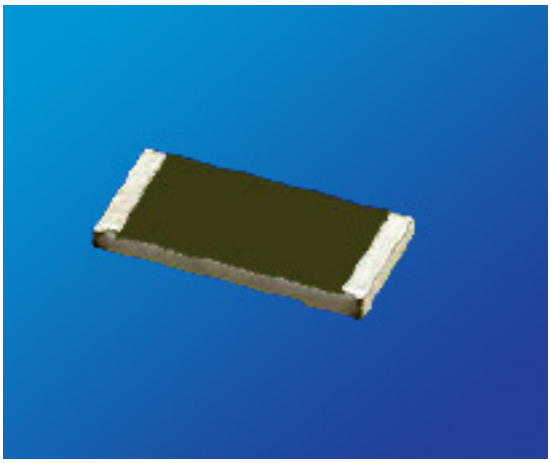
Resistor Thin Film Precision RNP Series



Key Features

- Resistances from 1 Ohm to 3M Ohms
- Resistance Tolerances to ± 0.01%
- Power Rating 0.06 to 0.75 watts
- TCR's up to ± 5ppm/ºC
- Operating Temperature: - 55ºC to 155ºC
- Available in sizes 0402,0603, 0805, 1206, 2010, 2512

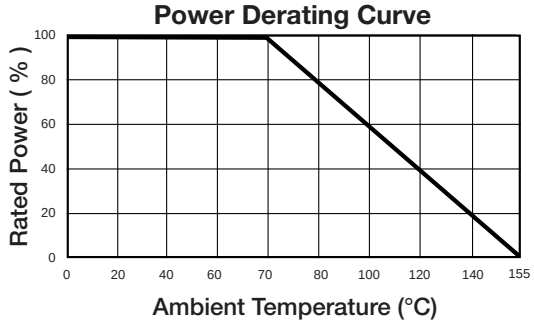
Applications

- Motor Control
- Precision Scales
- Smart Grid Metering
- Temperature Sensors

Product Summary

Package Size	Standard Power Rating (page 44)		High Power Rating (page 45)	
	Resistance Range (Ω)	Power Rating (W) at 70ºC	Resistance Range (Ω)	Power Rating (W) at 70ºC
0402	1 - 511K	0.0625	-	-
0603	1 - 1M	0.0625	4.7 - 1M	0.100
0805	1 - 2M	0.100	1 - 1M	0.125
1206	1 - 2.49M	0.125	4.7 - 1M	0.250
2010	1 - 3M	0.250	4.7 - 1M	0.333
2512	1 - 3M	0.500	1 - 2K	0.750

Power Derating Curve



Available Options *(Consult Factory)*

- Special Testing Requirements

How to Order

RNP	14	H	W	003K8	B	T
Resistor Thin Film Precision	Package Code	Power Rating	Temperature Coefficient of Resistance (TCR)	Resistance	Tolerance	Packing
	07 = 0402 14 = 0603 15 = 0805 18 = 1206 19 = 2010 20 = 2512	S = Standard H = High Power	X = ± 5ppm/°C W = ± 10ppm/°C V = ± 15ppm/ºC T = ± 25ppm/ºC Q = ± 50ppmºC	038R0 = 38Ω 003K8 = 3.8KΩ 038K0 = 38.0KΩ 380K0 = 380.0KΩ 003M8 = 3.8MΩ Letter denotes decimal place. R = decimal., "K" 10^3, "M" 10^6 Remaining 4 digits are significant or placeholders.	T = ± 0.01% A = ± 0.05% B = ± 0.1% C = ± 0.25% D = ± 0.5% F = ±1.0%	T = Paper Tape

Standard Termination Finish: Nickel Tin Alloy

Example P/N:

RNP14HW003K8BE is Resistor Thin Film Precision, 0603 size, high power rating, ±10ppm/ºC, 3.8KΩ, ±0.1%, embossed tape & reel

Resistor Thin Film Precision
RNP Series

Standard Power Rating Specifications

Standard Package Size		Size 0402 (RNP07S)					Size 0603 (RNP14S)					Size 0805 (RNP15S)				
Max Working Voltage (V) [1]		25V					50V					100V				
Max Overload Voltage (V) [2]		50V					100V					200V				
Power Rating (W) at 70°C		0.0625					0.0625					0.100				
TCR PPM/°C		±5	±10	±15	±25	±50	±5	±10	±15	±25	±50	±5	±10	±15	±25	±50
Resistance Range (Ω)	±0.01% Tolerance	49.9Ω to 4.99KΩ	49.9Ω to 12KΩ		-		24.9Ω to 15KΩ	24.9Ω to 100KΩ		-		24.9Ω to 30KΩ	24.9Ω to 200KΩ		-	
	±0.05% Tolerance				49.9Ω to 12KΩ			4.7Ω to 332KΩ					4.7Ω to 1MΩ			4.7Ω to 1MΩ
	±0.1% Tolerance		49.9Ω to 60KΩ	49.9Ω to 69.8KΩ	10Ω to 255KΩ			4.7Ω to 511KΩ		4.7Ω to 1MΩ					4.7Ω to 2MΩ	
	±0.25% Tolerance				4.7Ω to 511KΩ					1Ω to 1MΩ	1Ω to 1MΩ				1Ω to 2MΩ	
	±0.5% Tolerance															
	±1% Tolerance															

Standard Package Size		Size 1206 (RNP18S)					Size 2010 (RNP19S)					Size 2512 (RNP20S)				
Max Working Voltage (V) [1]		150V					150V					150V				
Max Overload Voltage (V) [2]		300V					300V					300V				
Power Rating (W) at 70°C		0.125					0.250					0.500				
TCR PPM/°C		±5	±10	±15	±25	±50	±5	±10	±15	±25	±50	±5	±10	±15	±25	±50
Resistance Range (Ω)	±0.01% Tolerance	24.9Ω to 49.9KΩ	24.9Ω to 499KΩ		-		24.9Ω to 100KΩ	24.9Ω to 499KΩ		-		24.9Ω to 100KΩ	24.9Ω to 499KΩ		-	
	±0.05% Tolerance		4.7Ω to 1MΩ		4.7Ω to 1MΩ			4.7Ω to 1MΩ		4.7Ω to 1MΩ			4.7Ω to 1MΩ		4.7Ω to 1MΩ	
	±0.1% Tolerance				4.7Ω to 2.49MΩ					4.7Ω to 3MΩ					4.7Ω to 3MΩ	
	±0.25% Tolerance				1Ω to 2.49MΩ					1Ω to 3MΩ					1Ω to 3MΩ	
	±0.5% Tolerance															
	±1% Tolerance															

[1] Working Voltage $=\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

[2] Overload Voltage = $2.5\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

Resistor Thin Film Precision
RNP Series

High Power Ratings Specifications

High Power Package Size		Size 0603 (RNP14H)					Size 0805 (RNP15H)					Size 1206 (RNP18H)				
Max Working Voltage (V) [1]		75V					150V					200V				
Max Overload Voltage (V) [2]		150V					300V					400V				
Power Rating (W) at 70ºC		0.100					0.125					0.250				
TCR PPM/°C		±5	±10	±15	±25	±50	±5	±10	±15	±25	±50	±5	±10	±15	±25	±50
Resistance Range (Ω)	±0.01% Tolerance	24.9Ω to 15KΩ	24.9Ω to 100KΩ				24.9Ω to 30KΩ	24.9 to 200K				24.9Ω to 49.9KΩ	24.9Ω to 499KΩ			
	±0.05% Tolerance		4.7Ω to 332KΩ		4.7Ω to 332KΩ			4.7Ω to 511KΩ					4.7Ω to 1MΩ			
	±0.1% Tolerance									4.7Ω to1 MΩ						
	±0.25% Tolerance						4.7Ω to 511KΩ		4.7Ω to 1MΩ							
	±0.5% Tolerance		4.7Ω to 332KΩ		4.7Ω to 1MΩ					1Ω to 1MΩ						
	±1% Tolerance															

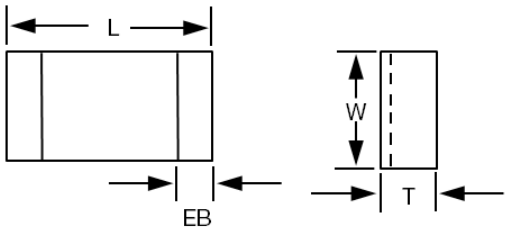
High Power Package Size		Size 2010 (RNP19H)					Size 2512 (RNP20H)				
Max Working Voltage (V) [1]		200V					200V				
Max Overload Voltage (V) [2]		400V					400V				
Power Rating (W) at 70ºC		0.333					0.750				
TCR PPM/°C		±5	±10	±15	±25	±50	±10	±15	±25	±50	
Resistance Range (Ω)	±0.01% Tolerance	24.9Ω to 49.9KΩ	24.9Ω to 499KΩ				24.9Ω to 2KΩ				
	±0.05% Tolerance		4.7Ω to 1MΩ				4.7Ω to 2KΩ				
	±0.1% Tolerance										
	±0.25% Tolerance						1Ω to 2KΩ				
	±0.5% Tolerance										
	±1% Tolerance										

[1] Working Voltage = $\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

[2] Overload Voltage = $2.5 * \sqrt{(P * R)}$ or MAX Listed, whichever is lower.

Resistor Thin Film Precision
RNP Series

Mechanical Characteristics



Package Size	Dimensions			
	L (Length) Inches [mm]	W (Width) Inches [mm]	T (Thickness) Inches [mm]	EB (End Band) Inches [mm]
0402	0.04 [1.02]	0.02 [0.51]	0.012 [0.30]	0.007 [0.18]
0603	0.06 [1.52]	0.03 [0.76]	0.018 [0.46]	0.012 [0.30]
0805	0.08 [2.03]	0.05 [1.27]	0.022 [0.56]	0.012 [0.30]
1206	0.12 [3.05]	0.06 [1.52]	0.022 [0.56]	0.016 [0.41]
2010	0.19 [4.83]	0.09 [2.29]	0.022 [0.56]	0.023 [0.58]
2512	0.25 [6.35]	0.12 [3.05]	0.022 [0.56]	0.023 [0.58]

Environmental Characteristics

Test	Requirement		Conditions
	Tolerance <0.05%	Tolerance >0.05%	
Bending Strength	ΔR±0.05%	ΔR±0.2%	Bending amplitude 3mm for 10 seconds
Resistance to Soldering Heat	ΔR±0.05%	ΔR±0.2%	260±5°C for 10 seconds
Thermal Shock	ΔR±0.05%	ΔR±0.25%	-55°C~150°C, 100 cycles
Insulation Resistance	>1000 MΩ		Apply 100VDC for 1 minute
TCR	As Spec.		+25/-55/+25/+125/+25°C
Solderability	95% min coverage		245±5°C for 3 seconds
Damp Heat With Load	ΔR±0.05%	ΔR±0.3%	40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs “ON” and 0.5 hrs “OFF”
	ΔR±0.5% (For High Power Rating)		
Load Life	ΔR±0.05%	ΔR±0.2%	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs“ON” and 0.5 hrs “OFF”
	>7kΩΔ R±0.5%		
	ΔR±0.5% (For High Power Rating)		
Low Temperature Operation	ΔR±0.05%	ΔR±0.2%	1 hour, -65°C, followed by 45 minutes of RCWV
	ΔR±0.5% (For High Power Rating)		
Short Time Overload	ΔR±0.05%	ΔR±0.2%	RCWV*2.5 or Max. overload voltage for 5 seconds
	ΔR±0.2% (For High Power Rating)		

Moisture Sensitivity Level: MSL-1
This datasheet is subject to change without notice.

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- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
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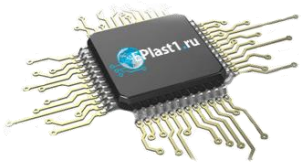
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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