

DATA SHEET

FIBERGLASS CEMENT RESISTORS

Power, Wirewound, Vertical Mount
PSM Series

±5%, ±10%

4W to 17W

RoHS compliant & Halogen Free





APPLICATIONS

- Power applications
- Home appliance
- Industry

FEATURES

- Fiberglass core, high ohmic
- Miniaturization
- Axial terminal
- Flameproof ceramic case
- RoHS compliant and halogen free

ORDERING INFORMATION

Part number of the fiberglass cement resistor is identified by the series, power rating, tolerance, packing, temperature coefficient and resistance value.

PART NUMBER

<u>PSM</u>	<u>400</u>	<u>J</u>	<u>B</u>	<u>-</u>	<u>100R</u>
(1)	(2)	(3)	(4)	(5)	(6)

(1) SERIES

PSM series

(2) POWER RATING

400 = 4W	900 = 9W
500 = 5W	11A = 11W
7WS = 7 W	17A = 17W
700 = 7W	

(3) TOLERANCE

J = ±5%	K = ±10%
---------	----------

(4) PACKAGING

B = Bulk

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

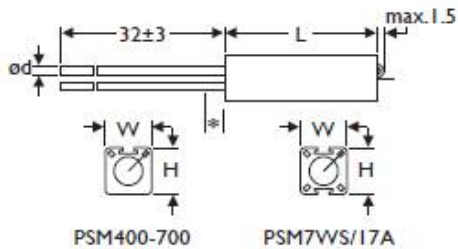
- = Based on spec.

(6) RESISTANCE VALUE

E24 Series
 Example:
 0R1 = 0.1Ω, 100R = 100Ω, 1K = 1,000Ω

DIMENSIONS

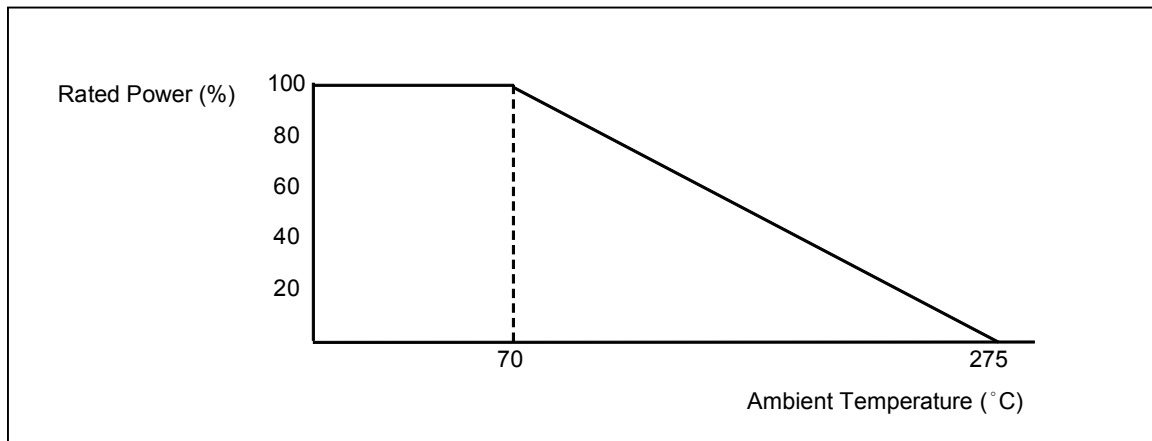
Unit: mm



	Normal	Miniature	L	W	H	φd
PSM400	-		20±1.0	7.0±0.5	8.0±0.4	0.8±0.02
PSM500	-		25±1.0	7.0±0.5	8.0±0.4	0.8±0.02
-		PSM7WS	25±1.0	9.0±0.4	10.0±0.4	0.8±0.02
PSM700	-		38±1.0	7.0±0.5	8.0±0.4	0.8±0.02
PSM900	-		38±1.0	9.0±0.4	10.0±0.4	0.8±0.02
PSM11A	-		50±1.0	9.0±0.4	10.0±0.4	0.8±0.02
PSM17A	-		75±1.0	9.0±0.4	10.0±0.4	0.8±0.02

* 6mm, reduced solderability in this area

DERATING CURVE



ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	PSM400	PSM500	PSM7WS	PSM700	PSM900	PSM11A	PSM17A
Power Rating at 70 °C	4W	5W	7W	7W	9W	11W	17W
Voltage Proof on Insulation	2000V	2000V	2000V	2000V	2000V	2000V	2000V
Maximum Working Voltage	$\sqrt{(P \times R)}$						
Resistance Range	0.1Ω ~ 2.2KΩ	0.1Ω ~ 2.2KΩ	0.1Ω ~ 2.5KΩ	0.1Ω ~ 3.9KΩ	0.1Ω ~ 3.9KΩ	1Ω ~ 10KΩ	1Ω ~ 10KΩ
Operating Temp. Range	- 55°C to +275°C						
Temperature Coefficient	see table I						

Note: For resistance value out of above range is by request.

TABLE I TEMPERATURE COEFFICIENT

TYPE	TEMP. COEFFICIENT ± 400 PPM/ °C	TEMP. COEFFICIENT ± 100 PPM/ °C
PSM400	$\leq 0.2\Omega$	$\geq 0.22\Omega$
PSM500	$\leq 0.3\Omega$	$\geq 0.33\Omega$
PSM700	$\leq 0.68\Omega$	$\geq 0.75\Omega$
PSM7WS	$\leq 0.3\Omega$	$\geq 0.33\Omega$
PSM900	$\leq 0.68\Omega$	$\geq 0.75\Omega$
PSM11A	$\leq 1\Omega$	$\geq 1.1\Omega$
PSM17A	$\leq 1.6\Omega$	$\geq 1.8\Omega$

TEST AND REQUIREMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	10 times rated power for 5 sec.	$\pm 2.0\% + 0.05\Omega$
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec. test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to $+155^{\circ}\text{C}$	By Type
Insulation Resistance	IEC 60115-1 4.6	In V-Block for 60 sec.	$> 10,000\text{M}\Omega$
Solderability	IEC 60115-1 4.17	$245 \pm 5^{\circ}\text{C}$ for 3 ± 0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5 ± 0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	$\geq 50\text{N}$
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	$\pm 2.0\% + 0.05\Omega$
Damp Heat Steady State	IEC 60115-1 4.24	$40 \pm 2^{\circ}\text{C}$, 90-95% RH for 56 days, loaded with 0.1 times RCWV	$\pm 2.0\% + 0.05\Omega$
Endurance at 70°C	IEC 60115-1 4.25	$70 \pm 2^{\circ}\text{C}$ at RCWV (or U_{max} , whichever less) for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	$\pm 3.0\% + 0.05\Omega$
Temperature Cycling	IEC 60115-1 4.19	$\rightarrow -55^{\circ}\text{C} \rightarrow \text{Room Temp.} \rightarrow +155^{\circ}\text{C}$ Room Temp. (5 cycles)	$\pm 2.0\% + 0.05\Omega$
Resistance to Soldering Heat	IEC 60115-1 4.18	$260 \pm 3^{\circ}\text{C}$ for 10 ± 1 Sec., immersed to a point $3 \pm 0.5\text{mm}$ from the body	$\pm 2.0\% + 0.05\Omega$

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$V = \sqrt{P \times R}$$

or max. working voltage whichever is less

Where

V=Continuous rated DC or
AC (rms) working voltage (V)

P=Rated power (W)

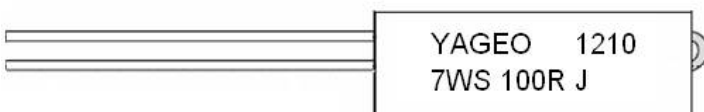
R=Resistance value (Ω)

BULK PACKING

Unit: Piece

Normal	Miniature	PACKAGE	Quantity
PSM400	-	Bulk	1,000
PSM500	-	Bulk	1,500
PSM700	-	Bulk	600
-	PSM7WS	Bulk	500
PSM900	-	Bulk	500
PSM11A	-	Bulk	500
PSM17A	-	Bulk	500

MARKING



Example:

YAGEO	= Brand
1210	= Date code
7WS	= Power rating
100R	= Resistance
J	= Tolerance

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	Aug.2, 2021	-	- First issue of this specification

“ Yageo reserves all the rights for revising the content of this datasheet without further notification, as long as the products itse lf are unchanged. Any product change will be announced by PCN.”

LEGAL DISCLAIMER

YAGEO, its distributors and agents (collectively, "YAGEO"), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. YAGEO may make changes, modifications and/or improvements to product related information at any time and without notice.

YAGEO makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, YAGEO disclaims (i) any and all liability arising out of the application or use of any YAGEO 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 a particular purpose, non-infringement and merchantability.

YAGEO products are designed for general purpose applications under normal operation and usage conditions. Please contact YAGEO for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property: Aerospace equipment (artificial satellite, rocket, etc.), Atomic energy-related equipment, Aviation equipment, Disaster prevention equipment, crime prevention equipment, Electric heating apparatus, burning equipment, Highly public information network equipment, data-processing equipment, Medical devices, Military equipment, Power generation control equipment, Safety equipment, Traffic signal equipment, Transportation equipment and Undersea equipment, or for any other application or use in which the failure of YAGEO products could result in personal injury or death, or serious property damage. Particularly **YAGEO Corporation and its affiliates do not recommend the use of commercial, automotive, and/or COTS grade products for high reliability applications or manned space flight.**

Information provided here is intended to indicate product specifications only. YAGEO reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.