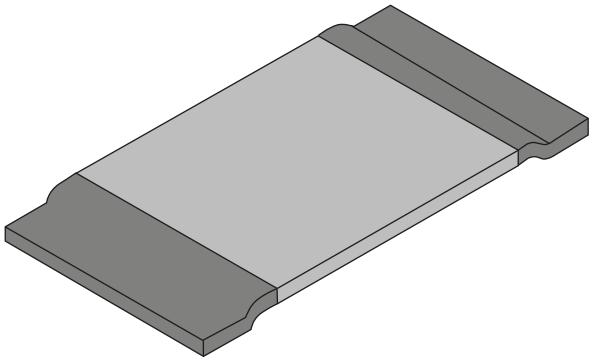
Power Metal Strip® Resistors, Low Value, Surface Mount



FEATURES

- Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments and power amplifiers
- Proprietary processing technique produces extremely low resistance values down to 0.002 Ω
- All welded construction
- Solid metal manganese-copper alloy resistive element with low TCR (< 20 ppm/°C)
- Solderable terminations
- Low thermal EMF (< 3 µV/°C)
- Very low inductance 0.5 nH to 5 nH
- Excellent frequency response to 50 MHz
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

e2 RoHS* Available

HALOGEN FREE Available

GREEN (5-2008) Available

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

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70\,°C}$ W	TOLERANCE ± %	RESISTANCE VALUE RANGE Ω	WEIGHT (typical) g/1000 pieces
WSR2...3	4022	3.0	1.0	0.002 to 0.005	169

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	± 175
Inductance	nH	< 3
Operating temperature range	°C	-65 to +170
Maximum working voltage	V	$(P \times R)^{1/2}$

GLOBAL PART NUMBER INFORMATION

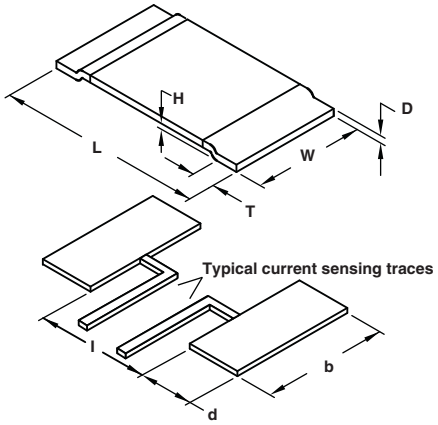
Global Part Numbering example: WSR23L000FEA3

W	S	R	2	3	L	0	0	0	F	E	A	3

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
WSR2	**L** = mΩ **2L000** = 0.002 Ω **5L000** = 0.005 Ω	**D** = ± 0.5 % **F** = ± 1.0 % **J** = ± 5.0 %	**EA** = lead (Pb)-free, tape / reel **EK** = lead (Pb)-free, bulk **TA** = tin / lead, tape/reel (R86) **BA** = tin / lead bulk (B43)	**3** for special design with no mold compound

For technical questions, contact: ww2bresistors@vishay.com

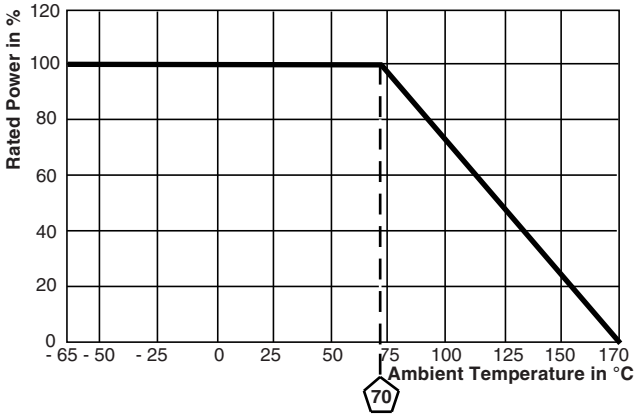
DIMENSIONS in inches (millimeters)



MODEL	DIMENSIONS				SOLDER PAD DIMENSIONS		
	L	W	H	T	a	b	l
WSR2...3	0.400 ± 0.010 (10.16 ± 0.254)	0.215 ± 0.010 (5.46 ± 0.254)	0.029 ± 0.005 (0.737 ± 0.127)	0.075 ± 0.010 (1.91 ± 0.254)	0.100 (2.540)	0.235 (5.969)	0.240 (5.080)

Note
(1) 0.1" x 0.1" area in the center of the resistor will be flat and free of any trim cuts to facilitate pick and place nozzle

DERATING



PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	(± 0.5 % + 0.0005 Ω) ΔR
Short time overload	5x rated power for 5 s	(± 1.0 % + 0.0005 Ω) ΔR
Low temperature operation	-65 °C for 24 h	(± 0.5 % + 0.0005 Ω) ΔR
High temperature exposure	1000 h at +170 °C	(± 1.0 % + 0.0005 Ω) ΔR
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	(± 0.5 % + 0.0005 Ω) ΔR
Mechanical shock	100 *g*'s for 6 ms, 5 pulses	(± 0.5 % + 0.0005 Ω) ΔR
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	(± 0.5 % + 0.0005 Ω) ΔR
Load life	1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF"	(± 2.0 % + 0.0005 Ω) ΔR

PACKAGING				
MODEL	REEL			
	TAPE WIDTH	DIAMETER	PIECES/REEL	CODE
WSR2...3	16 mm/embossed plastic	330 mm/13"	5000	EA

Note
- Embossed Carrier Tape per EIA-481

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