

Fusible Wire Wound Resistor Surge Withstanding Type

FRS Series

MERITEK

FEATURE

- Operating temperature: -55°C ~ +275°C
- Inrush and Surge Withstanding
- Small Linear Temperature Coefficient
- Compliant with UL1412 Requirements
- Surge Voltage Handling Capability up to 6KV
- Surge Withstand IEC 61000-4-5 1.2/50µs
- Applications: Smart Meters, Renewable Energy, Power Supplies, LED Drivers, Appliances, White Goods.



PART NUMBERING SYSTEM

FRS **5WS** **330** **J** **B** **100**
(1) (2) (3) (4) (5) (6)

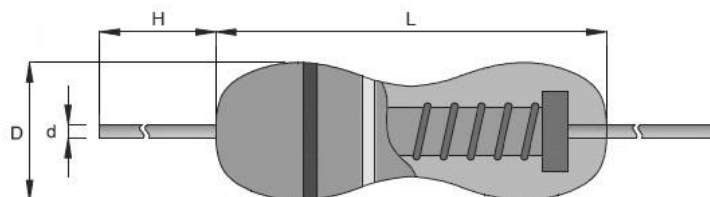


No	Item	Code	Description	Reference
(1)	Meritek Series	FRS	Fusible Wire Wound Resistor	Surge Withstanding Type
(2)	Power Rating	5WS	5WS: 5W miniature	1WS, 3WS, 5W
(3)	Resistance	330	330: 33Ω	First Two Digit: Significant, Third: Multiplier
(4)	Tolerance	J	J: ±5%	G: ±2%
(5)	Packaging Type	B	B: Bulk	A: Tape and Ammo, R: Tape and Reel
(6)	TCR	100	100: ±100ppm / °C	Temperature Coefficient Resistance

ELECTRICAL CHARACTERISTICS AND DIMENSIONS

Power Rating	Dimensions (mm)				Resistance Range	Tolerance	Surge Voltage
	L	D	H	d			
1WS	11.5±1.0	4.5±0.5	35±2.0	0.78±0.03	3Ω~100Ω	±2%, ±5%	0.5~1.8KV(3Ω~50Ω)
							2~3.5KV(51Ω~100Ω)
3WS	15.5±1.0	5.0±0.5	32±2.0	0.78±0.03	4.7 Ω~100Ω	±2%, ±5%	2~3KV(4.7Ω~60Ω)
							3~4KV(61Ω~100Ω)
5WS	17.5±1.0	6.0±1.5	32±2.0	0.78±0.03	10Ω~100Ω	±2%, ±5%	4~6KV(10Ω~20Ω)
							6KV(21Ω~100Ω)
5W	24.5±1.0	8.5±0.5	35±2.0	0.78±0.03	10Ω~100Ω	±2%, ±5%	4~6KV(10Ω~20Ω)
							6KV(21Ω~100Ω)

Note: Resistor body color: Gray

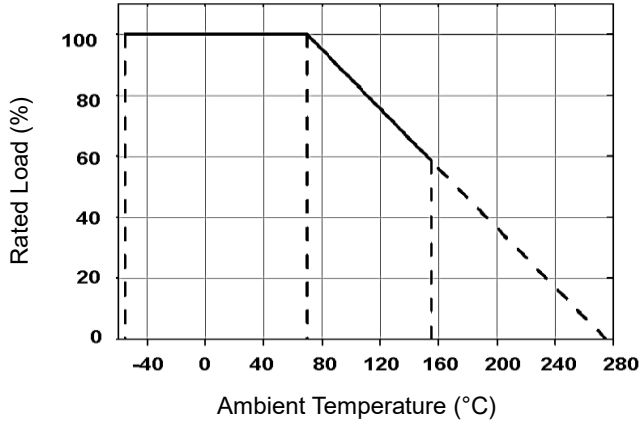


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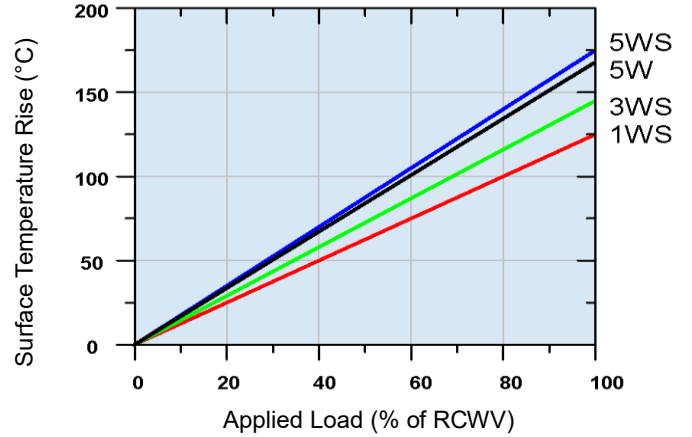
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CHARACTERISTIC CURVES

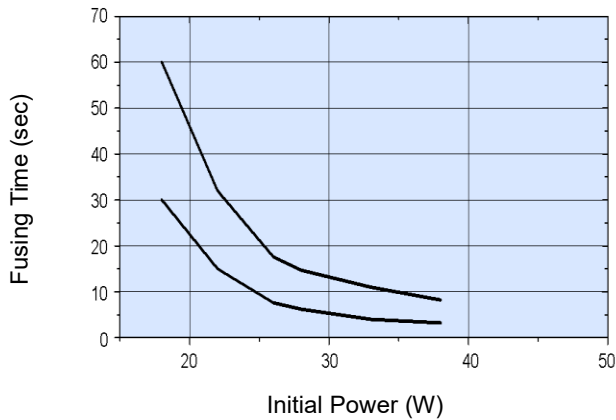
Power Derating



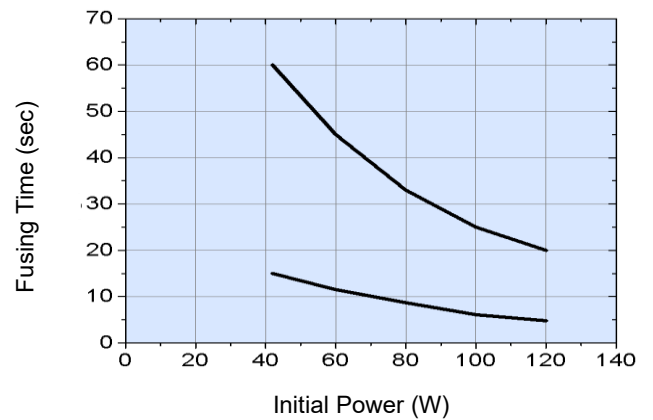
Hot-spot Temperature



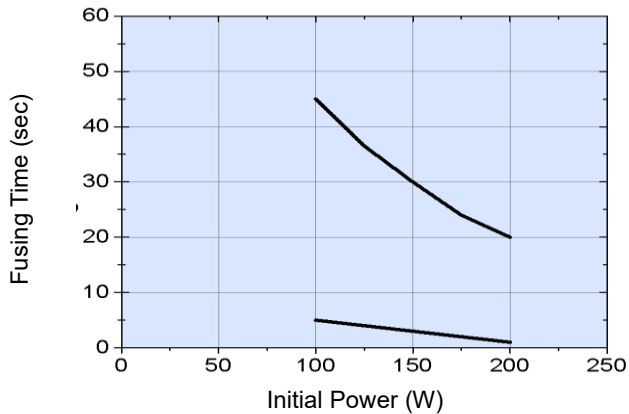
Fusing Time vs. Initial Power at 1WS



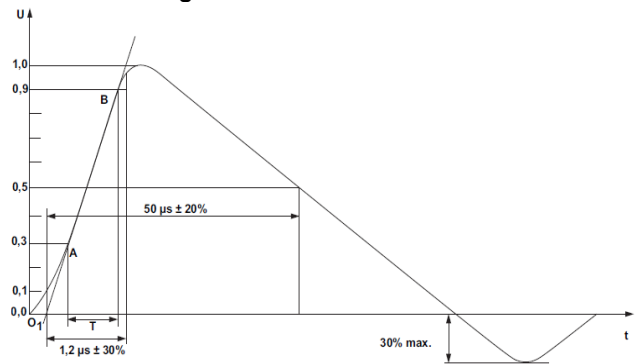
Fusing Time vs. Initial Power at 3WS



Fusing Time vs. Initial Power at 5WS, 5W



Surge Standards: IEC 61000-4-5



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RELIABILITY TEST CONDITION AND REQUIREMENT – Refer to IEC 60115-1

Test	Condition	Requirement
Short Time Overload	Rated Voltage x 10 for 5 seconds	$\pm(2.0\% + 0.05\Omega)$
Temperature Coefficient Resistance (T.C.R.)	Resistance value at Room Temperature and Room Temperature +100°C	$\pm 100\text{ppm}/^\circ\text{C}$, $\pm 200\text{ppm}/^\circ\text{C}$ Special TCR by Request
Dielectric Withstanding Voltage	In V-Block for 60 seconds, Test voltage by type	300V (1WS) 400V (3WS, 5WS, 5W)
Insulation Resistance	In V-Block for 60 seconds	>100M Ω
Load Life	70°C at RCWV for 1000 hrs, (1.5 hrs on, 0.5 hrs off)	$\pm(5.0\% + 0.05\Omega)$
Load Life in Humidity	40 \pm 2°C 90~95%RH at RCWV for 1000 hrs (1.5 hrs on, 0.5 hrs off)	$\pm(5.0\% + 0.05\Omega)$
Solderability	260 \pm 5°C for 2 \pm 0.5 seconds	95% Min Coverage
Terminal Strength	Direct load for 10 seconds in the direction of the terminal leads	Tensile: $\geq 2.5\text{kg}$
Anti-Surge Characteristics	1.2/50 μs 30 seconds between pulses 10 times	$\pm(5.0\% + 0.05\Omega)$

Notes: Storage Temperature: 25 \pm 3°C; Humidity < 80% RH, Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} * \text{Resistance Value}}$

*Specifications subject to change without notice.