

## Re: voltage to resistance convertor?

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- *From:* "Andrew Howard" <[ask.me@xxxxxxxxxxxxxxx](mailto:ask.me@xxxxxxxxxxxxxxx)>
  - *Date:* Fri, 15 Apr 2005 04:16:13 GMT
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- > Right now, your requirement appears to be:
- > 1. Accept an input voltage, 'Vx', ranging between 0 V and 9 V,
- > on one port, consisting of pins VxIn and VxRef.
- > 2. Provide a "resistance", 'Ro', on another port, consisting of
- > pins RoA and RoB.
- > 3. If current is passed thru Ro, the voltage across it should
- > be  $V_x * 2500/9$ , within some unknown tolerance. There is
- > no presently known limit on what that current might be.
- > 4. If a voltage is applied across Ro, the current passing thru
- > it should be  $9/(2500 * V_x)$ , within some unknown tolerance.
- > There is no presently known limit on what that voltage might be.
- > 5. The accuracy implied by items 3 and 4 applies only over the
- > frequency range 0.2 Hz to 20 Hz. Outside that range, any
- > voltage or current result is acceptable.
- > 6. The connection, if any, between the Vx port and Ro port, is
- > unspecified. They might be required to be isolated from each
- > other for an unbounded voltage difference. Or it may be fine
- > for either RoA or RoB to be connected to VxRef.
- >
- > I state the above to clarify what is missing. For any of the
- > unknown bounds and limits, smaller will be easier and if
- > it can be unipolar rather than having to be bipolar, the
- > design may be simplified. Not having to isolate the ports
- > will greatly simplify the problem.
- >
- >> In case you are wondering, it is for a Guitar FX pedal I am
- >> semi-designing.
- >
- > What sort of circuit is going to use the synthesized
- > resistance? Can it accept a voltage or current instead?
- > There may be an easier way to solve the real problem
- > than synthesizing a resistance.

This is the circuit that needs the variable resistance. It is the basis for a simple phaser. Apparently it works by using the fact that the emitter is 180 degrees out of phase with the collector (or something). The varying resistance has been labelled R1.

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```
VCC
+ (9V)
|
|-----'
.-. .-.
47K| || |2K2
|||
|'-'-'-' 1uF
||+[/
1uF |'-----[]-----'
\| | / \| |
IN o-----[]----o----| BC548 || 1uF
/]+ | |> .-. | \|
|.-----'| |<-----[]-----o OUT
o ||| |2K5 /]+
|. .-. .-. |'-'R1
=== 22K| ||| | o
GND ||| |2K2'----' |
|'-'-'-' ===
|-----' GND
|
===
GND
```

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I have decided that I would prefer a sine wave, if that makes any difference to anything. Both the phaser circuit and the sine wave generator will be using the same power supply.

I am fairly new to this, so I am unsure about what you mean by having an isolate resistance, or the difference between unipolar and bi polar. I am guessing that unipolar means that it doesn't go below 0V (changing DC?) and that bipolar means otherwise (AC?). If so, wouldn't it be possible to bias an AC waveform into DC, or am I getting confused. I have not yet figured out what I would be using to generate the sine wave, so if anyone has any suggestions, that would be great.

Also, I am not sure how to figure out the current needed, and I have never dealt with this type of circuit before, so I can't really guess. It would probably be in the low mA range though.

Thanks for the help  
Andrew Howard

Re: voltage to resistance convertor?

- **Follow-Ups:**

- ◆ **Re: voltage to resistance convertor?**

- ◇ *From:* Larry Brasfield

- ◆ **Re: voltage to resistance convertor?**

- ◇ *From:* Roger Johansson

- ◆ **Re: voltage to resistance convertor?**

- ◇ *From:* Ban

- **References:**

- ◆ **voltage to resistance convertor?**

- ◇ *From:* Andrew Howard

- ◆ **Re: voltage to resistance convertor?**

- ◇ *From:* Larry Brasfield

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- ◆ **Re: voltage to resistance convertor?**

- ◇ *From:* Larry Brasfield

- Prev by Date: **Re: Burial or cremation?**

- Next by Date: **Re: car battery and windshield wiper motor**

- Previous by thread: **Re: voltage to resistance convertor?**

- Next by thread: **Re: voltage to resistance convertor?**

- Index(es):

- ◆ **Date**

- ◆ **Thread**