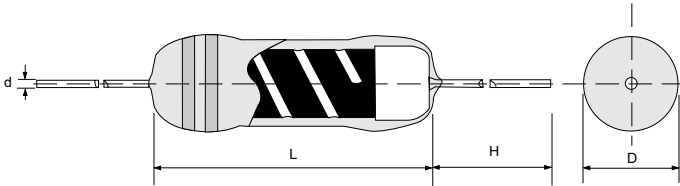


Safety • Quality • Reliability  
Cost-Down via Innovation

SSR



## Features

- Designed to replace carbon or ceramic composition resistor, SSR series is applied in high-surge applications such as fuel ignition systems, power charging/ discharging circuits, TV sets, etc, to absorb harmful surge energy, so to prevent hazard of fire and circuit damage caused by surge energy with a flame-proof coating.
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

## DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000 Pcs
SSR25	6.50 ± 1.0	2.6 ± 0.3	26 ± 3.0	0.55 ± 0.02	300 Grams
SSR51	9.00 ± 1.0	3.2 ± 0.2	26 ± 3.0	0.60 ± 0.03	340 Grams
SSR100	11.0 ± 1.0	4.0 ± 0.5	28 ± 3.0	0.70 ± 0.03	500 Grams
SSR200	15.5 ± 1.0	5.0 ± 0.5	30 ± 3.0	0.80 ± 0.03	1150 Grams
SSR300	15.5 ± 1.0	5.5 ± 0.5	30 ± 3.0	0.80 ± 0.03	1200 Grams

## GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Permissible Surge Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
SSR25	1/4W	250V	10KV	10Ω	180KΩ	±5%	E-24
SSR51	1/2W	300V	15KV	10Ω	220KΩ	±5%	E-24
SSR100	1W	350V	20KV	10Ω	220KΩ	±5%	E-24
SSR200	2W	400V	22.5KV	10Ω	240KΩ	±5%	E-24
SSR300	3W	400V	25KV	10Ω	240KΩ	±5%	E-24

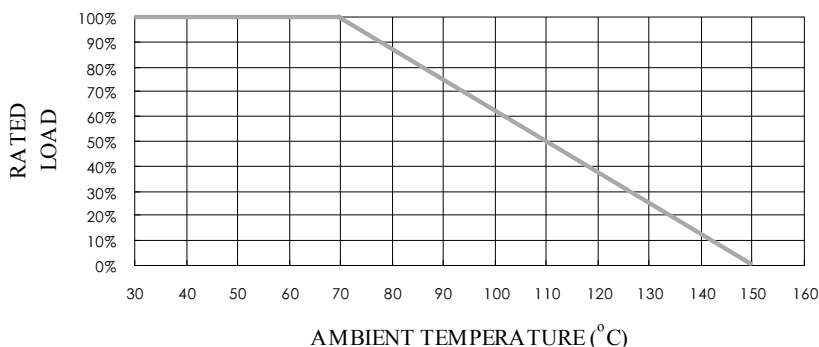
Special sizes, values, and specifications not listed available on special order.

## TECHNICAL SUMMARY

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	SSR25 /51 /100 SSR200 SSR300	600 700 800
Temperature Coefficient, PPM / °C*	SSR25 /100 /200 /300: SSR51:	±600 ±750
Operating Temperature Range, °C	-55 ~ +150	
Insulation Resistance, MΩ	>10 <sup>4</sup>	

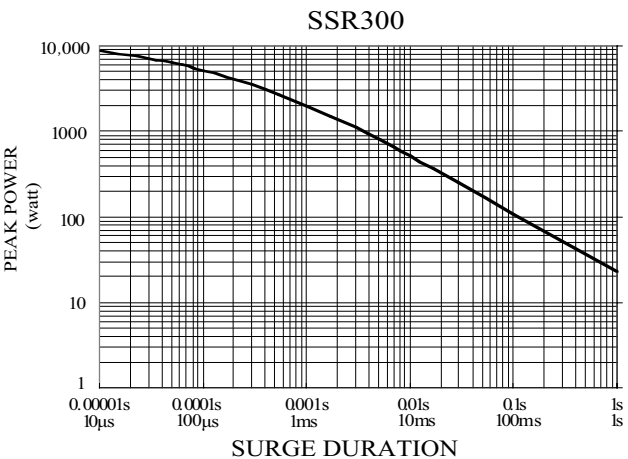
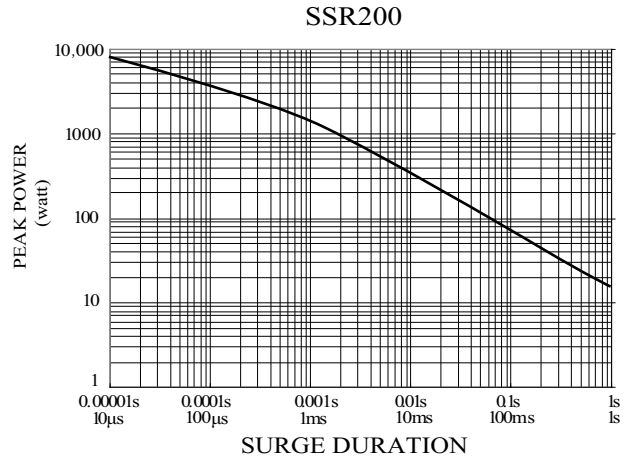
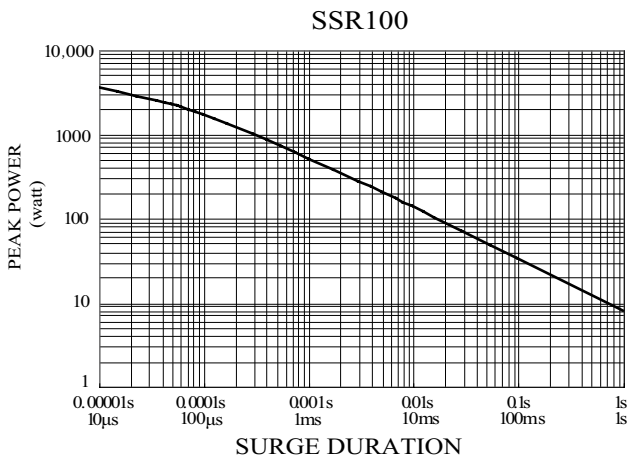
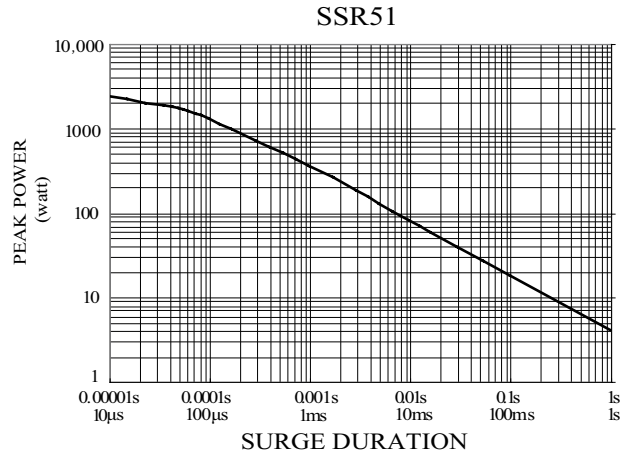
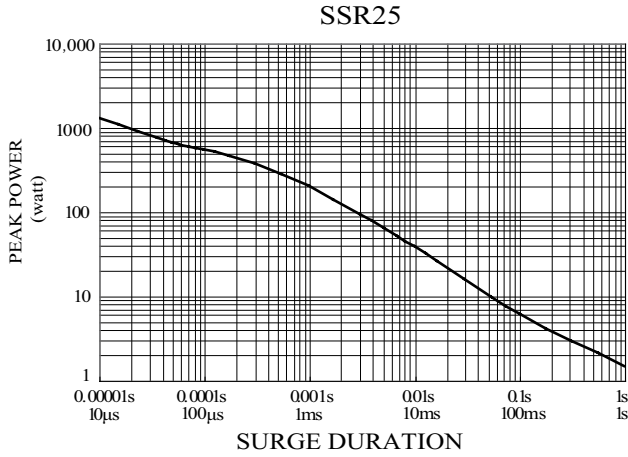
\* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

## POWER DERATING CURVE



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## ■ SINGLE SURGE PERFORMANCE

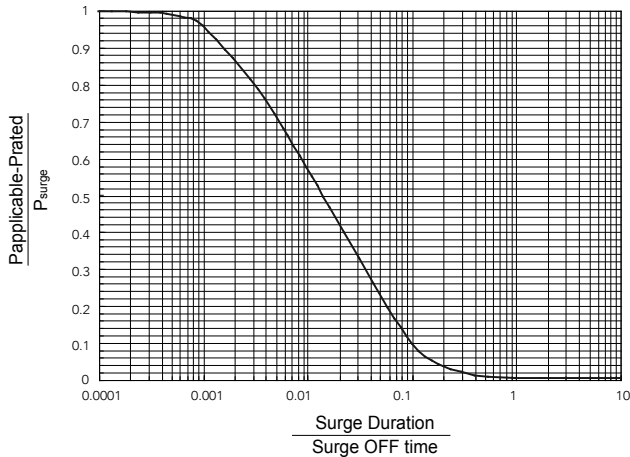


SSR

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SSR

## ■ 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 150 °C.
- To determine applicable surge power in continuous-surge applications:
  1. Identify allowable duration and peak power P<sub>surge</sub> of single surge;
  2. Determine ratio of surge duration/surge OFF time in application;
  3. Calculate P<sub>applicable</sub> backwardly according to Y-axis of SURGE POWER DERATING CURVE.

## ■ PART NUMBER

Example: SSR200J10K0TKZTB500

SSR200	J	10K0	TKZ	TB500
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	10KΩ <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>SSR25/SSR51</u> 2K0 = 2,000  <u>SSR100</u> 1K0 = 1,000  <u>SSR200/300</u> 500 = 500

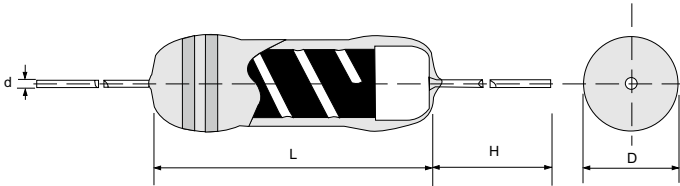
\* For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

## ■ 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 2X max. working voltage)	±1%		
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	<b>IEC 60115-1 4.25.1</b> Rated load (not over max. working voltage) 1,000 hours 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	95% min.coverage		
Vibration	<b>IEC 60115-1 4.22</b> Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%		
Thermal Endurance	<b>IEC 60115-1 4.25.3</b> 1000 hours at 150°C without load	±2.5%		
Thermal Shock	<b>IEC 60115-1 4.19</b> -55°C 30minutes, +150°C 30minutes, 5 cycles	±2%		
Surge Test	<b>Surge voltage = <math>\sqrt{(6000 \times P \times R)}</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 = 12 sec Number of surges = 3000	SSR25	10 KV	±5%
		SSR51	15 KV	
		SSR100	20 KV	
		SSR200	22.5 KV	
		SSR300	25 KV	

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SSR



## Features

- Designed to replace carbon or ceramic composition resistor, SSR series is applied in high-surge applications such as fuel ignition systems, power charging/ discharging circuits, TV sets, etc, to absorb harmful surge energy, so to prevent hazard of fire and circuit damage caused by surge energy with a flame-proof coating.
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

## DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000 Pcs
SSR400	19.0 ± 1.0	6.0 ± 0.5	30 ± 3.0	0.8 ± 0.03	1600 Grams
SSR500	24.0 ± 1.0	8.0 ± 0.5	30 ± 3.0	0.8 ± 0.03	3700 Grams

## GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Permissible Surge Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
SSR400	4W	500V	30KV	10Ω	270KΩ	±5%	E-24
SSR500	5W	600V	35KV	10Ω	330KΩ	±5%	E-24

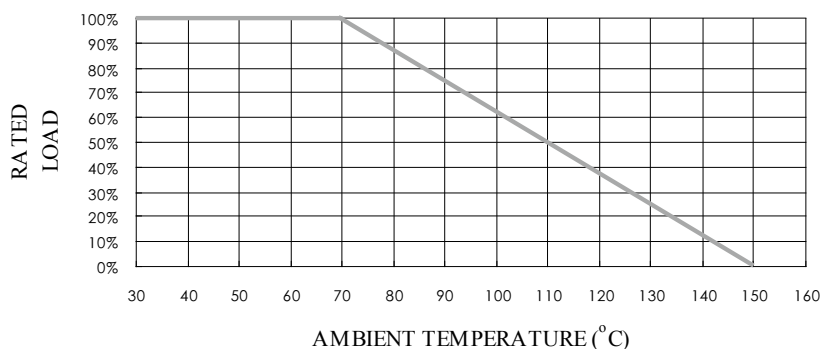
Special sizes, values, and specifications not listed available on special order.

## TECHNICAL SPECIFICATIONS

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	800	
Temperature Coefficient, PPM / °C*	SSR400	±750
	SSR500	±600
Operating Temperature Range, °C	-55 ~ +150	
Insulation Resistance, MΩ	10 <sup>4</sup>	

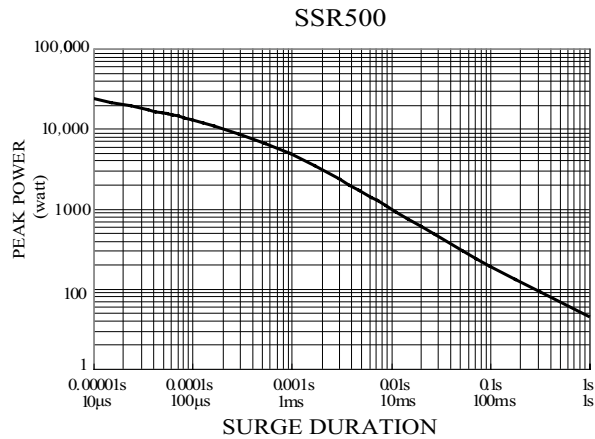
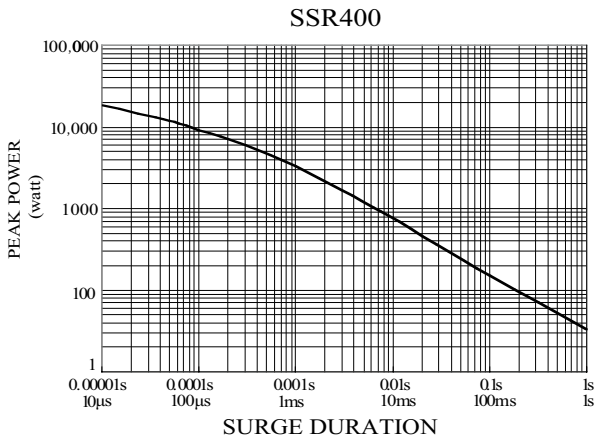
\* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

## POWER DERATING CURVE

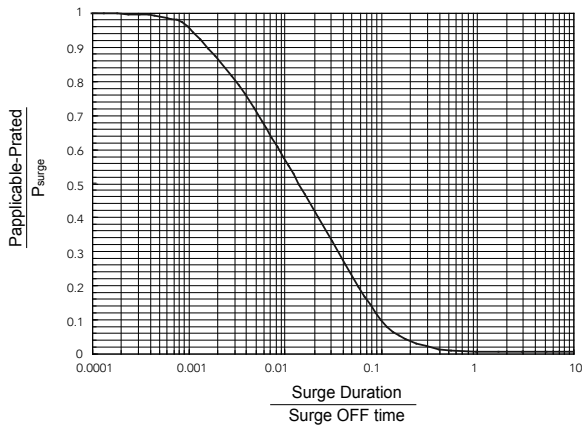


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## ■ SINGLE SURGE PERFORMANCE



## ■ 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 150°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.

SSR

# SSR – Surge Safety Resistor High Power

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## ■ PART NUMBER

Example: SSR400J10K0TKZTB400

SSR400	J	10K0	TKZ	TB400
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	10KΩ <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) SSR400 500 = 500  SSR500 250 = 250

\* 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 2X max. working 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	<b>IEC 60115-1 4.25.1</b> Rated load (not over max. working voltage) 1,000 hours 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	95% min.coverage					
Vibration	<b>IEC 60115-1 4.22</b> Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%					
Thermal Endurance	<b>IEC 60115-1 4.25.3</b> 1000 hours at 150°C without load	±2.5%					
Thermal Shock	<b>IEC 60115-1 4.19</b> -55°C 30minutes, +150°C 30minutes, 5 cycles	±3%					
Surge Test	<b>Surge voltage = <math>\sqrt{(6000 \times P \times R)}</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 = 12 sec Number of surges = 3000	<table border="1"> <tr> <td>SSR400</td> <td>30 KV</td> <td rowspan="2">±5%</td> </tr> <tr> <td>SSR500</td> <td>35 KV</td> </tr> </table>	SSR400	30 KV	±5%	SSR500	35 KV
SSR400	30 KV	±5%					
SSR500	35 KV						