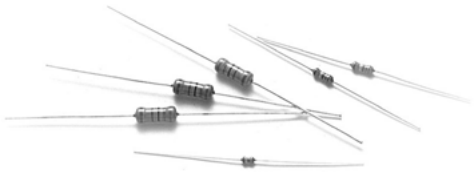
Wirewound Resistors

Fusible & Flame-Proof Type

Normal & Miniature Style [FKN Series]



INTRODUCTION

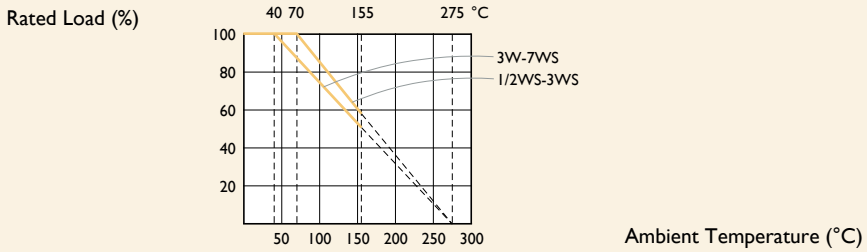
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive wire are connected to the caps by welding. The resistors are coated with layers of green color flame-proof 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

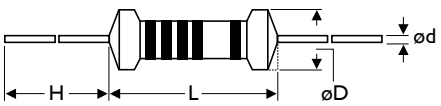
R≤2.0Ω Fusing time within 60 seconds at 36 times of rated power

R>2.0Ω 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	6.3±0.5	2.5±0.3	28±2.0	0.55±0.05
FKN-50	FKN1WS	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	FKN5WS	17.5±1.0	6.5±0.5	32±2.0	0.8±0.05
FKN400					
FKN500	FKN7WS	24.5±1.0	8.5±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	$\sqrt{PxR}$					
Voltage Proof on Insulation	300V					
Resistance Range (±1%)		0.5Ω - 100Ω	0.47Ω - 150Ω	0.56Ω - 330Ω		1Ω - 620Ω
Resistance Range (±5%)	0.5Ω - 47Ω	0.5Ω - 100Ω	0.47Ω - 150Ω	0.56Ω - 330Ω		1Ω - 620Ω
Operating Temp. Range	-40°C to +155°C					
Temperature Coefficient	±350ppm/°C					

Note: Special value is available on request

MINIATURE STYLE

STYLE	FKN50S	FKN1WS	FKN2WS	FKN3WS	FKN5WS	FKN7WS
Power Rating at 40°C					5W	7W
Power Rating at 70°C	1/2W	1W	2W	3W		
Maximum working voltage	$\sqrt{PxR}$					
Voltage Proof on Insulation	200V	300V				
Resistance Range (±1%)		0.47Ω - 62Ω	0.47Ω - 150Ω	0.47Ω - 240Ω	0.56Ω - 330Ω	1Ω - 620Ω
Resistance Range (±5%)	2.5Ω - 22Ω	0.47Ω - 62Ω	0.47Ω - 150Ω	0.47Ω - 240Ω	0.56Ω - 330Ω	1Ω - 620Ω
Operating Temp. Range	-40°C to +155°C					
Temperature Coefficient	±350ppm/°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.	±2.0%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	in V-block for 60 Sec., test voltage by type	By type
Temperature Coefficient	IEC 60115-1 4.8	-55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>100MΩ
Solderability	IEC 60115-1 4.17	235±5°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	≥2.5kg (24.5N)
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±5.0%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇨ Room Temp. ⇨ +155°C ⇨ Room Temp. (5 cycles)	±1.0%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω
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.

EXPLANATIONS OF ORDERING CODE

MFR	-12	F	T	F	52-	100R
Code 1 - 3 **Series Name** See Index	Code 4 - 6 **Power Rating** -05 = ød0.5mm -06 = ød0.6mm -07 = ød0.7mm -08 = ød0.8mm -10 = ød1.0mm -14 = ød1.4mm -12 = 1/6W -25 = 1/4W 25S = 1/4WS -50 = 1/2W 50S = 1/2WS 100 = 1W 1WS = 1WS 200 = 2W 2WS = 2WS 204 = 0.4W 207 = 0.6W 300 = 3W 3WS = 3WS 3WM = 3WM 400 = 4W 500 = 5W 5WS = 5WS 5SS = 5WSS 700 = 7W 7WS = 7WS 10A = 10W 20A = 20W 30A = 30W 40A = 40W 50A = 50W 10S = 10WS 15A = 15W 25A = 25W 10B = 100W 25B = 250W	Code 7 **Tolerance** P = ±0.02 % A = ±0.05 % B = ±0.1 % C = ±0.25% D = ±0.5 % F = ±1 % G = ±2 % J = ±5 % K = ±10 % - = Base on Spec.	Code 8 **Packing Style** T = Tape/Box R = Tape/Reel B = Bulk	Code 9 **Temperature Coefficient of Resistance** - = Base on Spec. A = ±5 ppm/°C B = ±10 ppm/°C C = ±15 ppm/°C S = ± 20ppm/°C D = ±25 ppm/°C E = ±50 ppm/°C F = ±100 ppm/°C G = ±200 ppm/°C H = ±250 ppm/°C I = ±300 ppm/°C J = ±350 ppm/°C	Code 10 - 12 **Forming Type** 26- = 26mm 52- = 52.4mm 73- = 73mm 81- = 81mm 91- = 91mm F = F Type FK = FK Type FKK = FKK Type FFK = F-form Kink M = M-Type Forming MB = M-form W/flat MT = MT Type Forming MR = MR Type AV = AVIsert PN = PANAsert	Code 13 - 17 **Resistance Value** 0R1 = 0.1 100R = 100 10K = 10,000 10M = 10,000,000

EXCEPTION:

• Cement series:

<Code 8>: Special packing style code

B: Bulk with wirewound or metal oxide sub-assembly for resistance value
W: Bulk with ceramic based wirewound sub-assembly for resistance value
M: Bulk with metal oxide sub-assembly for resistance value
F: Bulk with Fiberglass based wirewound sub-assembly for resistance value

<Code 10-12>: Without forming code

Example: SQP500J**B**-10R

• JPW series:

<Code 13-17>: without resistance value code

Example: JPW-06-T-52-

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Yageo:

FKN1WSJR-52-8R2 FKN1WSJR-52-10R FKN2WSJR-73-2R2 FKN2WSJT-73-100R FKN2WSJT73-0R5 FKN2WSJT-73-22R FKN50SJR-52-1R FKN2WSJR-73-0R5 FKN50SJR-52-10R FKN3WSJT-73-10R FKN3WSJT-73-22R FKN3WSJT-73-47R FKN2WSJT-73-0R5 FKN1WSJT-52-10R FKN3WSJT-73-100R FKN1WSJR-52-4R7 FKN2WSJR-73-100R FKN1WSJR-52-39R FKN1WSJR-52-3R9 FKN50SJR-52-2R2 FKN-50JR-52-33R FKN100JR-73-10R FKN50SJR-52-22R FKN5WSJR-73-56R FKN100JR-73-33R FKN1WSJR-52-15R FKN2WSJR-73-10R FKN1WSJT-52-39R FKN-50JR-52-39R FKN-50JR-52-1R5 FKN3WSJR-73-9R1 FKN3WSJR-73-100R FKN2WSJT-52-22R FKN3WSJR-73-47R FKN100JR-73-100R FKN2WSFR-73-1R2 FKN-50JR-52-10R FKN-50JR-52-9R1 FKN2WSJR-73-9R1 FKN3WSJT-73-20R FKN3WSJR-73-1R5 FKN3WSJR-73-10R FKN5WSJR-73-3R3 FKN100JR-73-39R FKN50SJR-52-4R7 FKN5WSJR-73-10R FKN50SJR-52-5R6 FKN100JR-73-1R2 FKN100JR-73-18R FKN5WSJR-73-33R FKN100JR-73-47R FKN50SJR-52-9R1 FKN2WSJR-73-56R FKN2WSFR-73-1R8 FKN-50JR-52-27R FKN50SJR-52-1R5 FKN2WSJT-52-33R FKN3WSJR-73-4R7 FKN1WSJT-52-22R FKN2WSJT-73-10R FKN5WSJR-73-27R FKN2WSJT-73-82R FKN3WSJT-73-91R FKN2WSJT-73-15R FKN2WSJT-73-0R1 FKN3WSJR-73-15R FKN2WSJT-73-2R FKN3WSJR-73-33R FKN2WSJT-52-47R FKN2WSJT-73-43R FKN1WSJB-52-20R FKN1WSJB-52-2R2 FKN2WSJR-73-7R5 FKN1WSJB-52-5R1 FKN2WSJT-73-18R FKN3WSJT-73-1R FKN2WSJT-73-1R5 FKN2WSJT-73-33R FKN2WSJT-73-30R FKN5WSJR-73-100R FKN1WSJB-52-10R FKN2WSJT-73-12R FKN2WSJT-52-51R FKN2WSJT-73-4R7 FKN2WSJT-73-20R FKN2WSJT-73-47R FKN3WSJT-73-4R7 FKN2WSJR-73-8R2 FKN1WSJB-52-1R FKN5WSJR-73-68R FKN1WSJT-52-33R FKN2WSJT-52-68R FKN3WSJT-73-33R FKN2WSJT-73-68R FKN1WSJT-52-15R FKN1WSJB-52-15R FKN3WSJR-73-68R FKN1WSJR-52-47R FKN2WSJT-52-39R FKN1WSJT-52-30R