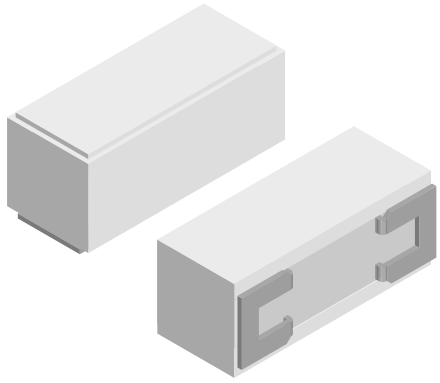
Wirewound/Metal Oxide Resistors, Commercial Power, Surface Mount



FEATURES

- Direct mounting on printed circuit board
- High wattage capabilities, low board temperatures
- Meets or exceeds EIA-RS-344 requirements
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Superior surge capability
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{40\,°C}$ W	RESISTANCE RANGE Ω WIREWOUND	RESISTANCE RANGE Ω METAL OXIDE	TOLERANCE ± %	WEIGHT (typical) g
CPSM03	CPSM-3	3	0.1 to 100	-	5, 10	5.5
CPSM05	CPSM-5	5	0.1 to 100	110 to 33K	5, 10	6.5

Note

- E24 decade values are available, although others may be available upon request

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CPSM RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 400
Short Time Overload	-	5 x rated power for 5 s
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Terminal Strength	lb	10 minimum
Operating Temperature Range	°C	-65 to +275 for wirewound, -65 to +225 for metal oxide

GLOBAL PART NUMBER INFORMATION

Global Part Numbering Example: CPSM0315R00JE31

C	P	S	M	0	3	1	5	R	0	0	J	E	3	1			

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
CPSM03 **CPSM05**	**R** = decimal **K** = thousand **R1500** = 0.15 Ω **100R0** = 100 Ω **1K000** = 1 kΩ	**J** = ± 5.0 % **K** = ± 10 %	**E31** = lead (Pb)-free, 4 layer bulk	(dash number) (up to 3 digits) from **1 to 999** as applicable

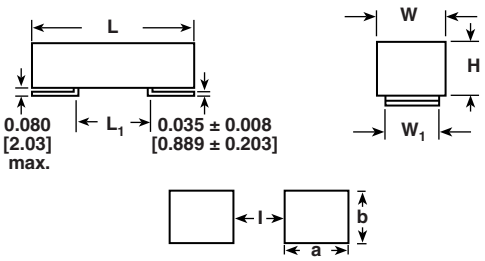
Historical Part Numbering Example: CPSM-3 15 Ω 5 % E31

CPSM-3	15 Ω	5 %	E31
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

For technical questions, contact: ww2bresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

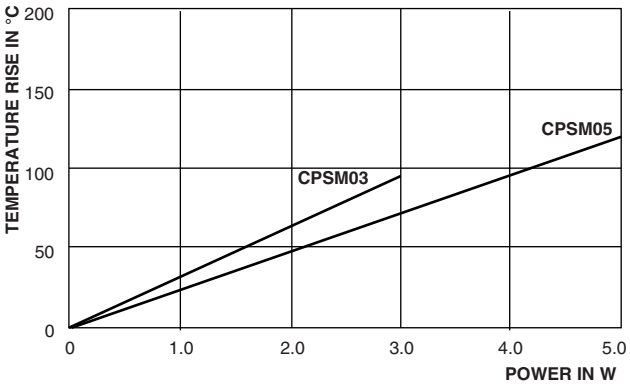
DIMENSIONS



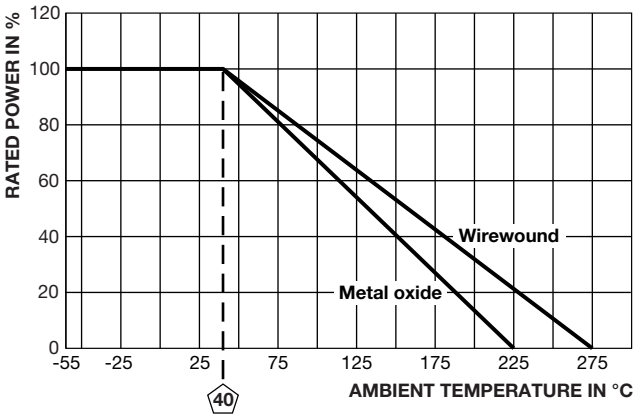
MODEL	DIMENSIONS in inches [millimeters]				
	L ± 0.059 [1.50]	W ± 0.039 [0.99]	L_1 ± 0.059 [1.50]	W_1 ± 0.016 [0.406]	H ± 0.039 [0.99]
CPSM03	0.944 [23.98]	0.354 [8.99]	0.492 [12.50]	0.287 [7.29]	0.354 [8.99]
CPSM05	1.10 [27.94]	0.394 [10.01]	0.590 [14.99]	0.287 [7.29]	0.394 [10.01]

MODEL	SOLDER PAD DIMENSIONS in inches [millimeters]		
	a	b	l
CPSM03	0.420 [10.67]	0.340 [8.64]	0.380 [9.65]
CPSM05	0.440 [11.18]	0.340 [8.64]	0.490 [12.45]

TEMPERATURE RISE



DERATING



MATERIAL SPECIFICATIONS	
Element	Wirewound = copper-nickel alloy or nickel-chrome alloy, depending on resistance value; metal oxide = high temperature fired metal oxide film
Core	Ceramic
Body	Steatite ceramic case with cement potting compound
Terminals	Tin plated steel
Part Marking	Dale, model, wattage, value, tolerance, date code

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	-55 °C to +275 °C (+225 °C for metal oxide), 5 cycles, 30 min dwell time	± (5.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 s	± (4.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{RMS} for 1 min	± (2.0 % + 0.05 Ω) ΔR
Low Temperature Operation	-65 °C, full rated working voltage for 45 min	± (3.0 % + 0.05 Ω) ΔR
Humidity	75 °C, 90 % to 100 % RH, 240 h	± (5.0 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, +40 °C, 1.5 h “ON”, 0.5 h “OFF”	± (10.0 % + 0.05 Ω) ΔR
Terminal Strength	5 pounds for 30 s; body twisted about axis, 3 x 360° rotations	± (2.0 % + 0.05 Ω) ΔR
Resistance to Solder Heat	Terminal immersed 3.5 s in molten solder at 1/8" to 3/16" from body	± (4.0 % + 0.05 Ω) ΔR

For technical questions, contact: ww2bresistors@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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.

© 2022 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED