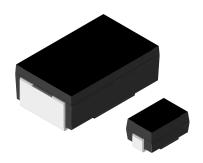


Metal Film Resistors, Power, Surface Mount



Note

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.

FEATURES

- Molded encapsulation
- · Wraparound compliant terminations eliminate risk of solder fillet cracking
- Solderable terminations
- Excellent stability at different environmental conditions
- High power ratings (up to 2 W)
- AEC-Q200 qualified available (1)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

(1) Flame retardance test may not be applicable to some resistor technologies.











(5-2008)

STANDARD ELECTRICAL SPECIFICATIONS						
GLOBAL MODEL	SIZE INCH	POWER RATING P _{70 °C} W	TOLERANCE ± %	RESISTANCE RANGE Ω	TEMPERATURE COEFFICIENT (4) ± ppm/°C	ENCAPSULATION
WSF2012	2012	0.5	0.5, 1, 5	5.0 to 1.43K ⁽²⁾	100	Ероху
WSF2515	2515	1.0	0.5, 1, 5	10 to 10K	100	Thermoplastic
WSF4527	4527	2.0 (3)	0.5, 1, 5	10 to 100K	100	Thermoplastic

TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	WSF2012	WSF2515	WSF4527	
Dielectric withstanding voltage	V_{AC}	> 500	> 500	> 500	
Insulation resistance	Ω	> 109			
Operating temperature range	°C	- 65/+ 175	- 65/+ 175	- 65/+ 150	
Maximum working voltage	V	(P x R) ^{1/2}	(P x R) ^{1/2}	(P x R) ^{1/2 (3)}	
Weight/1000 pieces (typical)	q	90	165	760	

Notes

- Part marking: 1/2 W DALE, value; 1 W model, value, tolerance, date code; 2 W DALE, model, value, tolerance, date code.
- E96 values only.
- Resistance values above 31.25 k Ω are limited to 250 V maximum working voltage.

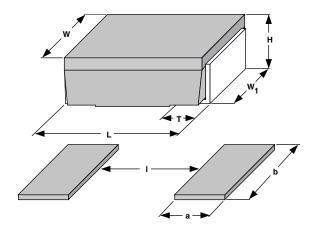
± 50 ppm/°C and ± 25 ppm/°C available

GLOBAL PART NUMBER INFORMATION Global Part Numbering example: WSF25151K500JKTA (preferred numbering format) W S 2 5 1 Κ 0 5 **GLOBAL MODEL** VALUE **TOLERANCE TCR PACKAGING SPECIAL** $\mathbf{E} = \pm 25 \text{ ppm/}^{\circ}\text{C}$ WSF2012 R = Decimal $D = \pm 0.5 \%$ EA = Lead (Pb)-free, (Dash number) WSF2515 $\mathbf{H} = \pm 50 \text{ ppm/}^{\circ}\text{C}$ **K** = Thousand $F = \pm 1.0 \%$ tape/reel (Up to 2 digits) **100R0** = 100Ω WSF4527 $\mathbf{K} = \pm 100 \text{ ppm/}^{\circ}\text{C}$ EK = Lead (Pb)-free, bulk $G = \pm 2.0 \%$ From 1 to 99 as **1K000** = 1 kΩ $H = \pm 3.0 \%$ TA = Tin/lead, tape/reel applicable $J = \pm 5.0 \%$ (R86) $K = \pm 10 \%$ **BA** = Tin/lead, tape/reel, bulk (B43) Historical Part Numbering example: WSF2515 1.5 kΩ 5 % 100 ppm/°C R86 (will continue to be accepted for tin/lead product only) WSF2515 $1.5 \text{ k}\Omega$ 5 % **R86** 100 ppm/°C **TEMPERATURE** HISTORICAL MODEL RESISTANCE VALUE **TOLERANCE CODE PACKAGING** COEFFICIENT



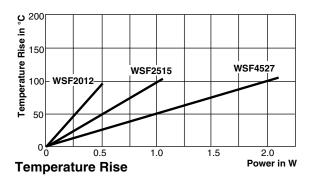


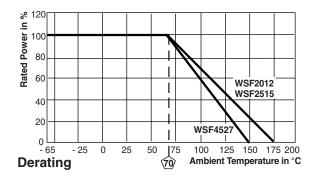
DIMENSIONS



MODEL	DIMENSIONS in inches (millimeters)					
WODEL	L	Н	Т	W	W ₁	
WSF2012	0.200 ± 0.020 (5.08 ± 0.508)	0.096 ± 0.015 (2.44 ± 0.381)				
WSF2515	0.250 ± 0.020 (6.35 ± 0.508)	0.110 ± 0.015 (2.79 ± 0.381)				
WSF4527	0.455 ± 0.020 (11.56 ± 0.508)					

MODEL	SOLDER PAD DIMENSIONS in inches (millimeters)				
WODEL	а	a b			
WSF2012	0.085 (2.16)	0.070 (1.78)	0.080 (2.03)		
WSF2515	0.090 (2.29)	0.115 (2.92)	0.120 (3.05)		
WSF4527	0.155 (3.94)	0.230 (5.94)	0.205 (5.21)		





PERFORMANCE				
TEST	CONDITIONS OF TEST	TEST LIMITS		
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	± (1.0 % + 0.05 Ω) ΔR		
Short time overload	5 x rated power for 5 s	± (0.5 % + 0.05 Ω) ΔR		
Low temperature storage	-65 °C for 24 h	± (0.5 % + 0.05 Ω) ΔR		
High temperature exposure	1000 h at +175 °C (150 °C for WSF4527)	± (1.0 % + 0.05 Ω) ΔR		
Bias humidity	+85 °C, 85 % RH, 10 % Bias, 1000 h	± (0.5 % + 0.05 Ω) ΔR		
Moisture resistance	MIL-STD-202 method 106, 0 % power, 7a and 7b not required	± (0.5 % + 0.05 Ω) ΔR		
Mechanical shock	100 g's for 6 ms, 5 pulses	\pm (0.5 % + 0.05 Ω) ΔR		
Vibration	Frequency varied 10 Hz to 500 Hz in one min, 3 directions, 9 h	± (0.5 % + 0.05 Ω) ΔR		
Load life	1000 h at rated power, +70 °C, 1.5 h "ON", 0.5 h "OFF"	± (1.0 % + 0.05 Ω) ΔR		
Resistance to solder heat +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence ± (0.5 %		± (0.5 % + 0.05 Ω) ΔR		

PACKAGING						
MODEL		REEL				
MODEL	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE		
WSF2012	12 mm/embossed plastic	330 mm/13"	2000	EA/TA		
WSF2515	16 mm/embossed plastic	330 mm/13"	2000	EA/TA		
WSF4527	24 mm/embossed plastic	330 mm/13"	1200	EA/TA		

Note

• Embossed Carrier Tape per EIA-481.



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