

MMf-EMf(VMf) two ways to cause a current.

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You cannot have a current without something to push the electrons off of their covalent bonds. That is done one of two ways either applying a Magneto-motive force or a Electro-motive force. I don't know of the application off hand but I suppose you can have both at the same time as well, each applying a portion of the force to make the electron move.

On a 20 amp circuit if you short the line to the neutral you have a current of 20 amps for a moment before the breaker opens. 120 VAC, 2400 watts, 20 amps.

If you wanted to keep the breaker from opening you could stick a resistor across the line and neutral. The resistor would need to be able to dissipate many watts without burning out. The idea is to lower the current so that you don't open the breaker at its rated value 20 amps of current.

Say you want to reduce the current to only 10 amps you would need a 12 ohm resistor capable of handling 1200 watts of dissipation. Or you could place 1200 one watt resistors in parallel that are equiv to one 12 ohm resistor. On the neutral side of the resistor you would measure 0 volts and on the line side you would measure 120 volts.

Of course if the 120 VAC 20 amp circuit was not able to deliver 2400 watts then the supply has the problem of being out of design spec. IOW the supply cannot deliver a 20 amp current as it was specified.

When designing a new electronic device you need to know the total amount of power dissipation of the device especially if you intend to build a DC power supply for the delicate circuitry within. The DC power supply needs to be designed for the total dissipation and then you need to also know the maximum current that can be supplied by the power supply.

I am just writing out my thoughts as I try to understand these things. I am not going in any particular direction except for one.

The resistor is a device that limits current for a circuit and that is the way I understand it. When its function is to create a voltage

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inside a circuit I get confused. I get confused because the terminology is twisted and goes against normal thinking.

Specifically, current is not possible without voltage or induction so how can you have a voltage be created by a resistor that is designed to limit current?

I know this is done in many ways and and is done all the time. Maybe it would help to know what the power dissipation is for some of the devices in an amplifier circuit using an Op amp while it is in its linear operation and then its maximum dissipation. Then I can think of it