

# DATA SHEET

## FIBERGLASS CEMENT RESISTORS

Power, Wirewound, Vertical Mount  
PSM Series

±5%, ±10%

4W to 17W

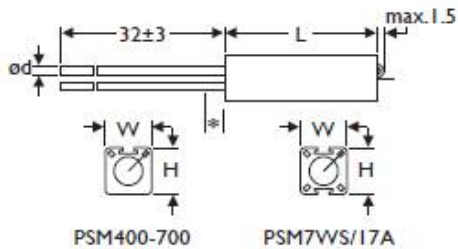
RoHS compliant & Halogen Free





**DIMENSIONS**

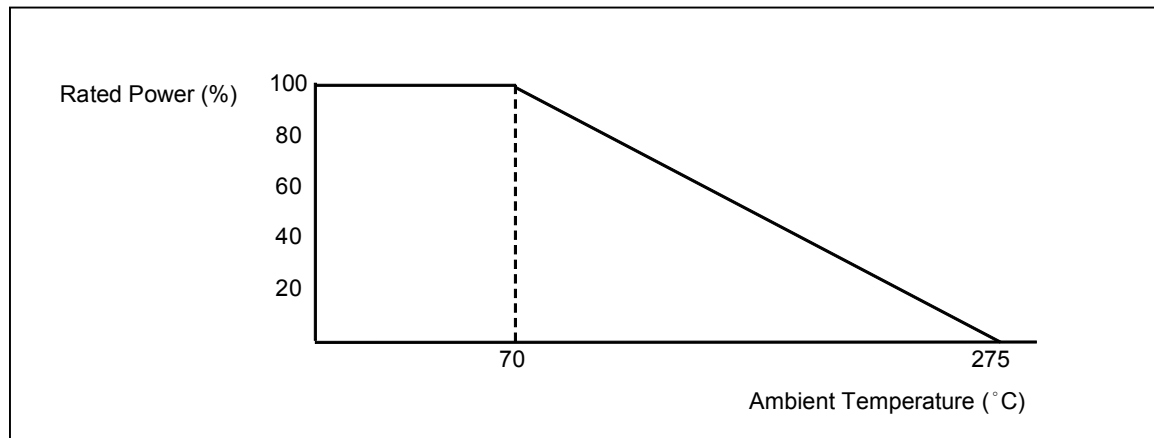
Unit: mm



	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)

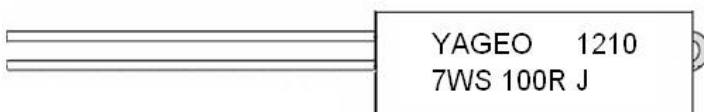
R=Resistance value ( $\Omega$ )

**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

*“ 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 statements regarding the suitability of products for certain types of applications are based on Yageo's knowledge of typical operating conditions for such types of applications in a generic nature. Such statements are neither binding statements of Yageo nor intended to constitute any warranty concerning the suitability for a specific customer application or use. They are intended for use only by customers with requisite knowledge and experience for determining whether Yageo products are the correct products for their application or use. In addition, unpredictable and isolated cases of product failure may still occur, therefore, customer application or use of Yageo products which requires higher degree of reliability or safety, shall employ additional protective safeguard measures to ensure that product failure would not result in personal injury or property damage.

Yageo products are not designed for application or use in medical, life-saving, or life-sustaining devices or for any other application or use in which the failure of Yageo products could result in personal injury or death. Customers using or selling Yageo products not expressly indicated for above-mentioned purposes shall do so at their own risk and agree to fully indemnify Yageo and hold Yageo harmless.

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.