TO247 140W HIGH POWER RESISTORS

RNP-100S

Features and Applications

140W high power resistor in TO247 molded package.

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

Low, 0.9 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.

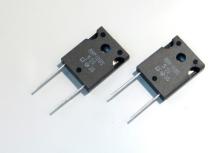
Wide 100 milliohm to 51kOhm resistance range, non-inductive impedance characteristic and heat conduction through the insulated metal flange aids circuit designers.

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

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

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

D			RNP-100S			
				mm	+/-	Leads, Tin plated Cu
		+ T			mm	Mold, epoxy, UL94-V0
RNP100S			A	16.0	+/-	Conductor, Cu
101	U U	р		00.0	0.2	Resistor, NiCr or RuO
CFN63		· _	B	20.0	+/- 0.5	Substrate, Alumina
┝╥┤			С	4.8	+/-	Flange, Ni plated Cu
M		4		4.0	0.2	
		ш	D	3.55*	+/-	
					0.1	
			E	14.5	+/-	
	<u>H</u> _				0.5	
			F	- 5.1	- +/-	
					0.5	Between flange and resistor are insulated
A P/n of RNP-100S includes '-' ³ bût marking omits '-'.						
		F-1003 IIICI	uuesi -	, but n	0.2	
Specifications and D			J	-	-	
Specifications and P	enormances		K	0.8	+/-	
	RNP-100S 0.05				0.05	Test Conditions
Rating Power	140 Watts -				. /	-55 °C to +25 °C flange temperature.
Rating Power	3.0 WattsM 10.9 +/-				+/-	Free air.
Heat Resistance	0.9 C/W					Hot spot to flange
Resistance Range	0.02-0.09Ω 0.1-1M					Note 2
Nominal Resistance	+E12 +E24		-	+E24		Include 2.5, 4.0, 5.0, 8.0 and 16
TCR (ppm/°C)	250ppm/C 100 ppn					Note 3
Tolerance	+/-5% +/-1%, 5		5%			1% tolerance at 0.01-0.091 ohm is available optionally.
Resistor Material	Thick		Thin Film			
Capacitance	3.68pF					Equivalent parallel capacitance.
Inductance	12.25nH					Equivalent series inductance
Operation Temp. Range	-55 °C to +175 °C					
Max. Applied Voltage	smaller value either 700V or $\sqrt{P \cdot R}$				R	P is rating power and R resistance
Withstanding Voltage	2500 VAC					Terminal and flange, 60 seconds, 1mA
Load Life	+/- 1.0 %					25 °C, 90 min. ON, 30min.OFF, 1000hours.
Humidity	+/-1.0 %					40 °C, 90 - 95%RH, DC0.1W, 1000hours.
Temperature Cycle	+/- 0.25 %					-55 °C, 30 min., +175 °C, 30min., 5cycles.
Soldering Heat	+/- 0.25 %					350+/-5 °C, 5 seconds,
Solder ability	Over 95% surface area of leads					245+/-5 °C, 5 seconds.
Insulation Resistance	Over 1000 Meg ohm					Between terminals and flange
Vibration +/- 0.25 %						IEC60068-2-6, see note 4
Weight 6.3 grams						



RoHS

Nikkohm Co., Ltd. 3-31-2640 Minamicho, Misawa, Aomori 033-0036 Japan TEL: +81-176-53-2105, FAX: +81-176-53-2106 © Nikkohm Co., Ltd. All rights reserved. 2014. URL: https://www.nikkohm.co.jp & https://www.nikkohm.co.jp / e-mail: info@nikkohm.co.jp

RNP-100S TO247 140W HIGH POWER RESISTORS Ordering Information Model TCR Resistance Tolerance Code Note **RNP-100S** 101 F Z03 **RNP-100S** H (>=250ppm) R02-R09 (+E12) J(5%) Z03 Tube / 25pcs > > A (100ppm) R10-9R1 (+E24) > F(1%), J(5%) Z05 Tray / 50pcs > > 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 3.0 3.3 2.5 2.7 4.0 4.3 4.7 5.6 6.2 7.5 8.2 3.6 3.9 5.0 5.1 6.8 8.0 9.1 Note*: -When ordering, additional ohm resistance notation is recommended for keeping out of misunderstanding. Temperature Rise **Derating Curve** Resistor surface temperature rise based on flange (°C) %-Rated Power (%) 140 160 RNP-100SA 1R5 J 140 120 +25 deg C 120 100 100 80 80 60 60 40 40 +175 deg C 20 20 0 0 -50 0 50 100 150 200 0 20 40 60 80 100 120 140 Flange Temperature (°C) Application Power (W) **Frequency Characteristics** Pulse Energy Durability Impedance (Ohms) Pulse Peak Power (W) 1k RNP-100SC100F RNP-1005 C 1K0 / 100k Tentative continuous-pulse power allowance at RNP-1005 C 101 F Load life test will be necessary in duty 0.01. 10k actual equipment, Because curve will be changed by resistance, repetition, duty and 100 operating temperature. Dotted is estimation 1k RNP-100S C 100 F 1350W 10 100 140W ПП Т 1 10 10k 100k 1M 10M 100M 1G 10n 100n 1u 10u 100u 1m 10m 100m 1 10 Frequency(Hz) Pulse Width (seconds)

Note:

- (1) Insulation material is unnecessary between flange and heat-sink, flange and resistor is separated by alumina substrate.
- (2) Resistance measurement shall be made at a point 2.54mm+/-1.0mm from the resistor body.
- (3) 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 2.54mm from bottom of molding of terminals.
- (4) 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
- (5) 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. In case of screw mount, ISO M3 screw is necessary, also,1/8" screw can be acceptable.
- (6) Standard packaging is anti-static PE tube, which contains 25 pcs / tube.