

**FEATURES**

- Resistances from 0.02Ohm to 100kOhms
- Power Rating to 50Watt
- Resistance Tolerances to  $\pm 1\%$
- TCR to  $\pm 50\text{ppm/K}$
- Load Stability to 0.5%
- TO-220 Housing
- Convenient SMD D2Pak

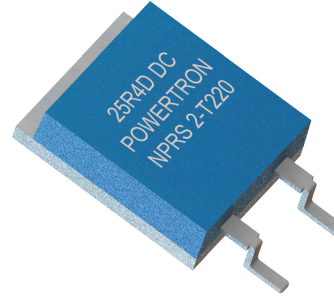
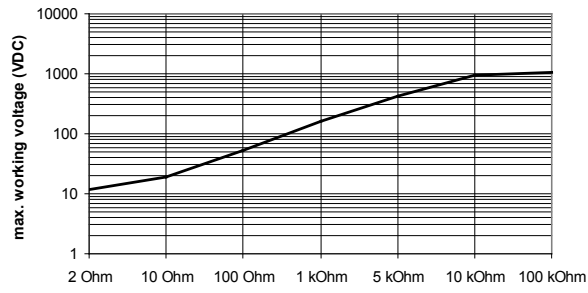


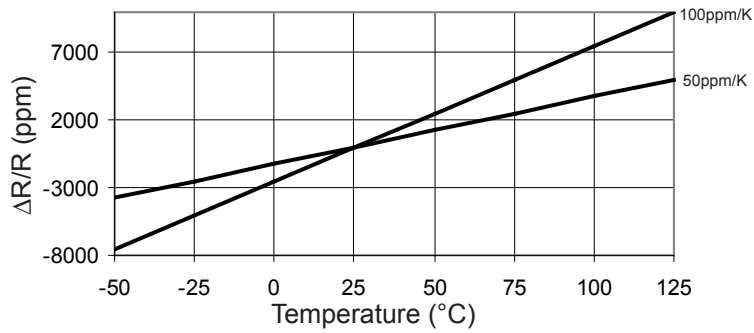
TABLE 1 – SPECIFICATIONS		
TYPE		NPRS 2-T220
Resistance Range		0.02 Ohms to 100kOhms
Power Rating	Free air 70°C	1.5W
	With heatsink	30W
Tolerances		
from 0.02 Ohms		2% / 5%
from 1.0 Ohms		1% / 2% / 5%
Thermal Resistance		3.5 K/W
Stability (1000h)		0.5%
Temperature Coefficient		
0.02 to 0.049 Ohms		$\pm 600\text{ ppm/K}$
0.05 to 0.099 Ohms		$\pm 300\text{ ppm/K}$
0.1 Ohms to 100 kOhms		$\pm 100\text{ ppm/K}$ upon request $\pm 50\text{ ppm/K}$
Voltage Proof		2.0 kVDC
Max. Voltage depending on resistance value		
Operating Temperature Range		-40 to 155°C
Resistor Material		Thick Film
Substrate		Al <sub>2</sub> O <sub>3</sub>
Backplate		Copper / Nickel-plated
Housing		PPS
Connector Material		Cu / tinned
Soldering Profile		During surface mount soldering the soldering profile must secure the metal tab of this resistor is not exceeding 220°C
Terminals		2 (standard contact S)

**ORDERING INFORMATION**

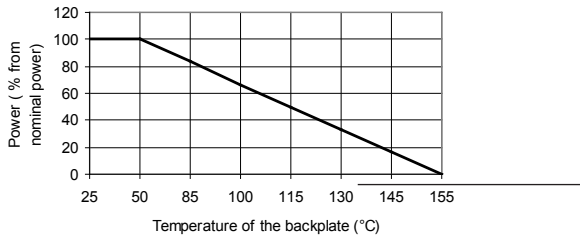
Part Number - Resistance - Contact - Tolerance

NPRS 2-T220 1K100 S 1%

**FIGURE 1 – TEMPERATURE COEFFICIENT**



**FIGURE 2 – DERATING**



**Power Rating Notes -**

The NPR Series Resistors must be attached to a suitable heatsink.

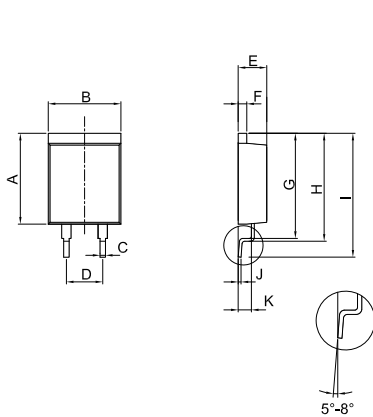
The maximum internal resistor temperature is 155°C.

To specify an appropriate heatsink use the following formula :

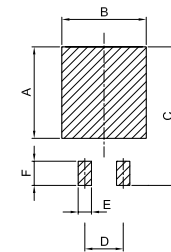
$$R_{0H} = \frac{T_{MAX} - (P \times R_{0R}) - T_A}{P}$$

Where:  $R_{0H}$  = Thermal Resistance of Heatsink ( K/W )  
 $R_{0R}$  = Thermal Resistance of Resistor ( K/W )  
 $T_{MAX}$  = Maximum Temperature of Resistor  
 $T_A$  = Ambient Temperature of Heatsink ( °C )  
 $P$  = Power Through Resistor ( W )

**FIGURE 3 – DIMENSIONS** in mm (inches)



Dimension	mm
A ±0.2 (±0.008)	12.70 (0.50)
B ±0.2 (±0.008)	10.16 (0.40)
C ±0.1 (±0.004)	0.76 (0.03)
D ±0.1 (±0.004)	5.08 (0.20)
E ±0.1 (±0.004)	4.00 (0.16)
F ±0.1 (±0.004)	1.20 (0.05)
G ±0.2 (±0.008)	14.60 (0.57)
H ±0.2 (±0.008)	15.00 (0.59)
I ±0.2 (±0.008)	17.33 (0.68)
J ±0.1 (±0.004)	0.40 (0.02)
K ±0.1 (±0.004)	1.85 (0.07)



Dimension	mm
A	12.10 (0.476)
B	11.16 (0.439)
C	18.33 (0.722)
D	5.08 (0.200)
E	1.76 (0.069)
F	3.20 (0.126)



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