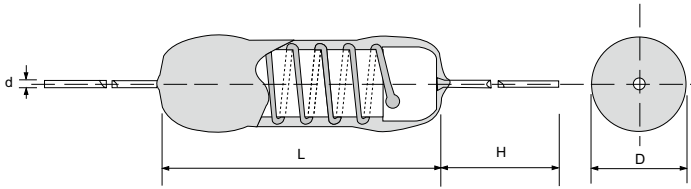


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[*Patent approval]

Taiwan patent number: I637420

China patent number: ZL201780088781.6

Japan patent number: 6836669

United States patent number: US10170266B2

Applications

- Lighting devices
- Motor start-up protection
- Power supplies & Power adapters
- High rush current protection for power capacitor

Specifications Per

- IEC 60115-1, 60115-4

Features

- Worldwide patent pending
- Enhanced welded spot is reliable against surge
- Fast-acting fuse device for high-power applications
- Advanced combined anti- surge & fast-fuse structure
- Flameproof multi-layer coating equivalent to UL 94 V-0
- Flameproof feature equivalent to overload test UL 1412
- Thermal fuse to protect against over-heating in electronic products
- RoHS / REACH Compliant
- Reflow-soldering safe
- Low TC to ensure stable power output

DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)
SWAT01	11.0 ± 1.0	4.5 ± 0.5	28 ± 3.0	0.7 ± 0.03
SWAT02	13.5 ± 1.0	5.0 ± 0.5	30 ± 3.0	0.8 ± 0.03
SWAT03	15.5 ± 1.0	5.5 ± 0.5	30 ± 3.0	0.8 ± 0.03

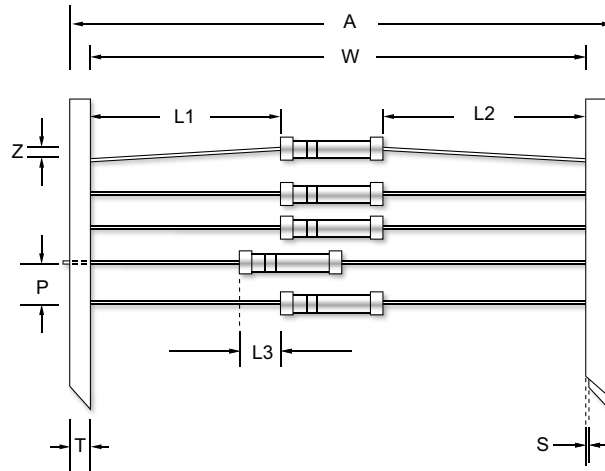
GENERAL SPECIFICATIONS

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
SWAT01	1W	$\sqrt{P \times R}$	$2.5 \times \sqrt{P \times R}$	9KV	1 Ω	470Ω	± 5%	E-24
SWAT02	2W	$\sqrt{P \times R}$	$2.5 \times \sqrt{P \times R}$	10KV	1 Ω	470Ω	± 5%	E-24
SWAT03	3W	$\sqrt{P \times R}$	$2.5 \times \sqrt{P \times R}$	12KV	1 Ω	470Ω	± 5%	E-24

* Rated Continuous Maximum Working Voltage (RCWV) should be determined from $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$

** Short-time Overload (STOL) test should be determined from $STOL = 2.5 \times RCWV$

■ TAPING/PACKING SPECIFICATIONS



Unit (mm)

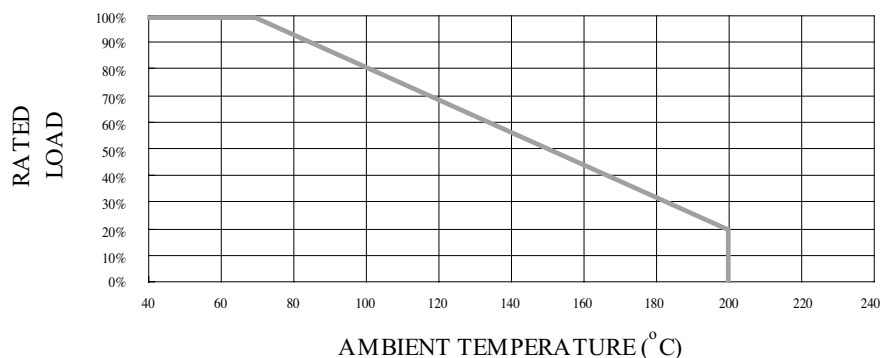
Type	A (Max.)	L1-L2 (Max.)	L3 (Max.)	P ±0.5	S (Max.)	T ±0.5	W ±1.5	Z (Max.)
SWAT01	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
SWAT02	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
SWAT03	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2

■ TECHNICAL SPECIFICATIONS

Characteristics		Limits
Temperature Coefficient, PPM / °C*		±100, ±200
Operating Temperature Range, °C		-55 ~ +200
Insulation Resistance, MΩ		10 ⁴
Fusing Characteristics (Preliminary)	constant voltage	Interrupts in max. 15 seconds at 40 times rated power
	thermal fuse	Interrupts in max. 5 minutes at 3.5 times rated amp at 265°C (special request)

* 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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■ PART NUMBER

Example: SWAT01J10R0TKZTB1K0

SWAT01	J	10R0	TKZ	TB1K0
Type	Tolerance	Resistance	TCR	Packaging
	J (5%)	10Ω 4-character code containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.*	5-character code TB = Tape Box (pieces per box) SWAT01 1K0 = 1,000 <u>SWAT02/SWAT03</u> 500 = 500

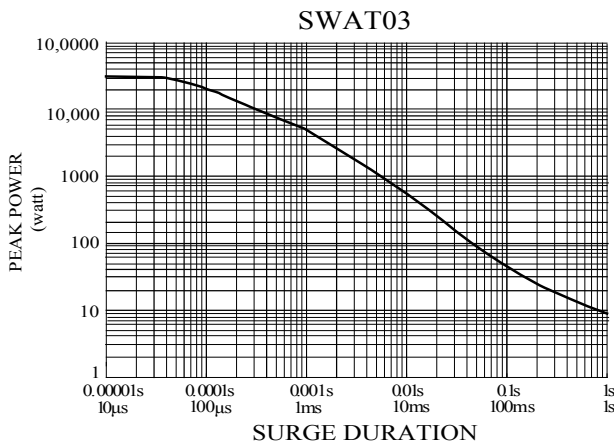
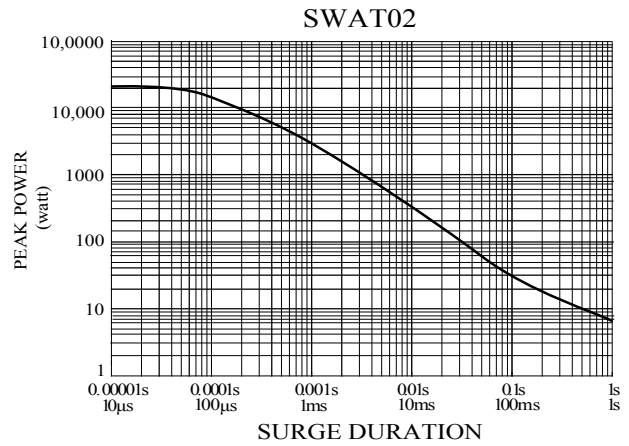
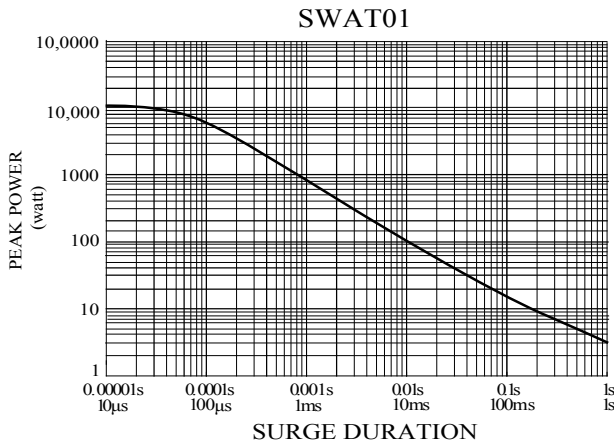
* For the availabilities of non-default temperature coefficient, please check with us.

■ PERFORMANCE SPECIFICATIONS

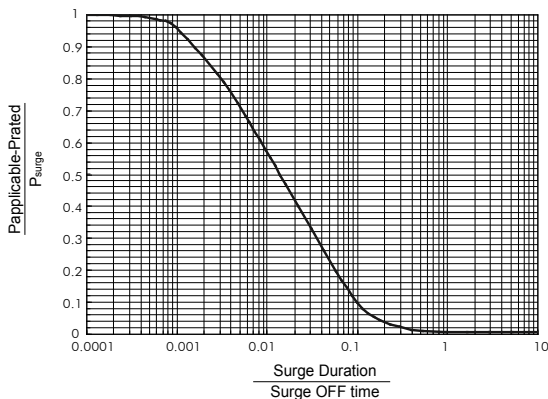
Characteristics	Test Conditions	Limits
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage	±3%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load at (40±2)°C and (93±3)% relative humidity	±5%
Load Life	IEC 60115-1 4.25.1 Rated load 1,000 hours with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Leads immersed till 3mm from the body in (260±5)°C solder for 10±1 seconds	±2.5%
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	95% min. coverage
Vibration	IEC 60115 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±0.5%
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 125°C without load	±5%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±5%
Surge Test	Proprietary test specification FRC-TR-010113 = $\sqrt{(9,000 PR)}$ DC P is power rating, R is resistance value. Surge spec = 1.2/50µs Period = 60 sec Number of surges = 10	±5%

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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.

SWAT