

[*Patent approval]

Taiwan patent number: M530462

Japan patent number: 3208923

China patent number: ZL 2014 9 0001291.X

Korean patent number: 20-0486309

United States patent number: US9978483B2

Specifications Per

• IEC 60115-1

Features

- Excellent in heat dissipation than fiberglass resistor
- Dedicatedly designed for high-voltage spark ignition systems
- Enhanced weld spot is reliable against surge with long-term stability
- RoHS and REACH compliant

DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Cap Length (B, mm)
ISW20K	10.5 ± 0.5	4.0 ± 0.5	1.6 ± 0.3
ISW35K	16.0 ± 1.0	4.5 ± 0.7	2.2 ± 0.3
ISW50K	18.5 ± 1.0	4.5 ± 0.7	2.2 ± 0.3
ISW50K1	22.5 ± 1.5	4.5 ± 0.7	2.2 ± 0.3

GENERAL SPECIFICATIONS

Type	Nominal Power Rating (at 70°C)	Maximum Working Voltage*	Maximum Surge Load	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Value
ISW20K	1/2W	$\sqrt{P \times R}$	25KV / 10nS	1KΩ	2KΩ	±5% ~ ±20%	E-6/E-24
ISW35K	2W	$\sqrt{P \times R}$	35KV / 20nS	1KΩ	3K3Ω	±5% ~ ±20%	E-6/E-24
ISW50K	2W	$\sqrt{P \times R}$	50KV / 20nS	1KΩ	5KΩ	±5% ~ ±20%	E-6/E-24
ISW50K1	3W	$\sqrt{P \times R}$	50KV / 30nS	1KΩ	5KΩ	±5% ~ ±20%	E-6/E-24

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

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

Quality • Reliability
Cost-Down via Innovation

■ PART NUMBER

Example: ISW50KM1K00TKZBK500

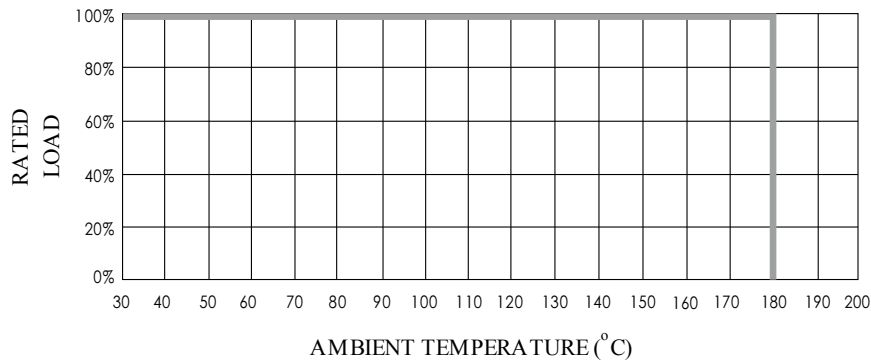
ISW50K	M	1K00	TKZ	BK500
Type	Tolerance	Resistance	TCR	Packaging
	J (5%) K (10%) M (20%)	1KΩ 4-character code containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.	Bulk 500 pieces 5-character code BK = Bulk BK + Quantity

■ TECHNICAL SPECIFICATIONS

Characteristics	Limits
Dielectric Withstanding Voltage, VAC or DC	500
Temperature Coefficient, PPM / °C*	±300
Operating Temperature Range, °C	-40 ~ +180
Insulation Resistance, MΩ	10 ⁴
Inductance Range, 2 MHz, μH	5 to 50
Failure Rate in Time, pcs / 10 ⁹ device hours	<1

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

■ POWER DERATING CURVE



■ PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits
Short Time Overload	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over 2X max. working voltage)	±2%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over working voltage) at (40±2)°C and (93±3)% relative humidity	±5%
Load Life	IEC 60115-1 4.25.1 Rated load (not over working voltage) 1,000 hours with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%
Vibration	IEC 60115-1 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 1,000 hours at 180°C without load	±5%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±3%
Surge Test	200,000 impacts at period 20ms (3000rpm/1hour) at 180°C according to the following chart.	±5%

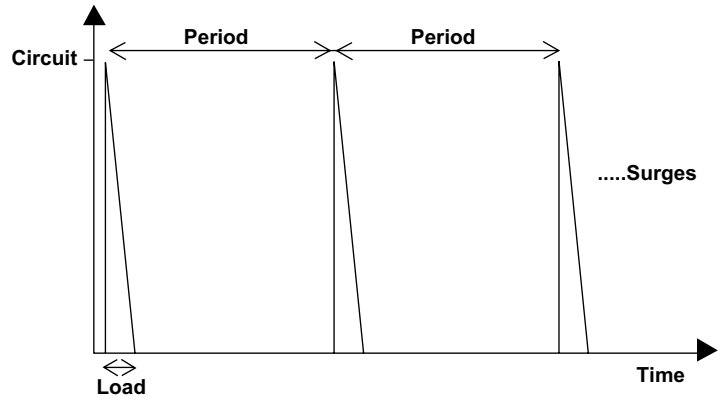
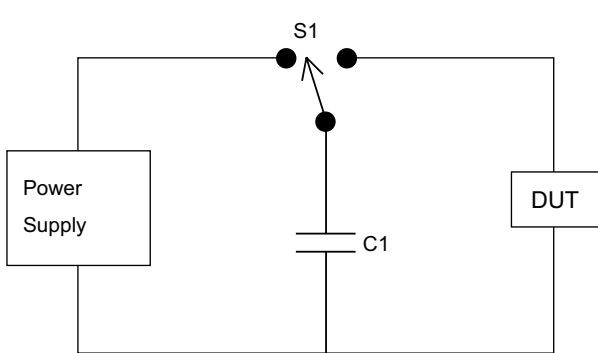
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ISW

■ SURGE TEST

Type	Circuit	Load	Period	Surges
ISW20K	20KV	10nS	20mS	200,000
ISW35K	35KV	30nS	20mS	200,000
ISW50K	50KV	30nS	20mS	200,000
ISW50K1	50KV	45nS	20mS	200,000

■ SURGE DIAGRAM



- S1:** High-voltage insulated switch
- C1:** High-voltage variable capacitor
- Power supply:** Variable 0 ~ 50KV DC
- DUT:** Device Under Test.