Metal Oxide Film Resistors, Flameproof, Bath-tub Type

Type: **ERGZ (5 W, 7 W)**

Matsushita bath-tub flameproof metal oxide film resistors consist of our finest tin oxide film elements and fine ceramic cases, and are filled with a qualified special cement.
All resistors are inorganically constructed and the two main flameproof characteristics are that the resistors will open clearly under overloads and/or will not support spontaneous combustion.

■ Features

- **Flameproof**
  It is excellent to safety, by the noniflammable nature structure that was done appearance with a ceramic case.
- **Uniform Quality Reliable**
  An exclusive automated process-developed, built, and used only by Matsushita and severe quality-control system result uniform quality and consistent performance in reliability.
- **High Dielectric Withstanding Voltage**
  Because of their fine ceramic cases and qualified special cement Matsushita bath-tub type metal oxide film resistor may withstand a high potential up to 1000 V.
- **Resistance Value Range**
  The high resistance range is possible production.
- **Reference Standards**
  IEC 60115-4

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11
E	R	G	5		Z	J	1	0	3	

Product Code

Fixed Metal Oxide Film Resistors

Power Rating

5	5 W
7	7 W

Style of Terminal with Fixture

ZX	Short terminal
ZY	Long terminal
Z	Long terminal (Dual nail)

Resistance Tolerance

G	±2 %
J	±5 %

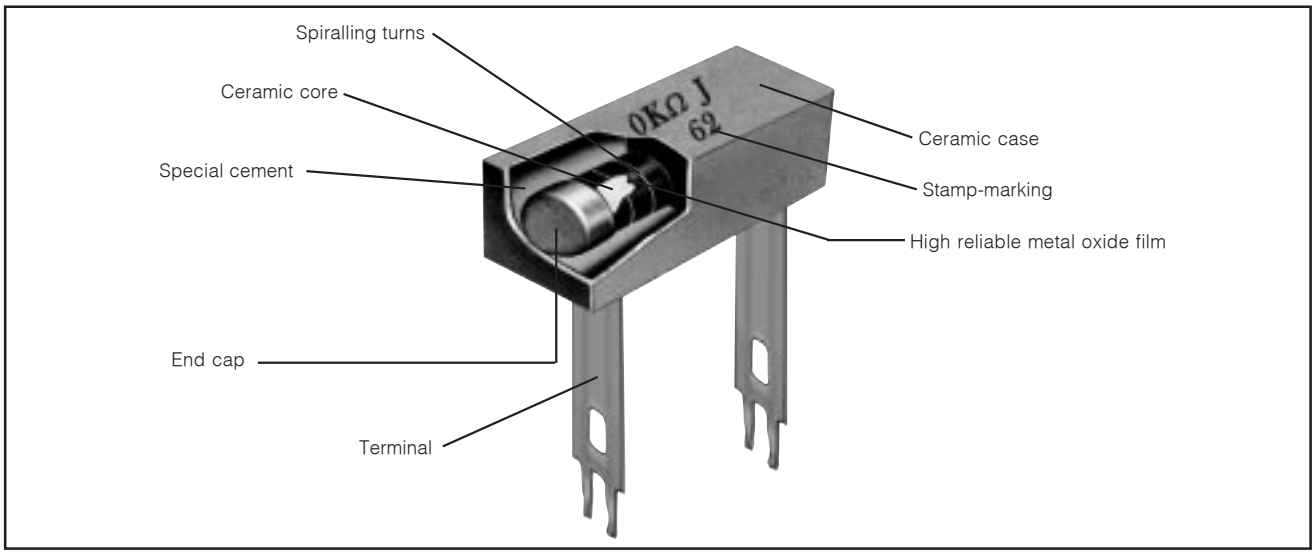
Resistance Value

The first two digits are significant figures of resistance and the third one denotes number of zeros following.

Suffix for Special Features or Packing

The above example shows a standard bath-tub type metal oxide film resistor (Long terminal), 5 W power rating, resistance value of 10 kΩ, tolerance of 5 %, and standard Matsushita packing.

■ Constructions



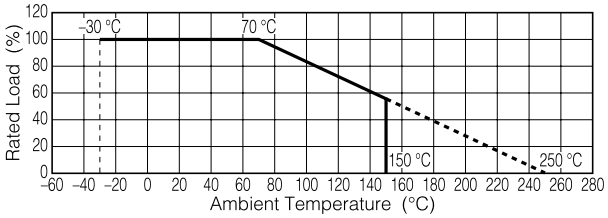
ERGZ (Off PC Board Type)

■ Ratings

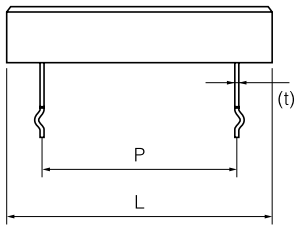
Type		Power Rating (W)	Resistance Range (Ω)		Dielectric Withstanding Voltage (VAC)
			min.	max.	
ERG5Z	X	5	150	51 k	1000
	Y				
ERG7Z	X	7	560	10 k	1000
	Y				

Power Derating Curve

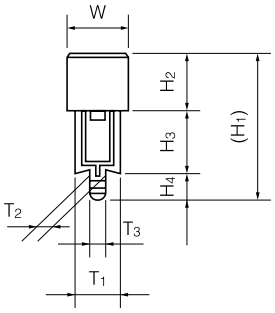
For resistors operted in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure below.



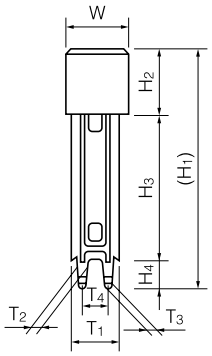
■ Dimensions in mm (not to scale)



(ZX, ZY)



(Z)

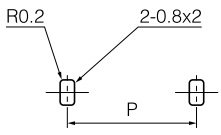
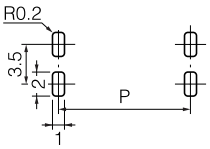


Type		Dimensions (mm)						
		L	P	W±1.0	(H_1)	H_2±1.0	$H_3{}^{+2}_{-1}$	H_4±0.5
ERG5Z	X	27.0±1.0	(15.0)(1)	9.5	24	9.5	10	4.5
	Y	27.0±1.0	(15.0)(1)	9.5	39	9.5	25	4.5
		27.0±1.0	(15.0)(2)	9.5	36	9.5	22	4.5
ERG7Z	X	35.0±1.0	(22.5)(1)	9.5	24	9.5	10	4.5
	Y	35.0±1.0	(22.5)(1)	9.5	39	9.5	25	4.5
		35.0±1.0	(22.5)(2)	9.5	36	9.5	22	4.5

Type		Dimensions (mm)					Mass (Weight) [g/pc.]
		T_1±0.3	T_2±0.2	T_3±0.2	T_4	(t)	
ERG5Z	X	7.3	1.6	1.4	—	0.5	6
	Y	7.3	1.6	1.4	—	0.5	7
		7.3	1.5	1.0	3.5	0.5	6.9
ERG7Z	X	7.3	1.6	1.4	—	0.5	7.6
	Y	7.3	1.6	1.4	—	0.5	8.6
		7.3	1.5	1.0	3.5	0.5	8.5

Note: (1) Tolerance –1.5 to +3, (2) Tolerance +2 to +6

Recommended PCB Hole

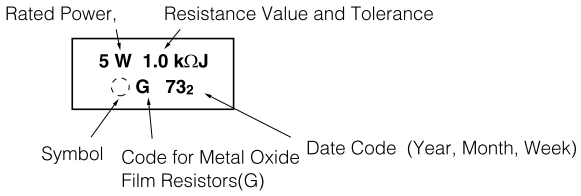
Power Rating	Dimensions (mm) ZX · ZY	Dimensions (mm) Z	P
5 W			15
7 W			22.5

■ Pakaging Methods

Contact factory pakaging methods.

■ Explanation of Marking

Black stamp



⚠Cautions for Safety

The following are precautions for individual products. Please also refer to the precautions common to Fixed Resistors shown on page ER3 of this catalog.

1. Checking for pulse voltage, impact voltage, and transient voltage
   Make sure to evaluate and check Metal Oxide Film Resistor (hereafter called the Resistors) mounted on your product if they are to be mounted on a circuit that generates an impact voltage, or if there is a possibility that the transient phenomenon (significantly high voltage applied in a short time) may occur or that a pulse voltage with a high peak voltage may be applied. Make sure to consult our sales staff before using the Resistors under special conditions.
2. Rated power and ambient temperature
   Keep the rated power and ambient temperature within the specified derating curve.
   The power rating should be within the derating curve. Furthermore, it is recommended that you make maximum allowance for the capacity of power within the curve.
   * When positioning and mounting the Resistors, make allowance for the effect of heat generated through close contact between the Resistors and neighboring components and for the temperature rise of adjacent heat-generating components.

⚠Caution for Safety
(Common precautions for Fixed Resistors)

- When using our products, no matter what sort of equipment they might be used for, be sure to make a written agreement on the specifications with us in advance. The design and specifications in this catalog are subject to change without prior notice.
- Do not use the products beyond the specifications described in this catalog.
- This catalog explains the quality and performance of the products as individual components. Before use, check and evaluate their operations when installed in your products.
- Install the following systems for a failsafe design to ensure safety if these products are to be used in equipment where a defect in these products may cause the loss of human life or other significant damage, such as damage to vehicles (automobile, train, vessel), traffic lights, medical equipment, aerospace equipment, electric heating appliances, combustion/gas equipment, rotating equipment, and disaster/crime prevention equipment.

✻ Systems equipped with a protection circuit and a protection device
✻ Systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault

(1) Precautions for use

- These products are designed and manufactured for general purpose and standard use in general electronic equip ment (e.g. AV equipment, home electric appliances, office equipment, information and communication equipment)
- These products are not intended for use in the following special conditions. Before using the products, carefully check the effects on their quality and performance, and determine whether or not they can be used.
  1. In liquid, such as water, oil, chemicals, or organic solvent
  2. In direct sunlight, outdoors, or in dust
  3. In salty air or air with a high concentration of corrosive gas, such as Cl_2, H_2S, NH_3, SO_2, or NO_2
  4. In an environment where strong static electricity or electromagnetic waves exist
  5. In an environment where these products cause dew condensation
  6. Sealing or coating of these products or a printed circuit board on which these products are mounted, with resin or other materials
- These products generate Joule heat when energized. Carefully position these products so that their heat will not affect the other components.
- Carefully position these products so that their temperatures will not exceed the category temperature range due to the effects of neighboring heat-generating components. Do not mount or place heat-generating components or inflammables, such as vinyl-coated wires, near these products .
- Note that non-cleaning solder, halogen-based highly active flux, or water-soluble flux may deteriorate the perfor mance or reliability of the products.
- Carefully select a flux cleaning agent for use after soldering. An unsuitable agent may deteriorate the performance or reliability. In particular, when using water or a water-soluble cleaning agent, be careful not to leave water residues. Otherwise, the insulation performance may be deteriorated.

(2) Precautions for storage

The performance of these products, including the solderability, is guaranteed for a year from the date of arrival at your company, provided that they remain packed as they were when delivered and stored at a temperature of 5 °C to 35 °C and a relative humidity of 45 % to 85 %.

Even within the above guarantee periods, do not store these products in the following conditions. Otherwise, their electrical performance and/or solderability may be deteriorated, and the packaging materials (e.g. taping materials) may be deformed or deteriorated, resulting in mounting failures.

1. In salty air or in air with a high concentration of corrosive gas, such as Cl_2, H_2S, NH_3, SO_2, or NO_2
2. In direct sunlight

<Package markings>
Package markings include the product number, quantity, and country of origin.
In principle, the country of origin should be indicated in English.