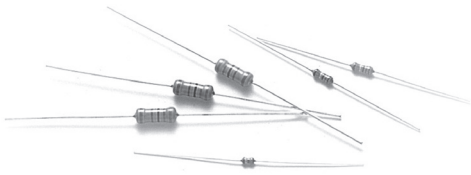


Wirewound Resistors

Fusible & Flame-Proof Type

Normal & Miniature Style [FKN Series]



INTRODUCTION

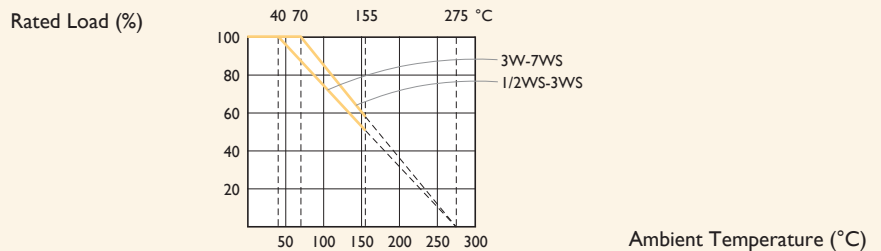
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive wire are connected to the caps by welding. The resistors are coated with layers of green color flame-proof lacquer. Overload protection without risk of fire. Wide range of overload currents.

FEATURES

Power Rating	1/2W, 1W, 2W, 3W, 4W, 5W, 7W
Resistance Tolerance	±1%, ±5%
T.C.R.	±350ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

DERATING CURVE

For resistors operated in ambient temperatures above 40°C, power rating must be derated in accordance with the curve below.



FUSING CHARACTERISTICS

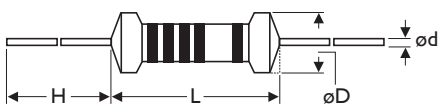
$R \leq 2.0\Omega$ Fusing time within 60 seconds at 36 times of rated power

$R > 2.0\Omega$ Fusing time within 60 seconds at 25 times of rated power

Fusing residual resistive value at least 100 times rated resistance

DIMENSIONS

Unit: mm



5th color code: white

STYLE	DIMENSION				
Normal	Miniature	L	øD	H	ød
-	FKN50S/FKN1SS	6.3±0.5	2.5±0.3	28±2.0	0.55±0.05
FKN-50	FKN1WS/FKN2SS	9.0±0.5	3.5±0.3	26±2.0	0.55±0.05
FKN100	FKN2WS	11.5±1.0	4.6±0.5	35±2.0	0.8±0.05
FKN200	FKN3WS	15.5±1.0	5.2±0.5	33±2.0	0.8±0.05
FKN300					
FKN400	FKN5WS	17.5±1.0	6.2±0.5	32±2.0	0.8±0.05
FKN500	FKN7WS	24.5±1.0	8.2±0.5	38±2.0	0.8±0.05

Note: FKN1WS (for MB Type) ød = 0.8±0.05 mm

ELECTRICAL CHARACTERISTICS

NORMAL STYLE

STYLE	FKN-50	FKN100	FKN200	FKN300	FKN400	FKN500
Power Rating at 40°C				3W	4W	5W
Power Rating at 70°C	1/2W	1W	2W			
Maximum working voltage	$\sqrt{P \times R}$					
Voltage Proof on Insulation	300V					
Resistance Range ($\pm 1\%$)		0.5 Ω - 100 Ω	0.47 Ω - 150 Ω	0.56 Ω - 330 Ω		1 Ω - 620 Ω
Resistance Range ($\pm 5\%$)	0.5 Ω - 47 Ω	0.5 Ω - 100 Ω	0.47 Ω - 150 Ω	0.56 Ω - 330 Ω		1 Ω - 620 Ω
Operating Temp. Range	-40°C to +155°C					
Temperature Coefficient	$\pm 350\text{ppm}/^\circ\text{C}$					

Note: Special value is available on request

MINIATURE STYLE

STYLE	FKN50S	FKNIWS/FKNISS	FKN2WS/FKN2SS	FKN3WS	FKN5WS	FKN7WS
Power Rating at 40°C					5W	7W
Power Rating at 70°C	1/2W	1W	2W	3W		
Maximum working voltage	$\sqrt{P \times R}$					
Voltage Proof on Insulation	200V	300V				
Resistance Range ($\pm 1\%$)		0.47 Ω - 100 Ω	0.47 Ω - 150 Ω	0.47 Ω - 240 Ω	0.56 Ω - 330 Ω	1 Ω - 620 Ω
Resistance Range ($\pm 5\%$)	2.5 Ω - 22 Ω	0.47 Ω - 100 Ω	0.47 Ω - 150 Ω	0.47 Ω - 240 Ω	0.56 Ω - 330 Ω	1 Ω - 620 Ω
Operating Temp. Range	-40°C to +155°C					
Temperature Coefficient	$\pm 350\text{ppm}/^\circ\text{C}$					

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	IEC 60115-1 4.13	10 times rated power for 5 Sec.	$\pm 2.0\% + 0.05\Omega$
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -40°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>100M Ω
Solderability	IEC 60115-1 4.17	245 $\pm 5^\circ\text{C}$ for 3 ± 0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5 ± 0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	$\geq 2.5\text{kg}$ (24.5N)
Damp Heat Steady State	IEC 60115-1 4.24	40 $\pm 2^\circ\text{C}$, 90-95% RH for 56 days, loaded with 0.1 times RCWV	$\pm 5.0\% + 0.05\Omega$
Endurance at 70°C	IEC 60115-1 4.25	70 $\pm 2^\circ\text{C}$ at RCWV (or U_{max} , whichever less) for 1,000 Hr. (1.5Hr: on, 0.5Hr: Off)	$\pm 5.0\% + 0.05\Omega$
Temperature Cycling	IEC 60115-1 4.19	-55°C $\Rightarrow$ Room Temp. $\Rightarrow$ +155°C $\Rightarrow$ Room Temp. (5 cycles)	$\pm 1.0\% + 0.05\Omega$
Resistance to Soldering Heat	IEC 60115-1 4.18	260 $\pm 3^\circ\text{C}$ for 10 ± 1 Sec., immersed to a point 3 $\pm 0.5\text{mm}$ from the body	$\pm 1.0\% + 0.05\Omega$
Accidental Overload Test	IEC 60115-1 4.26	4 times RCWV for 1 Min.	No evidence of flaming or arcing

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.

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