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# Panasonic

## Metal Film Resistors

### Metal Film Resistors

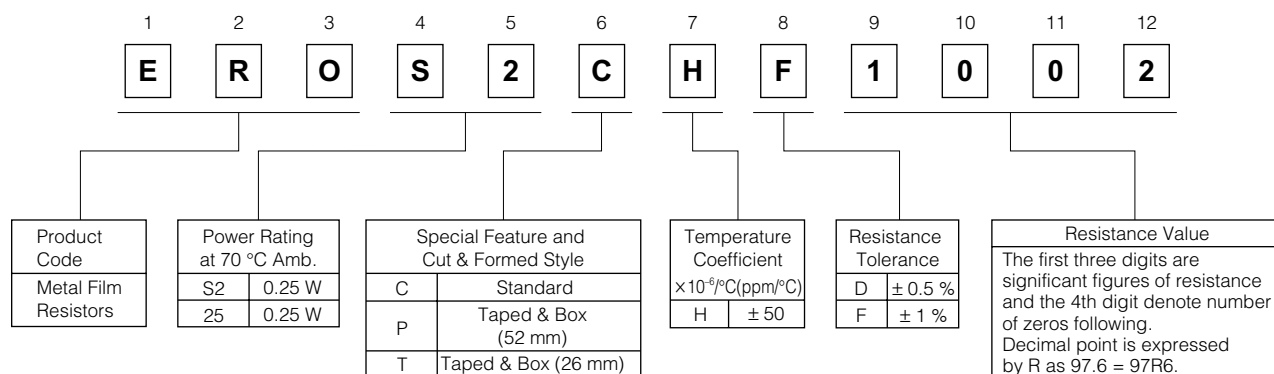
Type: **EROS2 (0.25 W)**  
**ERO25 (0.25 W)**



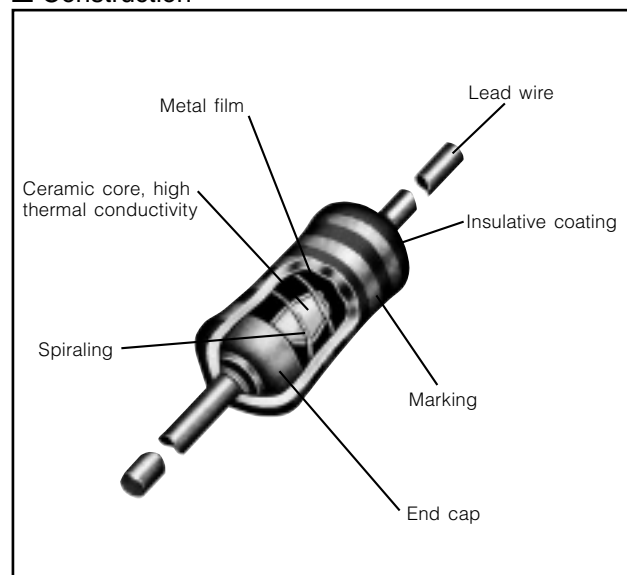
#### ■ Features

- Performance, Reliability..... Low T.C.R. and noise, high reliability
- Automatic insertion..... Taping style for automatic inserting machine
- Marking..... 5 color code marking
- Reference Standards ..... IEC 60115-2, JIS C 5201-2

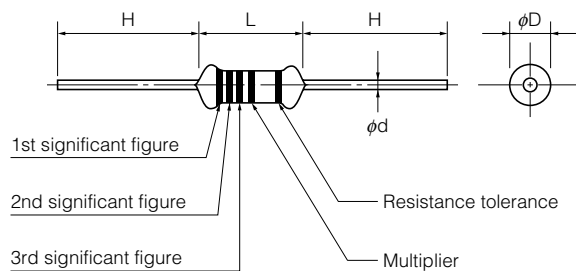
#### ■ Explanation of Part Numbers



#### ■ Construction



#### ■ Dimensions in mm (not to scale)



Standard Quantity : 2000 pcs.

Type	Dimensions (mm)				Mass (Weight) [mg/pc.]
	L	φD	φd	H	
EROS2C	3.20 <sup>+0.20</sup> <sub>-0.10</sub>	1.70 <sup>+0.20</sup> <sub>-0.10</sub>	0.45 <sup>+0.05</sup>	30 <sup>+3</sup>	107
ERO25C	6.30 <sup>+0.50</sup>	2.30 <sup>+0.50</sup>	0.60 <sup>+0.05</sup>	30 <sup>+3</sup>	228

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## Metal Film Resistors

### ■ Ratings

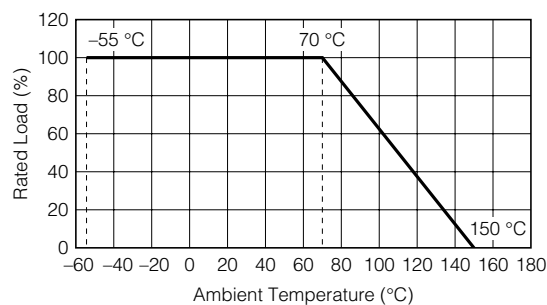
Type	Power Rating at 70 °C (W)	Limiting Element Voltage (Maximum RCWV) <sup>(1)</sup> (V)	Maximum Overload Voltage <sup>(2)</sup> (V)	Dielectric Withstanding Voltage (VAC)	T.C.R. [ $\times 10^{-6}/^{\circ}\text{C}$ (ppm/ $^{\circ}\text{C}$ )]	Resistance Tolerance (%)	Resistance Range ( $\Omega$ )		Resistance Value
							min.	max.	
EROS2	0.25	250	500	300	$\pm 50$	F( $\pm 1$ ) D( $\pm 0.5$ )	10	1 M	E24 E96
ERO25	0.25	250	500	500	$\pm 50$	F( $\pm 1$ ) D( $\pm 0.5$ )	10	1 M	E24 E96

(1) Rated Continuous Working Voltage (RCWV) shall be determined from  $\text{RCWV} = \sqrt{\text{Power Rating} \times \text{Resistance Value}}$ , or Limiting Element Voltage (maximum RCWV) listed above, whichever less.

(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from  $\text{SOTV} = 2.5 \times \text{Power Rating}$  or max. Overload Voltage listed above whichever less.

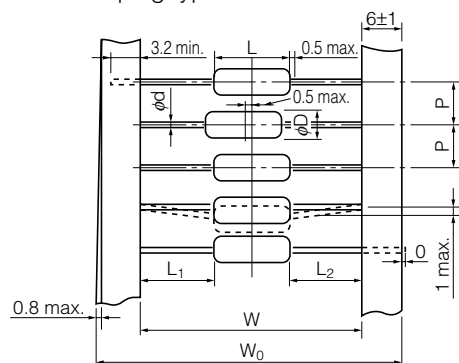
### Power Derating Curve

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



### ■ Shape and Packaging

#### ● Axial taping type

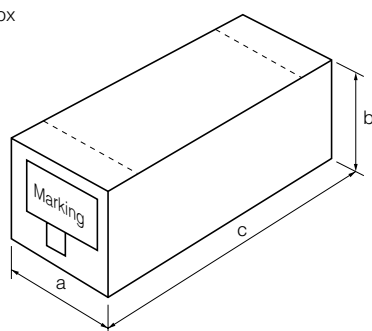


Shape	L max.	$\phi D$ max.	$\phi d$	P $\pm 0.3$	W	W <sub>0</sub>
①	3.4	1.9	0.45	5.0	$26^{+1}_{-0}$	41.5max.
②	3.4	1.9	0.45	5.0	$52 \pm 1$	$64.5 \pm 0.5$
③	6.5	2.5	0.6	5.0	$26^{+1}_{-0}$	41.5max.
④	6.5	2.5	0.6	5.0	$52 \pm 1$	$64.5 \pm 0.5$

①  $L_1 - L_2 \leq 1.0$

② Cumulative  $250 \pm 2$  mm by 50 pitch

Flat box

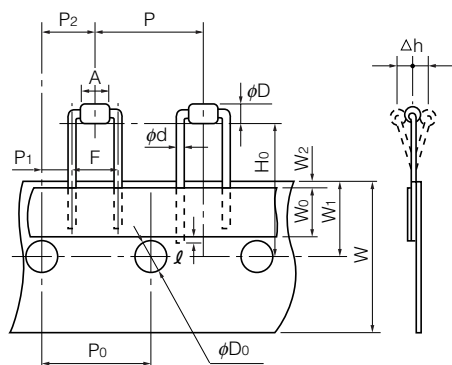


Packaging	Shape	Type	Part Numbers	Std. Qty. (pcs./box)	Size of box a×b×c (mm)
26 mm Axial taping	①	Metal Film R	EROS2THO□□□□	5000	52×85×255
52 mm Axial taping	②	Metal Film R	EROS2PHO□□□□	5000	78×85×255
26 mm Axial taping	③	Metal Film R	ERO25THO□□□□	4000	52×95×255
52 mm Axial taping	④	Metal Film R	ERO25PHO□□□□	2000	78×58×255

# Panasonic

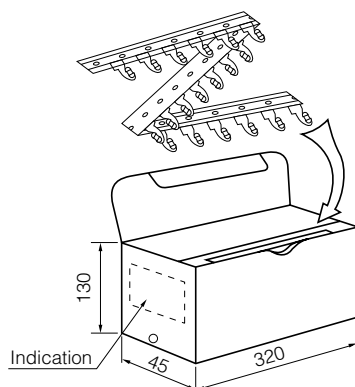
## Metal Film Resistors

### ● Radial Taping for small type



Type	Part Numbers	Std. Qty. (pcs.)
Metal Film R	EROS2GHO□□□□	2000

Dimensions (mm)		Dimensions (mm)		Dimensions (mm)	
P	12.7±1.0	W <sub>0</sub>	5 min.	Δh	0±2
P <sub>0</sub>	12.7±0.3	W <sub>1</sub>	9.0±0.5	t	0.7±0.2
P <sub>1</sub>	3.85±0.70	W <sub>2</sub>	3 max.	A	3.2±0.2
P <sub>2</sub>	6.35±1.00	H <sub>0</sub>	19.0 <sup>+1.0</sup> <sub>-0.5</sub>	φD	1.7 <sup>+0.2</sup> <sub>-0.1</sub>
F	5.0±0.5	φD <sub>0</sub>	4.0±0.2	φd	0.45±0.05
W	18.0±0.5	ℓ	0 max.		



### ⚠ Safety Precautions

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

- Keep the rated power and ambient temperature within the specified derating curve.  
\* When positioning and mounting Metal Film Resistors (hereafter called 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.
- If a transient load (heavy load in a short time) like a pulse is expected to be applied, check and evaluate the operations of the resistors when installed in your products before use.  
When applying pulses to the resistors, keep the pulse peak within the rated voltage.
- When the resistors' protective coatings are chipped, flawed, or removed, the characteristics of the resistors may be impaired. Take special care not to apply mechanical shock during automatic mounting or cause damage during handling of the boards with the resistors mounted.
- Ultrasonic cleaning may cut the lead wire due to resonance. Try and check it before use.

# Panasonic

## ⚠ Safety Precautions

### (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 and standard use in general electronic equipment (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<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, or NO<sub>2</sub>
  4. Electric Static Discharge (ESD) Environment
 

These components are sensitive to static electricity and can be damaged under static shock (ESD). Please take measures to avoid any of these environments.

Smaller components are more sensitive to ESD environment.
  5. Electromagnetic Environment
 

Avoid any environment where strong electromagnetic waves exist.
  6. In an environment where these products cause dew condensation
  7. 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 performance 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<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, or NO<sub>2</sub>
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.