

All you need is the data sheet from the manufacturer. That will tell you the maximum operating voltage of the LED, and the current draw. Let's say 2v and, erm, 21mA (these are just fudged to make the sums easier and may not be typical values).

Say you have, then, a 9v supply (pretty standard in a pedal). Subtract the 2v you want across the LED from that to get 7v to drop across the resistor. You already know the current you want to flow in the circuit from the data sheet - 20mA in this case.

$V=IR$ , or, rearranged,  $R=V/I$

$$R = 7 / 21\text{mA}$$
$$R = 300 \text{ ohms}$$

So your resistor has to be at least 300 ohms, in this case.

However, 21mA is a lot more than a lot of the simpler FX circuits use themselves, and it's silly to waste most of your battery life on running an LED. You can usually get away with a much, much bigger resistance (1k or more) and slightly lesser brightness - a fully lit ultra-bright LED can be quite uncomfortable to look at.

Really, the best thing to do is get a 5k pot and put it in series with the LED. Adjust until the LED is bright enough to be seen easily, but not lighting up the whole room (ok, slight exaggeration). Then disconnect everything and measure the resistance you've dialled in on the pot. Simple, huh?

For power, use  $P=IV$  - so roughly,  $P = 20\text{mA} * 7\text{v} = 140\text{mW}$ .

1/4w resistors would be just fine...