

WIRE WOUND RESISTORS

KNP SERIES

Feature

- Small size and low cost.
- Super heat dissipation, instant overload capability.
- Standard tolerance: $\pm 1\%$, $\pm 5\%$
- Standard Value: E24 series as range below
- Miniature size available (As KNP-S type)
- Available in non-inductive style (As NKNP type)
- Flameproof coating, silicone paint meet UL 94V-0
- Operating temperature : $-40^{\circ}\text{C} \sim +200^{\circ}\text{C}$

Material

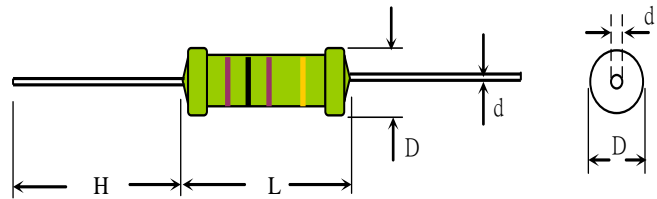
Element: Alloy Resistance Wire

Core: High purity ceramic Al_2O_3

Termination: Standard solder-plated copper lead

Coating: Green silicone, Gray (5W)

Dimension



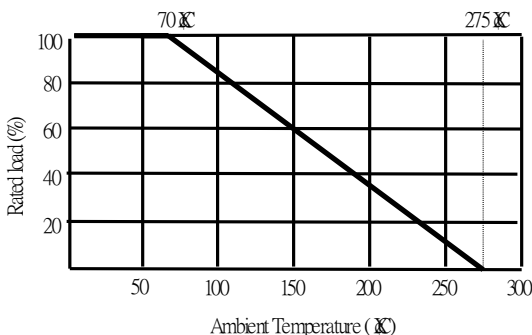
General Specification

| TYPE | DIMENSION(mm) | | | | POWER RATING | MAXIMUM WORKING VOLTAGE | RESISTANCE | |
|----------------|----------------|---------------|--------------|--------------|--------------|-------------------------|----------------------------|--------------|
| | L | D | H | $d \pm 0.05$ | | | STANDARD | MAXIMUM |
| KNP025 | 6.3 \pm 1.0 | 2.5 \pm 0.3 | 27 \pm 3.0 | 0.55 | 1/4W | $E = \sqrt{P * R}$ | 0.1 Ω -27 Ω | |
| KNP050 | 9.0 \pm 2.0 | 3.0 \pm 2.0 | 27 \pm 3.0 | 0.70 | 1/2W | | 0.1 Ω -80 Ω | 220 Ω |
| KNP100S | 9.0 \pm 2.0 | 3.0 \pm 2.0 | 27 \pm 3.0 | 0.70 | 1WS | | 0.1 Ω -80 Ω | 220 Ω |
| KNP100 | 11.0 \pm 2.0 | 4.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 1W | | 0.1 Ω -100 Ω | 470 Ω |
| KNP200S | 11.0 \pm 2.0 | 4.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 2WS | | 0.1 Ω -100 Ω | 470 Ω |
| KNP200 | 15.0 \pm 2.0 | 5.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 2W | | 0.1 Ω -100 Ω | 1K Ω |
| KNP300S | 15.0 \pm 2.0 | 5.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 3WS | | 0.1 Ω -100 Ω | 1K Ω |
| KNP300 | 17.0 \pm 2.0 | 6.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 3W | | 0.1 Ω -150 Ω | 1K Ω |
| KNP500S | 17.0 \pm 2.0 | 6.0 \pm 2.0 | 33 \pm 3.0 | 0.80 | 5WS | | 0.1 Ω -150 Ω | 1K Ω |
| KNP500 | 25.0 \pm 2.0 | 8.0 \pm 2.0 | 38 \pm 3.0 | 0.80 | 5W | | 0.1 Ω -150 Ω | 1K Ω |

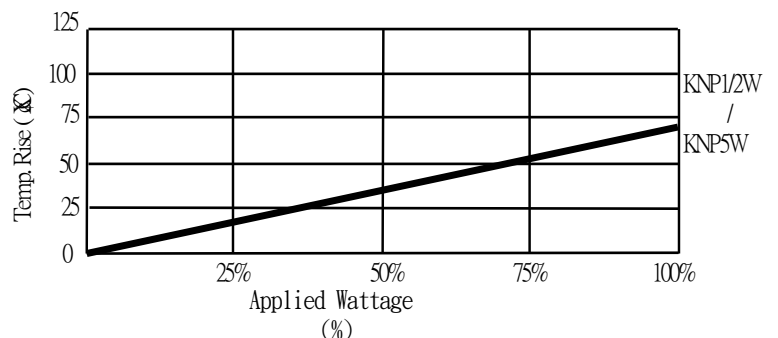
* Maximum overload voltage equals to $\sqrt{P * R \times 10}$

** Resistance values out of standard range is available on request.

Derating Curve



Temperature Rise



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Characteristics

| Item | Requirement | Test Method |
|---------------------------------|---|---|
| Short Time Overload | $\pm(2.5\%+0.05\Omega)$ | JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage for 5 seconds |
| Insulation Resistance | $> 1000M\Omega$ | JIS-C-5201-1 5.6 Apply 100VDC for 1 minute |
| Endurance | $\pm(1.5\%+0.05\Omega)$ | JIS-C-5201-1 7.10 70 \pm 2 $^{\circ}$ C, Max. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5hrs "OFF" |
| Damp Heat with Load | $\pm(1.5\%+0.05\Omega)$ | JIS-C-5201-1 7.9 40 \pm 2 $^{\circ}$ C, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5hrs "OFF" |
| Solder ability | 90% min. Coverage | JIS-C-5201-1 6.5 245 \pm 5 $^{\circ}$ C for 3 seconds |
| Dielectric Withstanding Voltage | 1/2W, 1W : 300V 2W, 3W, 5W : 400V | JIS-C-5201-1 5.7 Apply Max. Overload Voltage for 1 minute |
| Temperature Coefficient | $\pm 300PPM/^{\circ}C$ | Resistance value at room temperature and room Temperature+100 $^{\circ}$ C |
| Pulse Overload | $\pm(1\%+0.05\Omega)$ | JIS-C-5201-1 5.8 4 times RCWV for 10000 cycles with 1 second "ON" and 25 seconds "OFF" |
| Resistance To Solvent | No deterioration of coatings and markings | JIS-C-5201-1 6.9 Trichroethane for 1 min. with ultrasonic |
| Terminal Strength | Tensile: ≥ 2.5 kg | Direct Load for 10 seconds In the direction off the terminal leads |
| Shelf Life | $\Delta R = \pm 0.1\%$ | 12 months at room temperature 25 \pm 3 $^{\circ}$ C, 80%RH Max. |

***Storage Temperature : 25 \pm 3 $^{\circ}$ C ; Humidity < 80%RH**

Part Numbering

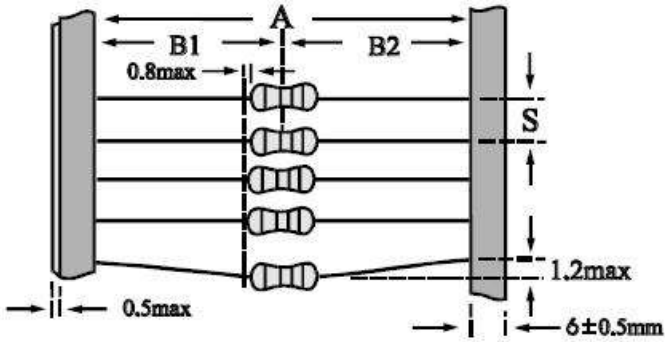
| <u>KNP025</u> | <u>J</u> | <u>TB</u> | <u>10R</u> |
|---------------|-------------|--------------|--------------------|
| ↓ | ↓ | ↓ | ↓ |
| Type/Power | Tol. | Package | Resistance |
| KNP025 | F= \pm 1% | B=Bulk | 0R1 = 0.1 Ω |
| KNP050 | J= \pm 5% | TB=Tape/box | 10R = 10 Ω |
| KNP100 | | TR=Tape/reel | 1KR = 1K Ω |
| KNP200 | | Lead forming | |
| KNP300 | | M | |
| KNP500 | | F | |

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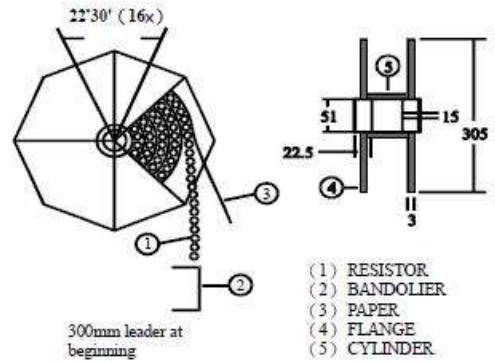
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Taping/Packing Specification

Packing Methods

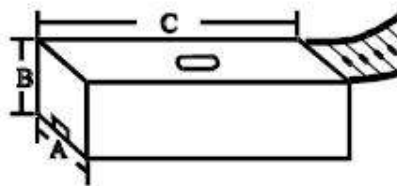


Reel Packing



| TYPE | PACKING METHOD | | | REEL PACKING | |
|----------------|----------------|--------------|----|-------------------|------|
| | A | B1-B2 Max | S | Across Flange (A) | Q'TY |
| KNP025/KNP050S | 52+1/-0 | 1.2 | 5 | 72 | 5000 |
| KNP050/KNP100S | 52+1/-0 | 1.2 | 5 | 72 | 2500 |
| KNP100/KNP200S | 52+1/-0 | 1.2 | 5 | 72 | 1000 |
| | 73+1/-0 | 1.5 | 5 | 72 | 1000 |
| KNP200/KNP300S | 52+1/-0 | 1.2 | 5 | 72 | 1000 |
| | 73+1/-0 | 1.5 | 5 | 72 | 1000 |
| KNP300/KNP500S | 73+1/-0 | 1.5 | 10 | 95 | 1000 |
| KNP500 | 88+1/-0 | 1.5 | 10 | 110 | 1000 |

Ammo Packing



| TYPE | PACKING METHOD | | | AMMO PACKING | | | |
|----------------|------------------|--------------|----|--------------|--------|-----|------|
| | A | B1-B2 Max | S | A | B | C | Q'TY |
| KNP025/KNP050S | 52+1/-0 | 1.2 | 5 | 85 | 103 | 263 | 5000 |
| KNP050/KNP100S | 52+1/-0 | 1.2 | 5 | 85 | 95 | 263 | 2000 |
| KNP100/KNP200S | 52+1/-0, 73+1/-0 | 1.2, 1.5 | 5 | 85,103 | 102,85 | 263 | 1000 |
| KNP200/KNP300S | 52+1/-0, 73+1/-0 | 1.2, 1.5 | 5 | 85,103 | 102,85 | 263 | 1000 |
| KNP300/KNP500S | 52+1/-0, 73+1/-0 | 1.2, 1.5 | 10 | 85,103 | 102,85 | 263 | 1000 |
| KNP500 | 88+1/-0 | 1.5 | 10 | 120 | 75 | 270 | 250 |