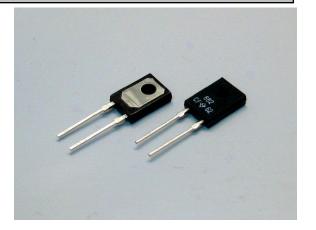
RNP-10S



## Features and Applications

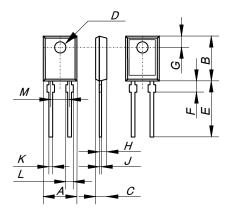
Small 20Watts high power resistor in TO-126 package with 5.9 C/W heat resistance from hot spot to flange.

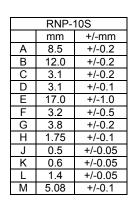
Non-Inductive, fit for high speed SW power sources, high precision high-speed pulse handling circuits. Thin style in small package fit for high-density installation of electronic instruments.

Superior vibration durability with heat sink mounting.

Complete thermal flow design are available.

Applications include snubber, gate control, bleeder, filter, rush current protection, braking resistors of automotive, rail traction, wind turbine, PV, UPS and motor control inverters.





Molding, epoxy Leads, Tin plated Cu Conductor, Copper Resistor, Ni-Cr Substrate, Alumina Flange, Ni plated Cu

Between flange and resistor are insulated.

## **Specifications and Performances**

	Specification-Performance			Test Conditions
Rating Power	20 Watts			Flange temperature of -55 to +25 °C
Rating Power	1 Watt			Free air (without heat sink).
Heat Resistance	5.9 °C/W			From hot spot to flange.
Resistance Range	0.02-0.09 Ohm	0.1-510k Ohm	10-51K Ohm	
Nominal Resistance	+E6	+E24	+E24	
TCR (ppm/deg C)	+/-250 (H*)	+/-100 (A)	+/-50 (C)	Flange temperature -55 to +155°C
Tolerance	+/-5%(J)	+/-5%(J)	+/-1%(F)	
Resistor Matwerial	Thick Film Thin Filn		Thin Film	
Capacitance	1.00 pF			Equivalent parallel capacitance.
Inductance	8.22 nH			Equivalent series inductance
Operation Temp. Range	-55 °C to +175°C			
Max. Operation Voltage	Small value either 500V or $\sqrt{P \times R}$			P: rating power and R: resistance
Withstanding Voltage	2000 Volt AC			60 seconds, 1mA,
Load Life	+/- 1.0 %			25 °C, 90 min.ON, 30min.OFF, 1000h.
Humidity	+/- 1.0 %			40 °C, 90 to 95%RH, DC 0.1W, 1000h
Temperature Cycle	+/- 1.0 %			
Soldering Heat	+/- 1.0 %			350+/-5 °C, 3seconds,
Solder ability	Over 95 of surface			230+/-5 °C, 3seconds.
Insulation Resistance	Over 1000 Meg Ω			Between terminals and flange.
Vibration	+/-0.25 %			IEC60068-2-6, see note 4
Flammability	UL94-V0			
Weight	0.9 grams			

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**RNP-10S** 

## Ordering Information RNP-10S С 10R0 (\* F Z03 Note Z03 **RNP-10S** H(250ppm) > R02-R09 (+E6) > J(5%) > Tube/60pcs R10-510K (+E24) A(100ppm) > > F(1%), J(5%) Z05 Tray/100pcs C(50ppm) > 10R-51K (+E24) > F(1%) Resistance value (\*) is available following modified E24, +E24. 2.2 25 3.0 12 18 20 24 27 33 10 11 13 15 16 3.6 3.9 4.0 4.3 4.7 5.0 5.1 5.6 6.2 6.8 7.5 8.0 8.2 9.1 Note\*: When ordering, additional ohm resistance notation is recommended for keeping out of misunderstanding. **Derating Curve** Temperature Rise Temperature(°C) 140 Rating Power(W), with 2.8°C/W heat sink. 120 24 100 20 80 16 +25°C 60 12 40 8 20 175°C 4 0 0 -50 0 50 100 150 200 0 10 20 Flange Temperature (°C) Application Power (W) **Frequency Characteristics Pulse Peak Power** Impedance $(\Omega)$ 1K Pulse Peak Power (W) **RNP-10S C100F** RNP-10\$ C1K0 100k Tentative continuous-pulse power allowance at duty 0.01. RNP-10\$ C101 Load life test will be necessary in actual equipment, Because curve will be changed by resistance, repetition, 100 10k RNP-10S C500 duty and operating temperature. 10S C100 RNP. 1k---10 200W RNP-10S A5R0 100 20W 1 10 10k 100k 1M 10M 100M 1G 10n 100n 1u 10u 100u 1m 10m 100m 1 10 Frequency(Hz) パルス幅(seconds)

Note

- (1) Insulation material is unnecessary between flange and heat-sink, because flange and resistor are separated by alumina insulated When mounting resistor on substrate. heat-sink, screw, clip and pressure strip with using heat conduction grease on back side of resistor are recommended. Recommended
- screw torque is 0.5-0.6Nm.
- (2) Resistance measurement shall be made at a point 5.27mm +/-0.6 mm from the resistor body.
  (3) TCR of low resistance will be increased as 300ppm/0.02Ω, 200ppm/0.05Ω, 140ppm/0.1Ω and 80ppm/0.2Ω typically. Testing point is
- at 5.27mm from bottom of molding of terminals. Test method is IEC60068-2-6, and specification is sine sweep wave form, 100Hz-2000Hz, 10 cycles, amplitude 0.75mm or 100m/s<sup>2</sup>, 90minutes. direction x-y z, Amplitude 0.75mm will be applied under break point Frequency (about 60Hz) and 100m/ s<sup>2</sup> over break point (4)
- (5) 0.1% tolerance resistors is available, please see datasheet of RNP-10P.

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