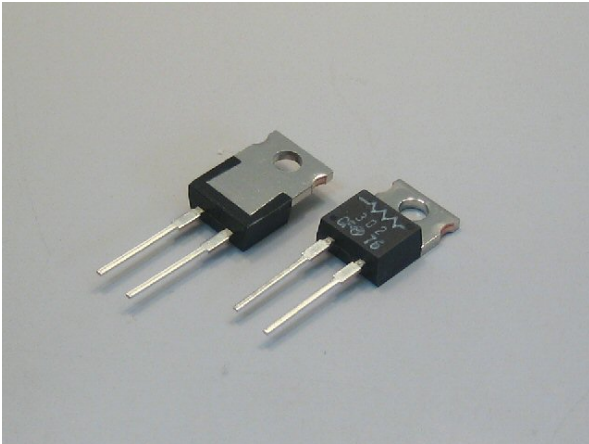


TO220 20W HIGH POWER RESISTORS
RNP-10



Features and Applications

20W high power resistors in TO220 style molded package for through-hole (20W) and surface mount (10W).

Non-inductive design suits high frequency applications and high-speed pulse circuits.

Low, 5.9 deg C/W heat resistance from resistor hot spot to flange and long life performance are presented with thin film metallization technology and rejection of plastic adhesive joint.

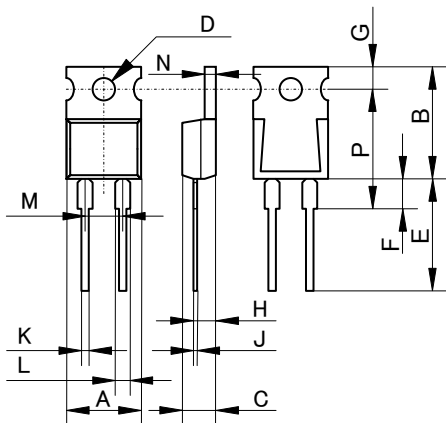
Wide 100 milliohm to 51KOhm resistance range, non-inductive impedance characteristic and heat conduction through the insulated metal flange aid circuit designers.

Small size and thin profile suit high-density compact installations.

Complete thermal conduction, heat dissipation design and vibration durable design also available.

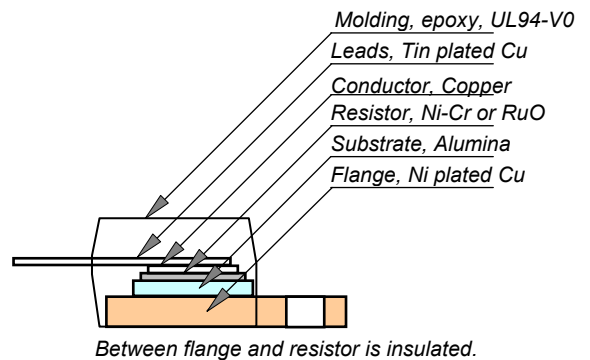
Applications for UPS, power unit of machines, motor control, drive circuits, automotive, measurements, industrial computers and high frequency electronics.

Dimensions (mm)



RNP-10		
	mm	+/-mm
A	10.1	+/-0.2
B	15.0	+/-0.2
C	4.5	+/-0.2
D	3.6	+/-0.1
E	15.5	+/-1.0
F	4.0	+/-0.5
G	3.0	+/-0.2
H	2.75	+/-0.2
J	0.5	+/-0.05
K	0.75	+/-0.05
L	1.5	+/-0.05
M	5.08	+/-0.10
N	1.5	+/-0.05
P	16.0	+/-0.50

Structure and Material



Ordering Information

RNP-10	C	10R0 (*)	F	Z00	Note
RNP-10	H(250ppm)	R02-R09 (+E6)	J(5%)	Z03	Tube/50pcs
	A(100ppm)	R10-9R1 (+E24)	F(1%), J(5%)	Z05	Tray/100pcs
	C(50ppm)	10R-51K (+E24)	F(1%)		

Resistance value (*) is available following modified E24, +E24.

1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.5	2.7	3.0	3.3
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.

20W HIGH POWER RESISTORS

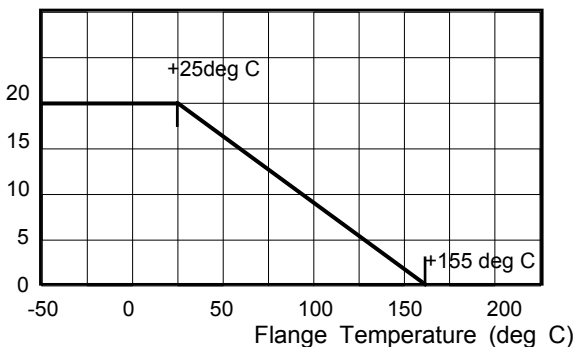
RNP-10

Specifications

Items	RNP-10		RMP-10	Test Conditions
Rating Power	20 W		10W	-55 to 25 deg C flange temperature
Rating Power	1 W		1W	Free air.
Heat Resistance	5.9 deg C/W		5.9 deg C/W	From resistor hot spot to flange
Resistance Range	0.01-0.091ohm	0.1-9.1ohm	10-51kohm	Note 2
Nominal Resistance	E6	E24	E24	Includes 2.5, 4.0 and 5.0
TCR (ppm / deg C)	250(H)	100 (A)	50 (C)	Note 3
Tolerance	5%(J)	1%(F), 5% (J)	1% (F)	1% tolerance at 0.01-0.091 ohm are available optionally.
Capacitance	1.15pF			Equivalent parallel capacitance.
Inductance	8.38nH			Equivalent series inductance
Operation Temp. Range	-55 deg C to +155 deg C			
Max. Operating Volt.	smaller value either 500V or $\sqrt{P \cdot R}$			P: rating power and R: resistance
Withstanding Volt.	2000 VAC			60 seconds. 1mA
Load Life	+/- 1.0 %			25 deg C, 90 min .ON, 30 min .OFF, 1000 hours.
Humidity	+/- 1.0 %			40 deg C, 90-95%RH, DC 0.1W, 1000 hours.
Temp. Cycle	+/- 0.25 %			-55 deg C, 30 min., +155 deg C, 30 min., 5cycles
Soldering Heat	+/- 0.1 %			350+/-5 deg C, 3seconds,
Solder ability	Over 95% of surface			230+/-5 deg C, 3seconds.
Insulation Resistance	Over 1,000 Meg ohm			Between terminals and flange.
Vibration	+/- 0.25 %			IEC60068-2-6, see note 4
Weight	2.1 grams			

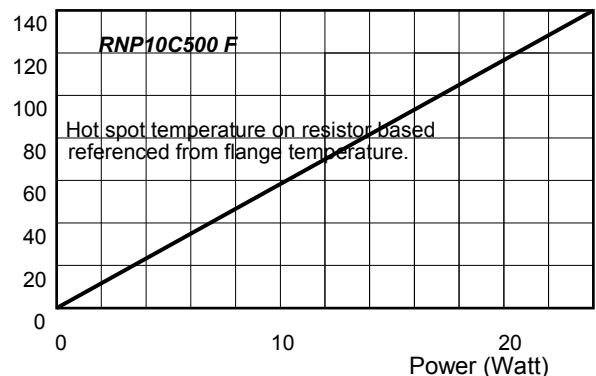
Derating

Power(W)



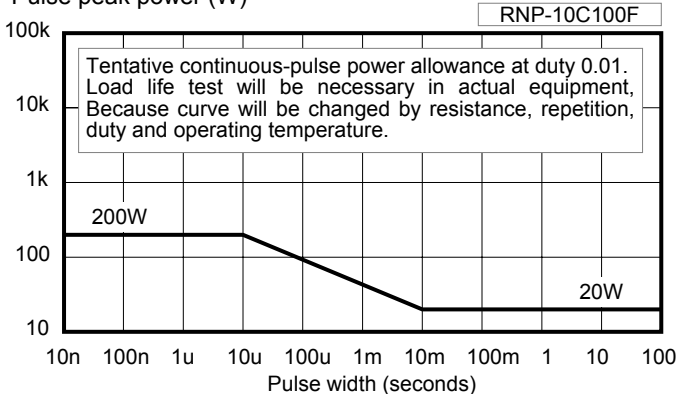
Temperature Rise

(C)



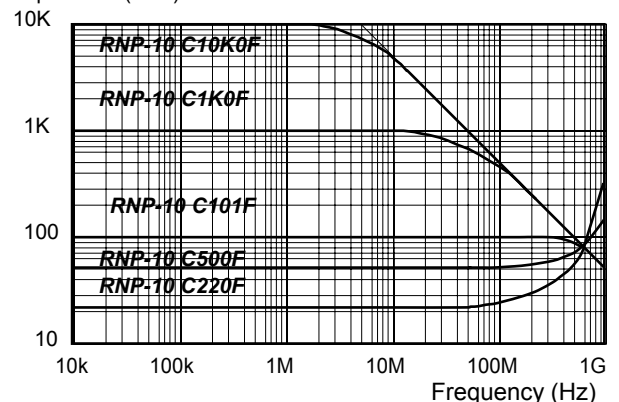
Pulse Energy Durability

Pulse peak power (W)



Frequency Characteristics

Impedance (ohm)



Note:

- Insulating material is unnecessary between flange and heat-sink, flange and resistor is separated by alumina substrate.
- Resistance measurement shall be made at a point 5.27mm +/-0.6 mm from the resistor body.
- TCR of low resistance will be increased as 300ppm/0.02ohm, 200ppm/0.05ohm, 140ppm/0.1ohm and 80ppm/0.2ohm 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/s², 90minutes. direction x-y z, Amplitude 0.75mm will be applied under break point Frequency (about 60Hz) and 100m/ s² over break point
- When mounting resistor on heat-sink by 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.
- 0.1% tolerance resistors is available, please see datasheet of RNP-20P.