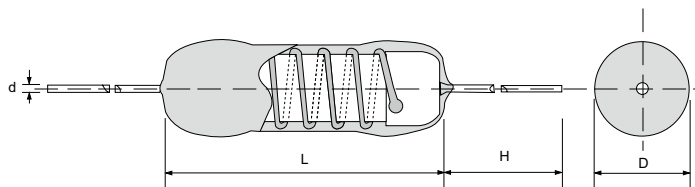


## Specifications Per

• IEC 60115-1, 60115-4

## Features

- Flameproof multi-layer coating equivalent to UL 94 V-0
- Flameproof feature equivalent to overload test UL 1412
- Enhanced weld spot is reliable against surge
- Special tin-plated electrolytic copper lead wire
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency
- SWA series is applied in high surge applications such as high rush current protection for power capacitor, motor start-up protection, car & motorcycle engine ignition, etc. to absorb harmful surge energy, so to prevent hazard of circuit damage caused by surge energy



[\*structure pending patent approval]  
Taiwan patent number: M530462  
Japan patent number: 3208923  
China patent number: 6433867  
Korean patent number: 20-0486309

## DIMENSIONS

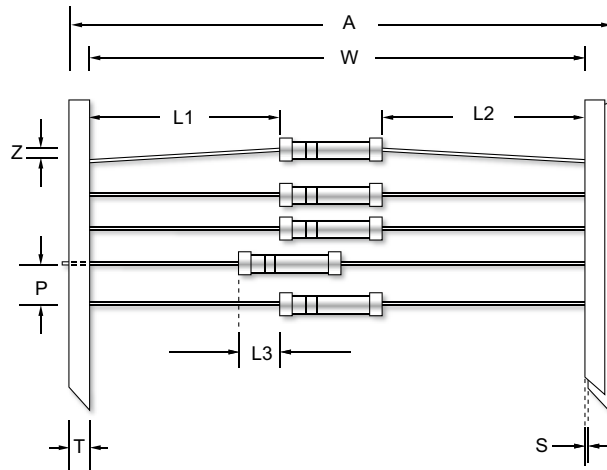
Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)
SWA01	11.0 ± 1.0	4.5 ± 0.5	28 ± 3.0	0.7 ± 0.03
SWA02	13.5 ± 1.0	5.0 ± 0.5	30 ± 3.0	0.8 ± 0.03
SWA03	15.5 ± 1.0	5.5 ± 0.5	30 ± 3.0	0.8 ± 0.03

## GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Overload Voltage	Maximum Permissible Surge Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
SWA01	1W	350V	600V	9KV	0.1 Ω	1.2KΩ	± 5%	E-24
SWA02	2W	350V	700V	10KV	0.1 Ω	1.2KΩ	± 5%	E-24
SWA03	3W	350V	700V	12KV	0.1 Ω	1.2KΩ	± 5%	E-24

Special sizes, values, and specifications not listed available on special order.

## TAPING/PACKING SPECIFICATIONS



Unit (mm)

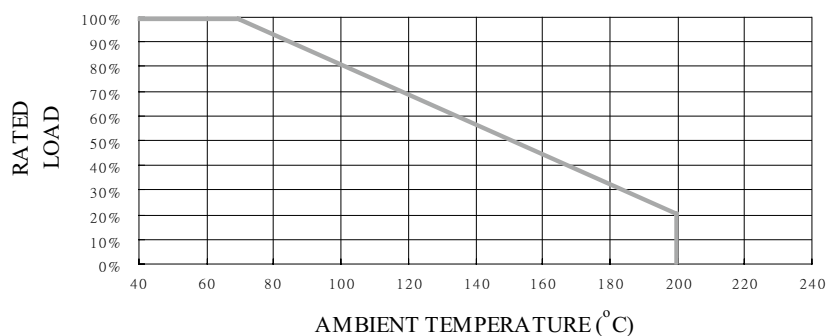
Type	A (Max.)	L1-L2 (Max.)	L3 (Max.)	P ±0.5	S (Max.)	T ±0.5	W ±1.5	Z (Max.)
SWA01	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
SWA02	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
SWA03	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2

## TECHNICAL SPECIFICATIONS

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	SWA01 / SWA02	600
	SWA03	1000
Temperature Coefficient, PPM / °C*	±100, ±300	
Operating Temperature Range, °C	-55~+200	
Insulation Resistance, MΩ	10 <sup>4</sup>	
Fusing Condition	Interrupts in max. 60 seconds at x40 rated power.	

\* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

## POWER DERATING CURVE



## PART NUMBER

Example: SWA01J100RTKZTB1K0

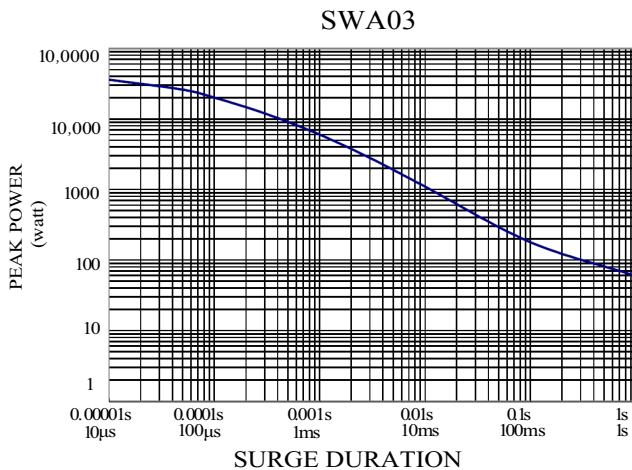
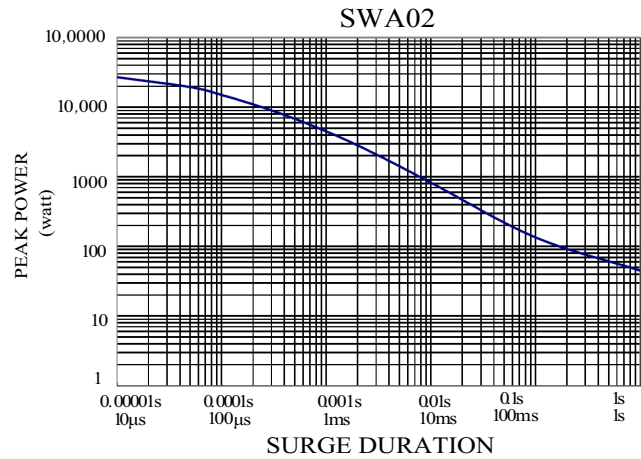
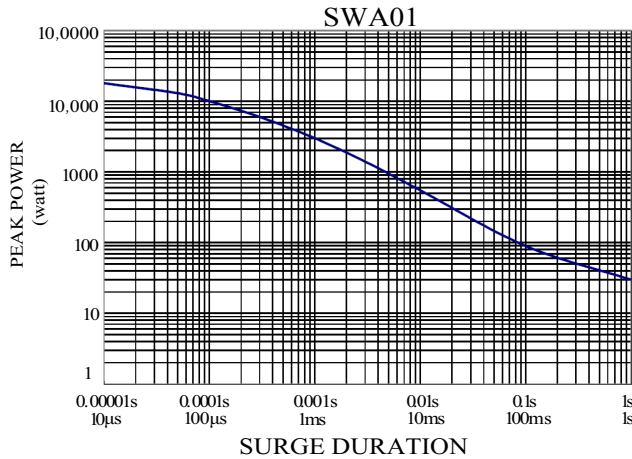
SWA01	J	100R	TKZ	TB1K0
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	100Ω <b>4-character code</b> containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 <sup>3</sup> M = 10 <sup>6</sup> G = 10 <sup>9</sup>	<b>3-character code</b>  TKZ = Default Product Temperature Coefficient.  Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.*	<b>5-character code</b>  TB = Tape Box  (pieces per box) <u>SWA01</u> 1K0 = 1,000  <u>SWA02/SWA03</u> 500 = 500

\* For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

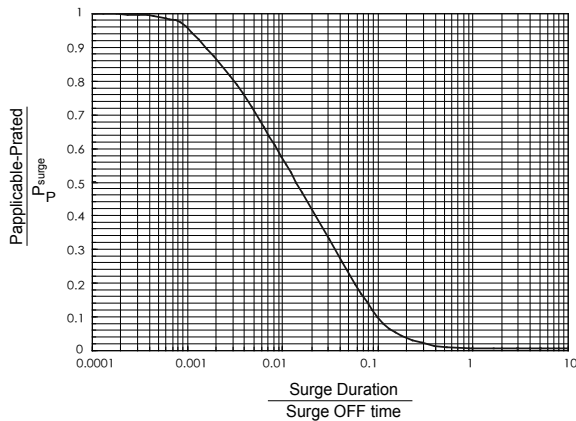
## PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits
Short Time Over Load	<b>IEC 60115-1 4.13</b> 5 seconds 2.5x rated voltage (not over max. overload voltage)	±2%
Load Life In Humidity	<b>IEC 60115-1 4.24</b> 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	±5%
Load Life 1,000 hours	<b>IEC 60115-1 4.25.1</b> Rated load (not over max. working voltage) with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%
Resistance To Soldering Heat	<b>IEC 60115-1 4.18.2</b> Leads immersed till 3mm from the body in (260±5)°C solder for 10±1 seconds	±1%
Solderability	<b>IEC 60115-1 4.17.2</b> Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	90% Min.
Vibration	<b>IEC 60115 4.22</b> Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±1%
Thermal Endurance	<b>IEC 60115-1 4.25.3</b> 1000 hours at 125°C without load	±3%
Thermal Shock	<b>IEC 60115-1 4.19</b> -55°C 30minutes, +155°C 30minutes, 5 cycles	±3%
Surge Test	<b>Surge voltage = <math>\sqrt{(12,000 PR)}</math> DC</b> P is power rating, R is resistance value, surge voltage is not more than listed at right. Surge spec = 1.2/50μs Period = 60 sec Number of surges = 100	SWA01 9KV SWA02 10KV SWA03 12KV 5%

## ■ SINGLE SURGE PERFORMANCE



## ■ SURGE POWER DERATING CURVE



### Notes:

- SINGLE SURGE PERFORMANCE graph is good for NON REPETITIVE applications operating in an ambient temperature of 70°C or less. For temperatures above 70°C, the graph power must be derated further linearly down to zero at 200°C.
- To determine applicable surge power in continuous-surge applications:
  1. Identify allowable duration and peak power  $P_{surge}$  of single surge;
  2. Determine ratio of surge duration/surge OFF time in application;
  3. Calculate  $P_{applicable}$  backwardly according to Y-axis of SURGE POWER DERATING CURVE.