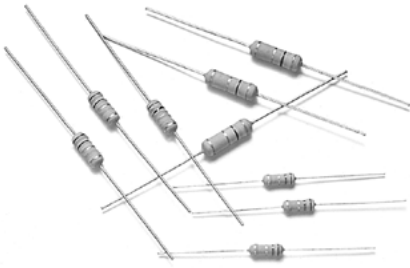


## Wirewound Resistors

# General Type

## Normal & Miniature Style [ KNP Series ]



### INTRODUCTION

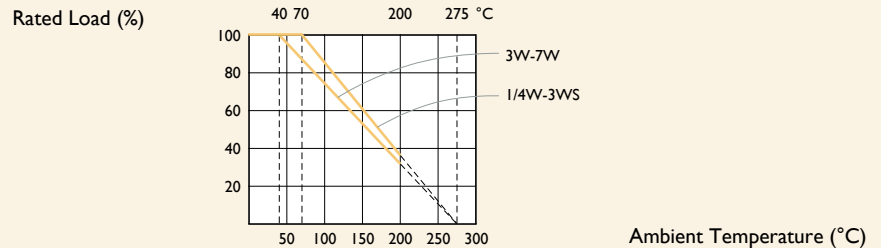
The resistor element is a resistive wire which is wound in a single layer on a ceramic rod, with tinned connecting wires of electrolytic copper welded to the end-caps. The ends of the resistive wire are connected to the caps by welding. The resistors are coated with layers of green color flame-proof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

### FEATURES

Power Rating	1/4W, 1/2W, 1W, 2W, 3W, 4W, 5W, 7W
Resistance Tolerance	±1%, ±5%
T.C.R.	±300ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

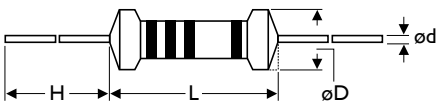
### DERATING CURVE

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



### DIMENSIONS

Unit: mm



STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
KNP-25	KNP50S	6.3±0.5	2.5±0.3	28±2.0	0.55±0.05
KNP-50	KNP1WS	9.0±0.5	3.5±0.3	26±2.0	0.55±0.05
KNP100	KNP2WS KNP3SS	11.5±1.0	4.6±0.5	35±2.0	0.8±0.05
KNP200	KNP3WS	15.5±1.0	5.2±0.5	33±2.0	0.8±0.05
KNP300	KNP5WS	17.5±1.0	6.5±0.5	32±2.0	0.8±0.05
KNP400					
KNP500	KNP7WS	24.5±1.0	8.5±0.5	38±2.0	0.8±0.05
KNP600					
KNP700	-	24.5±1.0	8.5±0.5	38±2.0	0.8±0.05

Note: KNP1WS ( for MBType ) ød = 0.8±0.05 mm

## ELECTRICAL CHARACTERISTICS

### NORMAL STYLE

STYLE	KNP-25	KNP-50	KNP100	KNP200	KNP300	KNP400	KNP500	KNP600	KNP700
Power Rating at 40°C					3W	4W	5W	6W	7W
Power Rating at 70°C	1/4W	1/2W	1W	2W					
Maximum working voltage	$\sqrt{P \times R}$								
Voltage Proof on Insulation	250V	300V	400V						
Resistance Range ( $\pm 1\%$ )	0.1Ω - 150Ω	0.1Ω - 750Ω	0.1Ω - 1.5KΩ	0.1Ω - 2.4KΩ	0.1Ω - 3.3KΩ		0.1Ω - 6.2KΩ		
Resistance Range ( $\pm 5\%$ )	0.1Ω - 200Ω	0.1Ω - 800Ω	0.1Ω - 2.2KΩ	0.1Ω - 2.7KΩ	0.1Ω - 3.9KΩ		0.1Ω - 6.8KΩ		
Operating Temp. Range	-40°C to +200°C								
Temperature Coefficient	±300ppm/°C								

Note: Special value is available on request

### MINIATURE STYLE

STYLE	KNP50S	KNP1WS	KNP2WS	KNP3SS	KNP3WS	KNP5WS	KNP7WS
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	400V				
Resistance Range ( $\pm 1\%$ )	0.1Ω - 150Ω	0.1Ω - 750Ω	0.1Ω - 1.5KΩ		0.1Ω - 2.4KΩ	0.1Ω - 3.3KΩ	
Resistance Range ( $\pm 5\%$ )	0.1Ω - 200Ω	0.1Ω - 800Ω	0.1Ω - 2.2KΩ		0.1Ω - 2.7KΩ	0.1Ω - 3.9KΩ	
Operating Temp. Range	-40°C to +200°C						
Temperature Coefficient	±300ppm/°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.

Revision: 201304



## EXPLANATIONS OF ORDERING CODE

<b>MFR</b>	<b>-12</b>	<b>F</b>	<b>T</b>	<b>F</b>	<b>52-</b>	<b>100R</b>
Code 1 - 3 <b>Series Name</b> See Index	Code 4 - 6 <b>Power Rating</b> -05 = $\varnothing$ d0.5mm -06 = $\varnothing$ d0.6mm -07 = $\varnothing$ d0.7mm -08 = $\varnothing$ d0.8mm -10 = $\varnothing$ d1.0mm -14 = $\varnothing$ d1.4mm -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 <b>Tolerance</b> P = $\pm 0.02$ % A = $\pm 0.05$ % B = $\pm 0.1$ % C = $\pm 0.25$ % D = $\pm 0.5$ % F = $\pm 1$ % G = $\pm 2$ % J = $\pm 5$ % K = $\pm 10$ % - = Base on Spec.	Code 8 <b>Packing Style</b> T = Tape/Box R = Tape/Reel B = Bulk	Code 9 <b>Temperature Coefficient of Resistance</b> - = Base on Spec. A = $\pm 5$ ppm/ $^{\circ}$ C B = $\pm 10$ ppm/ $^{\circ}$ C C = $\pm 15$ ppm/ $^{\circ}$ C S = $\pm 20$ ppm/ $^{\circ}$ C D = $\pm 25$ ppm/ $^{\circ}$ C E = $\pm 50$ ppm/ $^{\circ}$ C F = $\pm 100$ ppm/ $^{\circ}$ C G = $\pm 200$ ppm/ $^{\circ}$ C H = $\pm 250$ ppm/ $^{\circ}$ C I = $\pm 300$ ppm/ $^{\circ}$ C J = $\pm 350$ ppm/ $^{\circ}$ C	Code 10 - 12 <b>Forming Type</b> 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 <b>Resistance Value</b> 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: **SQP500JB-10R**

#### • JPW series:

<Code 13-17>: without resistance value code

Example: **JPW-06-T-52-**

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Wirewound Resistors - Through Hole category](#):*

*Click to view products by [Yageo manufacturer](#):*

Other Similar products are found below :

[75822-2K4](#) [90J56R](#) [AC03000001208JAC00](#) [EP3WS47RJ](#) [C1010KJL](#) [C1015RJL](#) [C3A10KJT](#) [27J1K0](#) [ES3W47RJ](#) [AC04000001500JAC00](#)  
[AC10000002208JAB00](#) [AC10000004708JAB00](#) [SQMW5R39J](#) [SQPW5R22J](#) [SQPW5R33J](#) [1879927-3](#) [FCB2100RJ](#) [T505](#) [FSQ5WR47J](#)  
[FW10A33R0JA](#) [C1010RJL](#) [C10220RJL](#) [C10R47JL](#) [C141K0JL](#) [C144R7JL](#) [ES05W100RJ](#) [SQMW1047RJ](#) [SQMW210RJ](#) [ULW5-39R0JT075](#)  
[W31-R47JA1](#) [ULW5-68RJT075](#) [SQBW401K0JFASTON](#) [SPH1001JLF](#) [65888-3R3](#) [SQP500JB-400R](#) [SQBW403R3JFASTON](#) [280-PRM7-](#)  
[4.7-RC](#) [CW02B9R100JE73](#) [FW70A1000JA](#) [AC05000005608JAC00](#) [SQPW547RJ](#) [SQMW10R68J](#) [C102K2JL](#) [SQPW510RJ](#) [PW103001KLF](#)  
[SQPW522RJ](#) [SQPW568RJ](#) [FCB4560RJ](#) [FCB2R47J](#) [SQPW2R047J](#)