

Re: Amusing problem about DC polarity

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- *From:* Robert Baer <robertbaer@xxxxxxxxxxxxxx>
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almo wrote:

I do that all the time. My eyes are not what they were, and if I pick up something with two pins, it might be a black box, or a little black diode, or multicolored. If it's multicolored, like stripes, I'm thinking resistor. Or, one stripe, a diode. 3 pins, transistor. Although, a bipolar transistor is just 2 diodes. And a phototransistor only has two pins (sometimes.) Bottom line, stick it on an ohm meter. First one way, then the other way. If it's DC, you will get 1) a very high resistance one way, and a not so high resistance the other way, 2) the same resistance both ways, could be zero, infinity, or other 3) you get a fairly high resistance both ways, but the harder you look at it, you can't quite make up your mind which way has the higher resistance 4) your analog ohm meter acts a little funny, but your digital meter makes no sense at all

- 1) when you read the lower resistance, look at the red probe. That's ground. If that answer is wrong, then I'll correct myself right now and say the red probe is positive.
- 2) it's a resistor, or open circuit, or closed circuit.
- 3) you've got your sweaty fingers squeezing the probe leads too hard and shunting your body resistance across the ohm meter. Don't do that.
- 4) probably a capacitor
- 5) your ohm meter doesn't work now. You should have checked it with a volt meter first because it might be a battery. And if the box is black, about the size of a bread box, and weighs about 20 pounds, it's a 12v car battery, and you shouldn't have had to test it in the first place.

siliconmike wrote:

Imagine a black plastic box that takes in DC power but has no polarity markings on its power socket.

The problem is to experimentally determine the correct DC polarity without opening the box and without letting the box die.

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How close can we come?

Hmm...the "black boxes" we make are open in both directions and break down ("zener") at 1250V one way and about 8 times that the other way.

If you did not know that, you would be severely challenged in testing it..

I can think of the device these units replaced (a few Corotron(TM) still exist) and they also are open until break down – but probably are symmetrical.

And i know of similar devices that take thousands of volts to break down that are definitely symmetrical (neon sign tubes).

So the generic "device in black box" could be a tin whisker, some currently common electronic part, a neon bulb, neon sign tube, cold cathode x-ray tube, a PMT with divider, etc etc etc.....

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