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(KNPN)
Non-Inductive
Wire wound Resistor

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Product Introduction

Non-inductive Wire Wound Resistor Improves Inductance for High Frequency Applications.

Features :

- Low cost
- Excellent pulse load capability
- Non-inductive Ayrton Perry winding
- A wide resistance range 0.1Ω to 50Ω
- A wide range of power ratings 0.5W to 6W
- Operating temperature range -55℃ ~ 155℃
- Products with Pb-free Terminations and RoHS compliant

Applications :

- Power tools
- Current sensing
- Consumer applications
- Power supplies, Welders
- High voltage applications
- High-switching applications
- Home entertainment, appliances

Token Electronics has introduced a non-inductive version KNPN resistor of conformal coated, leaded wire wounds. The KNPN non-inductive wire wound resistor offers the expected performance with the added characteristic of vastly improved inductance, making it suitable for high-switching applications.

Wire wound technology has long been known as a leading technology for power resistor needs though it is inherently inductive. Known as Ayrton Perry winding, a non-inductively wound has one winding in one direction and one in the other direction.

By using a non-inductively wound version this greatly reduces the inductance of any given resistor size and value combination; however, it does not completely eliminate the inductance.

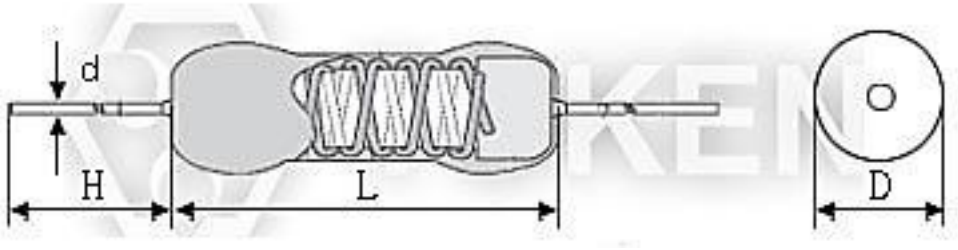
This non-inductive winding is available in all standard KNPN sizes from 0.5 watts up to 6 watts with options 1%, 2% and 5% tolerance. The KNPN series is RoHS compliant and also can be supplied with radial, goalpost or lancet preformed leads.

To address your need for technical and economic success in a timely manner, our custom solutions are available. Contact us with your specific needs. Or link to Token official website "General Purpose Resistors" for more information.

General Specifications

General Specifications (KNPN)

Type		Rated Watts	Dimensions (Unit: mm)				Resistance Range (Ω)	Tolerance
			D ± 0.5	L ± 1	H ± 3	d ± 0.05		
KNPN	KNPN-50	1/2W	4	9.0	26	0.50~0.55	0.1-10 Ω	± 1% ± 2% ± 5%
	KNPN-100	1W	4	9.0	26	0.50~0.55	0.1-10 Ω	
	KNPN-100B	1W	4.5	11.5	26	0.75~0.80	0.1-10 Ω	
	KNPN-200	2W	4.5	11.5	26	0.75~0.80	0.1-10 Ω	
	KNPN-200B	2W	5.5	15.5	35	0.75~0.80	0.1-20 Ω	
	KNPN-300	3W	5.5	15.5	35	0.75~0.80	0.1-20 Ω	
	KNPN-400	4W	6.5	17.5	35	0.75~0.80	0.1-30 Ω	
	KNPN-500	5W	6.5	17.5	35	0.75~0.80	0.1-30 Ω	
	KNPN-500B	5W	8.5	24.5	38	0.75~0.80	0.1-50 Ω	
	KNPN-600	6W	8.5	24.5	38	0.75~0.80	0.1-50 Ω	

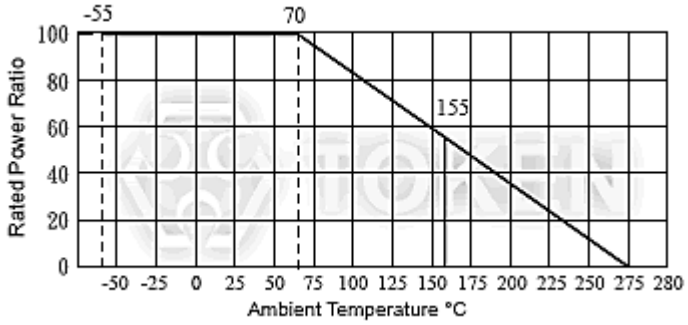


Non-inductive Resistor (KNPN) Dimensions

Electrical Performance

Electrical Performance (KNPN)

TEST ITEMS	CONDITION	SPEC
Operating Temperature Range	-55℃ ~ 275℃ (0W)	
Resistance Temp. Coeff.	Room temperature/100℃ up	± 300 PPM /℃
Short Time Overload	10 times of rated wattage for 5 sec.	± 2 %
Rated Load	Rated wattage 30 min.	± 1 %
Voltage Withstanding	500VAC 1 min	± 1 %
Temperature Cycling	-20℃ ~ 85℃ 5 cycles	± 1 %



(KNPN) Power derating curve

Application Notes

Application Notes of Non-inductive Wire Wounds (KNPN)

- When being used in AC circuits, some wirewound structures give inductance ingredients or parasitic capacity, so they may cause unusual phenomena such as oscillations etc.
  Quorum deviations of other components should be carefully taken into account for use.
- Application and Placement: Wire wound resistors use different gauges of wire as resistance elements. Sometimes the gauge is extremely thin (finer than a strand of human hair) and very susceptible to breakage in environments containing salts, ash, dust and corrosives. Avoid utilization in such environments.
- Do not install in dusty areas because the accumulation will cause shorts and poor conductance.

Order Codes

Order Codes (KNPN)

KNPN-100	1W	10R	J	P
Part Number	Rated Power (W)	Resistance Value (Ω)	Resistance Tolerance (%)	Package
KNPN		0R1 0.1Ω 1R 1Ω 1R2 1.2Ω 10R 10Ω 12R 12Ω	F ±1% G ±2% J ±5%	P Bulk TB Taping Box

General Information

General Purpose Resistors with Customized Service

Token Electronics is expanding business to include a broad range of General Purpose Resistor products designed for high volume applications. This expanded range of commercial resistor presents a more comprehensive product offering for Customer Experience Management (CEM) and other high volume customers that require quality products at competitive pricing.

Backed by the same customer service, technical support and quality assurance that Token has always provided, these new commercial products enable you the opportunity to source a wider range of resistors from a trusted supplier.

General Use

When an ambient temperature exceeds a rated ambient temperature, resistor shall be applied on the derating curve by derating the load power. General purpose resistor under overloads is not combustion resistant and is likely to emit, flame, gas, smoke, red heat, etc. Flame retardant resistor generally emits smoke and red heat in a certain power and over but do not emit fire or flame.

When resistors are shielded or coated with resin etc., stress from the storage heat and the resins are applied. So, performance and reliability should be checked well before use.

When a voltage higher than rated is applied in a short time (single pulse, repeated pulses, surge, etc.), it does not necessarily ensure safety that an effective wattage is not higher than a rated wattage. Then consult with us with your specified pulse wave shape. Resistors shall be used in a condition causing no dew condensation.

Keep temperature from rising by choosing resistor with a higher rated capacity; do not use a component having the exact load value required. For considerations of safety in extended period applications, the rating should be more than four times higher than the actual wattage involved, but never use resistors at less than 25% of its rated power.

In applications where resistors are subject to intermittent current surges and spikes, be sure in advance that the components selected are capable of withstanding brief durations of increased load.

Do not exceed the recommended rated load. Resistor must use within the rated voltage range to prevent the shortening of service life and/or failure of the wound resistance elements.

Minimum load: Resistor must be utilized at 1/10 or more of the rated voltage to prevent poor conductance due to oxidation build-up. For basic particulars for cautions, refer to EIAJ Technical Report RCR-2121 "Guidance for care note on fixed-resistors".