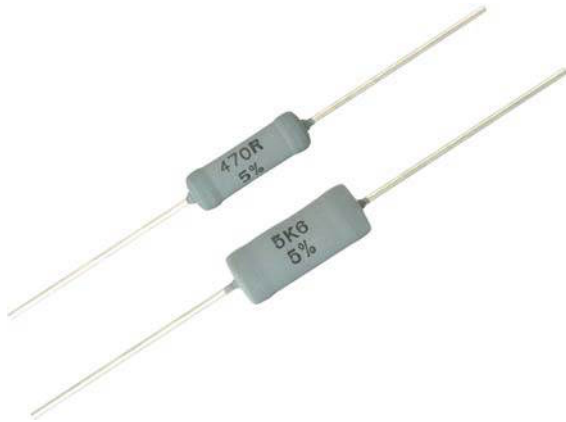


High Surge Axial Cemented Wirewound Resistors



FEATURES

- Standard version Z300-C00
- High voltage surge (up to 12 kV) for special version
- Non flammable cement coating
- High grade ceramic core
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

APPLICATIONS

- Energy meter
- Appliances
- Ballast

STANDARD ELECTRICAL SPECIFICATIONS				
MODEL	POWER RATING P_{40} W	POWER RATING P_{70} W	RESISTANCE RANGE Ω TCR ⁽¹⁾⁽²⁾ = ± 200 ppm/K	TOLERANCE ⁽³⁾ \pm %
Z301-C	1	0.9	0.30 to 2K	10, 5
ZDA0411-C	2	1.8	0.47 to 4.3K	10, 5
Z302-C	3	2.5	0.22 to 3.3K	10, 5
Z303-C	4	3.5	0.47 to 3.9K	10, 5
Z304-C	5	4.7	0.62 to 5.6K	10, 5
Z305-C	6	5.4	0.15 to 10K	10, 5

Notes

- ⁽¹⁾ Lower TCR products are available on request
- ⁽²⁾ TCR of values < 1R is ± 400 ppm/K
- ⁽³⁾ Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 % from E24, 1 % tolerance available on request.



PART NUMBER AND PRODUCT DESCRIPTION																	
Part Number: Z34081834700J6DC10																	
Z	3	4	0	8	1	8	3	4	7	0	0	J	6	D	C	1	0
MODEL	TCR/MATERIAL		VALUE			TOLERANCE CODE		PACKAGING CODE		SPECIAL (1)							
Z310309 = Z301-C ZDA0411 = ZDA0411-C Z320414 = Z302-C Z330617 = Z303-C Z340818 = Z304-C Z350922 = Z305-C	1 = ± 100 ppm/K 3 = ± 200 ppm/K 4 = SWI (special winding)		3 digit value 1 digit multiplier MULTIPLIER 7 = *10 ⁻³ 8 = *10 ⁻² 9 = *10 ⁻¹ 0 = *10 ⁰ 1 = *10 ¹ 2 = *10 ²			J = ± 5.0 % K = ± 10.0 %		(see Packaging Table)		C00 = standard C04 = 4 kV surge C06 = 6 kV surge C08 = 8 kV surge C10 = 10 kV surge C12 = 12 kV surge							
Product Description: Z304-C 3 470R 5 % AC G63 CD1278																	
Z304-C	3	470R	5 %	AC G63	CD1278												
MODEL	TCR/MATERIAL	VALUE	TOLERANCE CODE	PACKAGING DESCRIPTION	Blank = standard CDxxxx = speciality												

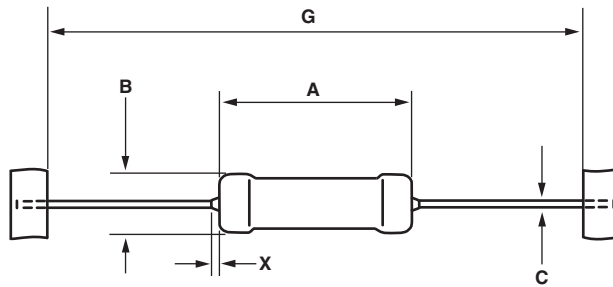
MINIMUM RESISTANCE VALUE FOR HANDLING SURGE VOLTAGE AS PER IEC61000-4-5 (1.2/50 µS PULSE)						
POWER	TYPE	4 kV SURGE	6 kV SURGE	8 kV SURGE	10 kV SURGE	12 kV SURGE
1 W	Z301-C	430R	1K5	-	-	-
2 W	ZDA0411-C	180R	510R	1K1	2K2	3K3
3 W	Z302-C	62R	330R	680R	1K8	2K2
4 W	Z303-C	27R	91R	220R	470R	820R
5 W	Z304-C	15R	43R	82R	100R	330R
6 W	Z305-C	4.7R	18R	27R	68R	130R

Example: for a Z304-C, 5 W resistor to withstand 10 kV surge, minimum ohmic value should be 100 Ω. So the part number will be Z34081831000J6DC10

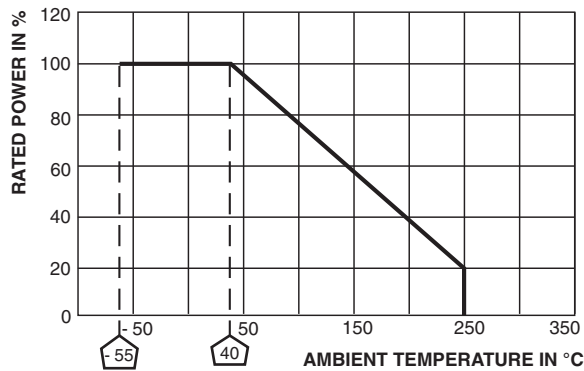
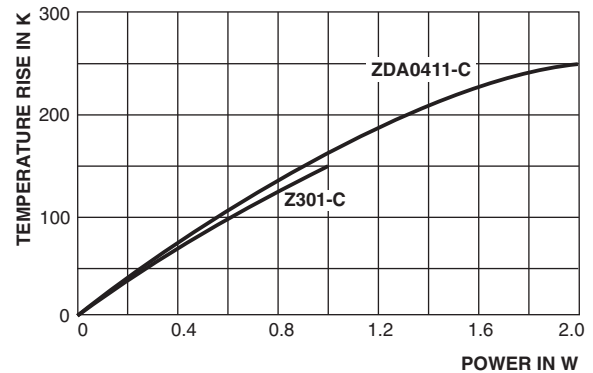
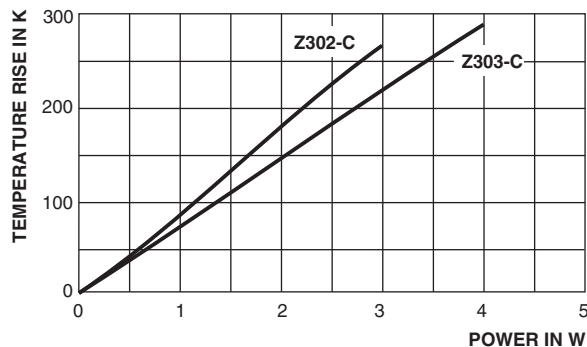
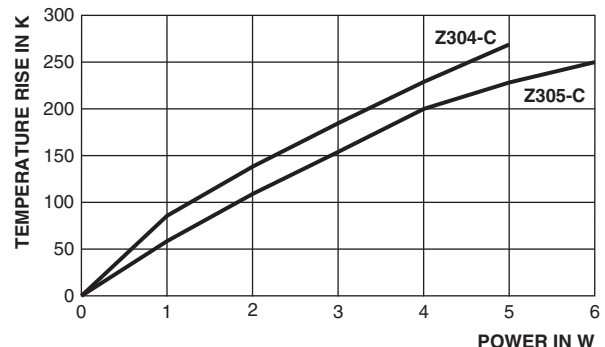
Note

(1) As surge handling capacity depends upon resistor model and ohmic value, please check feasibility of resistor model, ohmic value and desired surge handling voltage with factory. (ww1resistors@vishay.com)

PACKAGING TABLE				
MODEL	TAPE LENGTH (G) (mm)	AMMO PACK		
		PIECES	PACKAGING CODE	PACKAGING DESCRIPTION
Z301-C, ZDA0411-C	53	1000	21	A1 G53
Z302-C	53	500	2C	AC G53
	73	500	4C	AC G73
	83	250	6C	AC G83
Z303-C	53	500	2C	AC G53
	83	500	6C	AC G83
Z304-C	63	250	6D	AC G63
	83	250	6E	AB G83
Z305-C	83	250	6B	AB G83

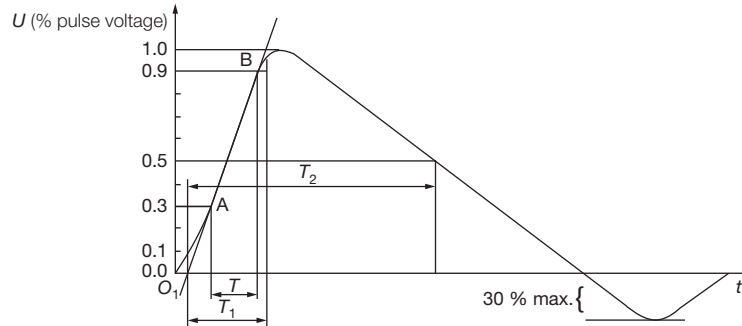
DIMENSIONS


MODEL	DIMENSIONS in millimeters (inches)					
	A _{MAX.}	B _{MAX.}	C _{MAX.}	G	X _{MAX.}	MASS (g)
Z301-C	8.5 (0.355)	3 (0.118)	0.7 (0.027)	53 ± 1 (2.087 ± 0.039)	2 (0.079)	0.5
ZDA0411-C	11 (0.433)	4 (0.157)	0.7 (0.027)	53 ± 1 (2.087 ± 0.039)	2 (0.079)	0.8
Z302-C	13 (0.512)	4.8 (0.189)	0.8 (0.031)	53 ± 1 (2.087 ± 0.039) 73 ± 1 (2.87 ± 0.039) 83 ± 1 (3.268 ± 0.039)	2 (0.079)	1.1
Z303-C	15.8 (0.622)	5.5 (0.217)	0.8 (0.031)	53 ± 1 (2.087 ± 0.039) 83 ± 1 (3.268 ± 0.039)	2 (0.079)	1.4
Z304-C	18 (0.709)	7.5 (0.295)	0.8 (0.031)	63 ± 1 (2.48 ± 0.039)	2 (0.079)	1.9
Z305-C	22.3 (0.878)	8.7 (0.343)	0.8 (0.031)	83 ± 1 (3.268 ± 0.039)	2 (0.079)	3.7


Derating

Temperature Rise

Temperature Rise

Temperature Rise

HIGH VOLTAGE SURGE

The specially designed Z300-C high surge wirewound resistors are tested for surge handling capability by applying surge voltage as per the 1.2 μ s/50 μ s exponential open circuit voltage waveform according to IEC 61000-4-5 standard as shown below:



$$\text{Front time: } T_1 = 1.67 \times T = 1.2 \mu\text{s} \pm 30 \%$$

$$\text{Time to half-value: } T_2 = 50 \mu\text{s} \pm 20 \%$$

Waveform of open-circuit voltage (1.2 μ s/50 μ s) at the output of pulse generator

PERFORMANCE	
TEST	PERMISSIBLE CHANGE
Climatic category (LCT/UCT/days)	40/200/56
Damp heat, steady state, IEC 60115-1, 4.24 (40 \pm 2) $^{\circ}$ C, 56 days, (93 \pm 3) % RH	$\Delta R = \pm (3 \% R + 0.1 \Omega)$
Climatic sequence IEC 60115-1 4.23	$\Delta R = \pm (3 \% R + 0.1 \Omega)$
Endurance at room temperature (116 % P_{70}), 1000 h, IEC 60115-1, 4.25.2	$\Delta R = \pm (3 \% R + 0.1 \Omega)$
Endurance at UCT, 200 $^{\circ}$ C (30 % P_{70}), 1000 h, IEC 60115-1, 4.25.3	$\Delta R = \pm (3 \% R + 0.1 \Omega)$
Short time overload, IEC 60115-1, 4.13 10 x rated power P_{40} for 5 s	$\Delta R = \pm (2 \% R + 0.05 \Omega)$
Resistance to soldering heat, IEC 60115-1, 4.18 (260 \pm 5) $^{\circ}$ C, (10 \pm 1) s	$\Delta R = \pm (1 \% R + 0.05 \Omega)$
Robustness of termination, IEC 60115-1, 4.16	$\Delta R = \pm (0.5 \% R + 0.05 \Omega)$
1.2 μ s/50 μ s surge test (impedance of surge tester is 2 Ω) as per IEC 61000-4-5; 10 pulses at 30 s interval	$\Delta R = \pm (5 \% R + 0.1 \Omega)$



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