From Member Charley Jones:

Updated 6/21/24 by Art Swallow (mostly by using Ω instead of “the word ohms”) [ alt + 234)

Yes, it all comes down to V=IR. Ohms law. Consider you have a circuit that’s a 5v battery (HERO) and an LED. Looking at the specs for the LED, you see max brightness at 30ma. Having two pieces of information we can plug it into Ohms Law. 5v = 0.03a x R. Using algebra, we divide both sides by I, giving us 5v / 0.03a = R. 166Ω is the sweet spot. Typically, resistors come in 100, 150, and 330. So, 150 is close enough…and that is how you calculate a current limiting resistor.

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My “test” of what the above says (using the normal resistance in my projects)

V=IR [V=volt; I=current=amps; R=resistance=ohms{Ω}]

5v = I x 220Ω resistor

5 = I x 220Ω

Divide by I

5/220Ω = 0.0227 amp (20ma) ( 5/430Ω = 0.0116ma and 5/470Ω = 0.0106ma )

Diode = max 0.03 amp(30ma); then V=IR, thus V = 0.0227 x 220Ω = 4.994

What I need most, then, is what is the max amp of the device I’m connecting to – where am I going to get that info? For example: 6V = death to a diode

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An Ω (ohm) is a way of measuring resistance. A certain length of copper wire, which is a good conductor, has a resistance of .0000017 Ω, while the same length of Sulfur, which is a very poor conductor, is much more resistant. It has a resistance of 200,000,000,000,000,000 Ω ! [= 200 thousand billions]

W=IV (W=watts; I=amps; V=volts)

Watts = the measure of power

To get (use) the “omega” symbol/character :

Keyboard: Alt + 234 =’s Ω

Resistor Type 4 – Band 5 – band

220 Ω Red-Red-Brown-Gold Red-Red-Black-Black-Gold

1K Ω Brown-Black-Red-Gold Brown-Black-Black-Brown-Gold

**the 3 forms of Ohm's law**

Ohm's law can be rewritten in three different forms depending on the unknown and given quantities. These three forms are the following:

(1) Voltage is equal to current multiplied by resistance (V=IR).

(2) Resistance is equal to voltage divided by current (R = V/I).

(3) Current is equal to voltage divided by resistance (I = V/R).