

Wirewound Resistors, Precision Power, Surface Mount



FEATURES

- All welded construction
- Molded encapsulation
- Wraparound terminations
- Excellent stability at different environmental conditions
- High power ratings (up to 3 W)
- Superior surge capability
- Available in non-inductive styles with Ayrton-Perry winding (WSN in lieu of WSC, maximum resistance is one-half WSC range)
- AEC-Q200 qualified ⁽¹⁾
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



DESIGN SUPPORT TOOLS

[click logo to get started](#)

3D

Models Available
Notes

- This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details
- Follow link to Overview of Automotive Grade Products for more details: www.vishay.com/doc?49924
- ⁽¹⁾ Flame retardance test may not be applicable to some resistor technologies

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	SIZE	POWER RATING $P_{70\text{ }^\circ\text{C}}$ W	RESISTANCE RANGE Ω	TOLERANCE \pm %	WEIGHT (typical) g/1000 pieces	ENCAPSULATION
WSC01/2	WSC-1/2	2012	0.5	0.1 to 4.99	0.5, 1, 5	90	Epoxy
WSC0001 ⁽²⁾	WSC-1	2515	1	0.1 to 2.77K	0.5, 1, 5	165	Thermoplastic ⁽¹⁾
WSC2515	WSC2515	2515	1	0.1 to 2.5K	0.5, 1, 5	165	Thermoplastic
WSC0002	WSC-2	4527	2	0.1 to 4.92K	0.5, 1, 5	760	Thermoplastic ⁽¹⁾
WSC4527	WSC4527	4527	2	0.1 to 4.92K	0.5, 1, 5	760	Thermoplastic
WSC6927	WSC6927	6927	3	0.1 to 8K	0.5, 1, 5	1675	Thermoplastic

Notes

- Part marking: 1/2 W - DALE, value; 1 W - model, value, tolerance, date code; 2 W and 3 W - DALE, model, value, tolerance, date code
- ⁽¹⁾ As of 1/1/2010, the WSC0001 and WSC0002 are molded with thermoplastic in lieu of epoxy. Reference PCN-DR-002-2009 and PCN-DR-003-2009
- ⁽²⁾ As of February 19, 2016, the WSC0001 was obsoleted by PCN-DR-013-2015; the WSC2515 is a drop-in replacement. You may contact your sales representative or submit an inquiry via ww2bresistors@vishay.com for supporting information

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	WSC01/2	WSC2515	WSC0002	WSC4527, WSC6927
Temperature coefficient	ppm/ $^\circ\text{C}$	$\pm 50 = 1.0 \Omega$ to 4.99Ω ; $\pm 90 = 0.1 \Omega$ to 0.99Ω	$\pm 20 = 26.51 \Omega$ and above; $\pm 50 = 1.0 \Omega$ to 26.5Ω ; $\pm 90 = 0.31 \Omega$ to 0.99Ω ; $\pm 150 = 0.1 \Omega$ to 0.3Ω	$\pm 20 = 10.0 \Omega$ and above; $\pm 50 = 1.0 \Omega$ to 9.9Ω ; $\pm 90 = 0.1 \Omega$ to 0.99Ω	$\pm 20 = 10 \Omega$ and above; $\pm 50 = 1.0 \Omega$ to 9.9Ω ; $\pm 90 = 0.31 \Omega$ to 0.99Ω ; $\pm 150 = 0.1 \Omega$ to 0.3Ω
Dielectric withstanding voltage	V_{AC}	> 500			
Insulation resistance	Ω	> 10^9			
Operating temperature range	$^\circ\text{C}$	-65 to +175	-65 to +275		
Maximum working voltage	V	$(P \times R)^{1/2}$			

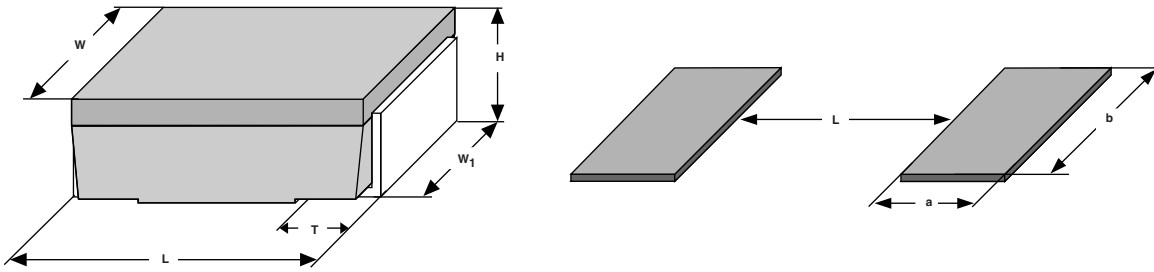
GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: WSC2515R7000FEA (visit www.vishay.net Vishay Dale parts numbering manual for all options)

W	S	C	2	5	1	5	R	7	0	0	0	F	E	A		
GLOBAL MODEL		SIZE		VALUE ⁽¹⁾		TOLERANCE		PACKAGING				SPECIAL				
WSC WSN		01/2 2515 0002 4527 6927		R = decimal K = thousand R7000 = 0.70 Ω 1K500 = 1.5 k Ω		D = ± 0.5 % F = ± 1.0 % G = ± 2.0 % H = ± 3.0 % J = ± 5.0 % K = ± 10 %		EA = lead (Pb)-free, tape / reel EK = lead (Pb)-free, bulk TA = tin / lead, tape / reel (R86) BA = tin / lead, bulk (B43)				(dash number) (up to 2 digits) from 1 to 99 as applicable				

Notes

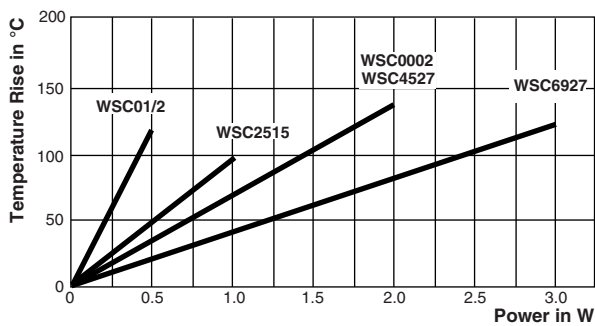
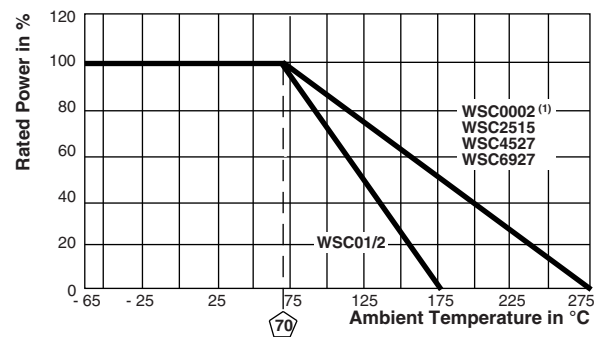
- ⁽¹⁾ WSC / WSN Marking (www.vishay.com/doc?30327)
- Packaging code: EB (lead (Pb)-free) and TB (tin / lead) are non-standard packaging codes designating 1000 piece reels. These non-standard packaging codes are identical to our standard EA (lead (Pb)-free) and TA (tin / lead), except that they have a package quantity of 1000 pieces

DIMENSIONS in inches (millimeters)


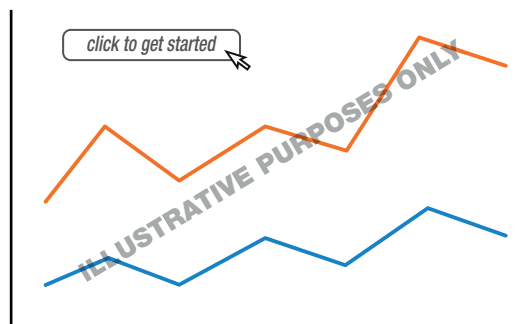
GLOBAL MODEL	DIMENSIONS					SOLDER PAD DIMENSIONS		
	L	H	T	W	W ₁	a	b	L
WSC01/2	0.200 ± 0.020 (5.08 ± 0.508)	0.096 ± 0.015 (2.44 ± 0.381)	0.040 ± 0.010 (1.02 ± 0.254)	0.125 ± 0.005 (3.18 ± 0.127)	0.050 ± 0.010 (1.27 ± 0.254)	0.085 (2.16)	0.070 (1.78)	0.080 (2.03)
WSC2515	0.250 ± 0.020 (6.35 ± 0.508)	0.110 ± 0.015 (2.79 ± 0.381)	0.045 ± 0.010 (1.14 ± 0.254)	0.150 ± 0.005 (3.81 ± 0.127)	0.098 ± 0.005 (2.49 ± 0.127)	0.090 (2.29)	0.115 (2.92)	0.120 (3.05)
WSC0002	0.455 ± 0.020 (11.56 ± 0.508)	0.167 ± 0.010 (4.24 ± 0.254)	0.100 ± 0.010 (2.54 ± 0.254)	0.275 ± 0.005 (6.98 ± 0.127)	0.215 ± 0.005 (5.46 ± 0.127)	0.155 (3.94)	0.230 (5.84)	0.205 (5.21)
WSC4527	0.455 ± 0.020 (11.56 ± 0.508)	0.167 ± 0.010 (4.24 ± 0.254)	0.100 ± 0.010 (2.54 ± 0.254)	0.275 ± 0.005 (6.98 ± 0.127)	0.215 ± 0.005 (5.46 ± 0.127)	0.155 (3.94)	0.230 (5.84)	0.205 (5.21)
WSC6927	0.690 ± 0.032 (17.53 ± 0.813)	0.280 ± 0.015 (7.11 ± 0.381)	0.100 ± 0.010 (2.54 ± 0.254)	0.275 ± 0.005 (6.98 ± 0.127)	0.215 ± 0.015 (5.46 ± 0.381)	0.155 (3.94)	0.235 (5.97)	0.470 (11.94)

Notes

- 3D models available: www.vishay.com/doc?30328
- Surface mount solder profile recommendations: www.vishay.com/doc?31052
- Refer to WSC, WSN conversion guide for detailed construction drawings: www.vishay.com/doc?49616

TEMPERATURE RISE

DERATING

Note

- (1) As of 1/1/2010, WSC0002 will be molded with thermoplastic and have the higher 275 °C temperature derating

PULSE CAPABILITY


www.vishay.com/resistors/SMD-wirewound-pulse-capability-calculator/



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± 0.5 % + 0.05 Ω
Short time overload	5 x rated power for 5 s	± 0.2 % + 0.05 Ω
Low temperature storage	-65 °C for 24 h	± 0.2 % + 0.05 Ω
High temperature exposure	1000 h at + 275 °C (+175 °C for WSC01/2)	± 0.5 % + 0.05 Ω
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	± 0.2 % + 0.05 Ω
Mechanical shock	100 g's for 6 ms, 5 pulses	± 0.1 % + 0.05 Ω
Vibration	Frequency varied 10 Hz to 500 Hz in 1 min, 3 directions, 9 h	± 0.1 % + 0.05 Ω
Load life	1000 h at rated power, +70 °C, 1.5 h "ON", 0.5 h "OFF"	± 1.0 % + 0.05 Ω
Resistance to solder heat	+260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± 0.5 % + 0.05 Ω

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSC01/2	12 mm/embossed plastic	330 mm/13"	2000	EA/TA
WSC2515	16 mm/embossed plastic	330 mm/13"	2000	EA/TA
WSC0002, WSC4527	24 mm/embossed plastic	330 mm/13"	1200	EA/TA
WSC6927	32 mm/embossed plastic	330 mm/13"	725	EA/TA

Notes

- Embossed carrier tape per EIA-481
- Additional packaging details at www.vishay.com/doc?20051



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