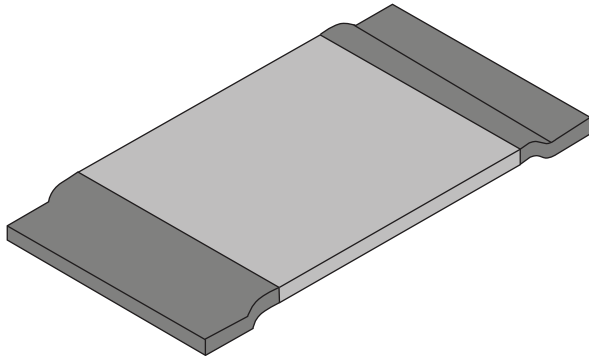




Power Metal Strip® Resistors, Low Value, Surface Mount



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 μ V/°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


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 $P_{70\text{ }^{\circ}\text{C}}$ W	TOLERANCE \pm %	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

WSR2

RESISTANCE VALUE

L = m Ω
2L000 = 0.002 Ω
5L000 = 0.005 Ω

TOLERANCE CODE

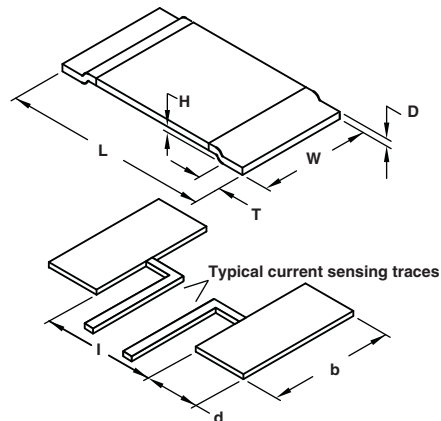
D = ± 0.5 %
F = ± 1.0 %
J = ± 5.0 %

PACKAGING CODE

EA = lead (Pb)-free, tape / reel
EK = lead (Pb)-free, bulk
TA = tin / lead, tape/reel (R86)
BA = tin / lead bulk (B43)

SPECIAL

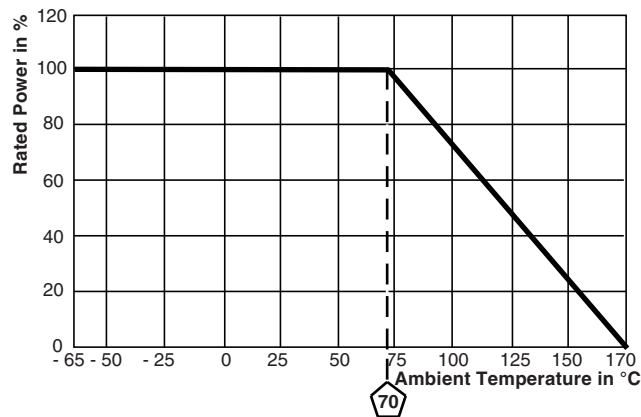
3 for special design with no mold compound

**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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.