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1. Look at the color coding of the power resistor used for generating heat and determine its value and tolerance. An image of the power resistor is provided below.

Value: $47 \times 1 = 47 \, \Omega$ (yellow violet black)

Tolerance: 5 % (gold)

The resistance value lies therefore between 44.65 and 49.35 Ω .

2. The maximum power rating for the resistor is 0.5W. Based on the resistor value that you determined in question 1, what is the maximum voltage you can apply without damaging the resistor?

$$P = \frac{U^2}{R} \therefore U = \sqrt{PR}$$

The minimum possible value of resistance is 44.65 Ω . If the value is 44.65 Ω , the maximum voltage I can apply without damaging the resistor is equal to $\sqrt{PR} = \sqrt{0.5 * 44.65} \approx 4.725 \text{ V}$.