

# 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**

<b>PSM</b> (1)	<b>400</b> (2)	<b>J</b> (3)	<b>B</b> (4)	<b>-</b> (5)	<b>100R</b> (6)
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**(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%
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**(4) PACKAGING**

B = Bulk

**(5) TEMPERATURE COEFFICIENT OF RESISTANCE**

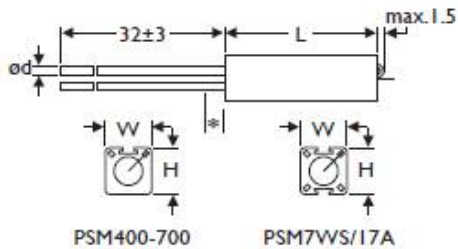
- = Based on spec.

**(6) RESISTANCE VALUE**

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

**DIMENSIONS**

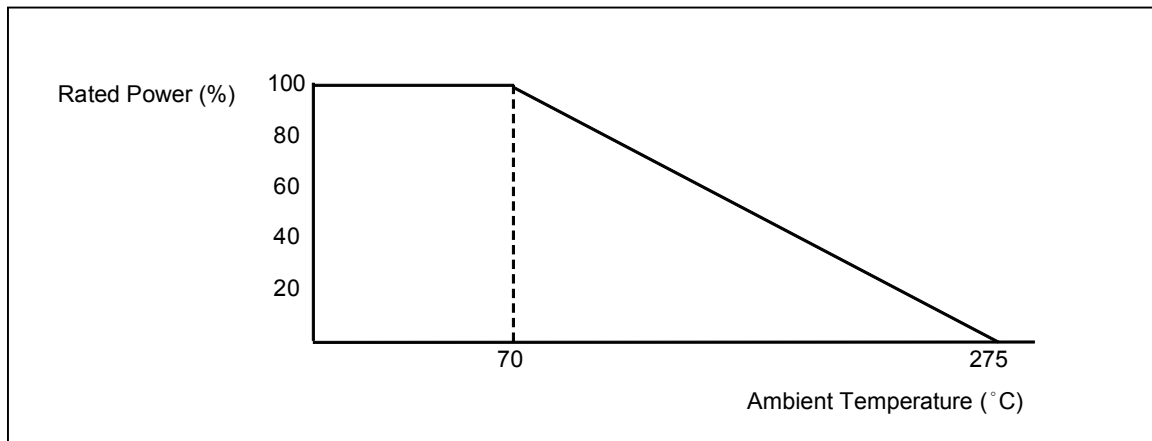
Unit: mm



	Normal	Miniature	L	W	H	ψd
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 $\pm 400$ PPM/ °C	TEMP. COEFFICIENT $\pm 100$ 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 $-55^{\circ}\text{C}$ 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 $3 \pm 0.5$ Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for $5 \pm 0.5$ 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 $70^{\circ}\text{C}$	IEC 60115-1 4.25	$70 \pm 2^{\circ}\text{C}$ at RCWV (or $U_{\text{max}}$ , 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 $10 \pm 1$ 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)

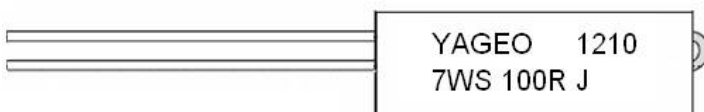
R=Resistance value ( $\Omega$ )

**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

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