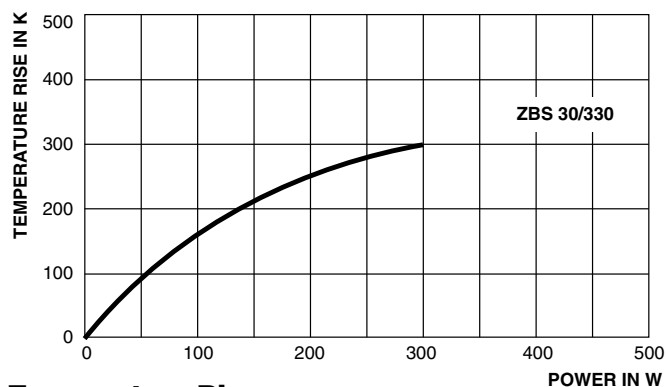
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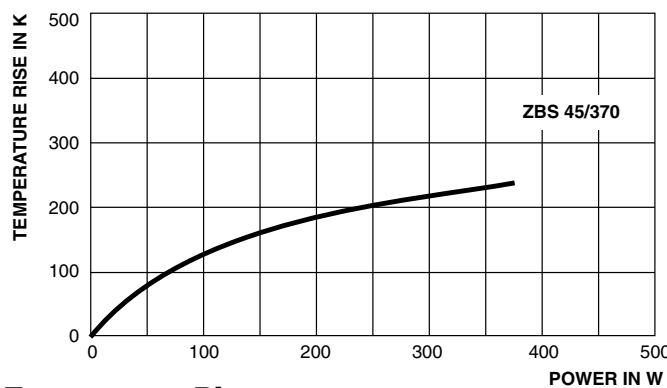
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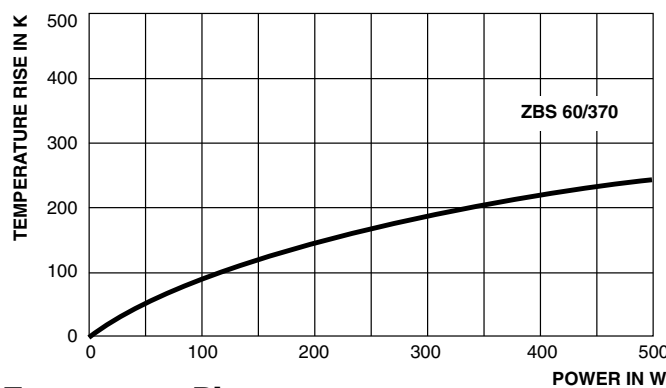
Temperature Rise



Temperature Rise



Temperature Rise



Temperature Rise



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