volt 3 dc switching regulator

yields more similar ones.

……………………………………………

HEATSINKS WITH THE SMALL SQUARES SPERATELY ARE THE BEST ONES TO USE

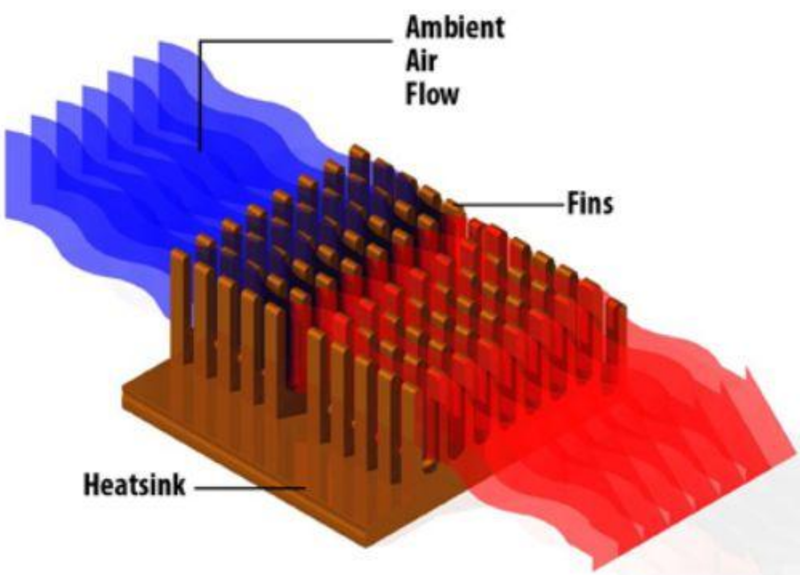


Figure 2. Passive Convection uses ambient air to flow in between the heat sink fins. The heat sink transfers the heat from the metal fins to the passing ambient air. This in turn lowers the heat sink thermal resistance.

Thermoelectric Lamp, Electric Generator Plans

This thermoelectric generator was designed to charge a mobile phone (like my last version). Because I do not want the peltiers to over heat and melt like they have before, I was weary of having the flame too close to the peltiers. The thermoelectric generator failed to produce enough power to charge a mobile phone, it does produce enough to power a small radio or some bright LED lights. This version is much more reliable than my last one due to the better heat sink it doesn't run anywhere near as hot so the life of the peltiers should be quite long.

It has a 2.5mm output jack for ease of use plugging in different things a large carrying handle and the candle height is fully adjustable to compensate for varying flame heights. If you would like to build on of these you should be able to follow the guide pictures below.

Parts used:

- A thermoelectric peltier chip, the bigger the better. I used a 100W version.
- A large heat sink, I used a dell one with heat pipes. The success depends on this heatsink, get the best you can!
- An emergency phone charger (we are going to steal the joule thief out of it)
- A Small amount of Rock wool insulation, small amounts available from garden centers.
- A small tin can with a lip around the top. (Heinz beans will do)
- A coke can.
- Thermal heat compound
- Some heavy duty foil, about 30x30cm
- A foot of thick copper or steel wire, for the handle.
- 2 25mm long M6 Bolts
- 4 40mm long M5 Bolts
- 1 50mm long M5 Bolt.

This is the emergency phone charger, I will use it to charge things off the peltier. I bought this rom once of those "almost a pound type value stores, they don't seem to be able to afford a name sign for outside, so it doesn't have a name. I got ripped off for £3.99 for this, they are available from £1.70 on ebay! We only need the circuit board with the joule thief in it. There is the possibility of using this as a battery holder, you could put a nicad in it and have the peltier charge this up for more juice for charging things like phones etc.

Mmmm, copper!

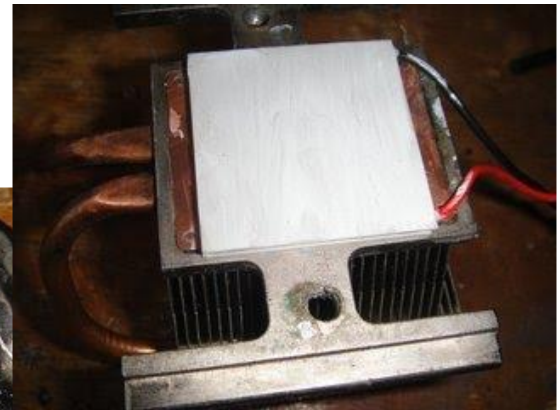
Copper heat sink base after cleaning. You can see that I drilled and tapped two holes for the peltier holder. They are M6 x 1.0, I used larger bolts here because they act as catches to locate the peltier in the tin can. Make sure that the bolt heads fit inside of the the tin can!

recently changed the plate that covers the peltier to a solid aluminium one (1.2mm alu sheet), it's made the same size as the inside of the tin can with two holes drilled to match the inside of the tin can.

I recently changed

two holes drilled to match the inside of the tin can.

Aluminium plate cut to size



One of the holes drilled

Thermal compound applied, the heat sink is now ready for the peltier. IN this photo there is too much thermal compound - don't put this much on as it reduces the efficiency of the heat transfer, you want just enough to fill the microscopic ridges in the metal

Peltier fitted

Fit the peltier to the heat sink, slide it around to spread the thermal compound about

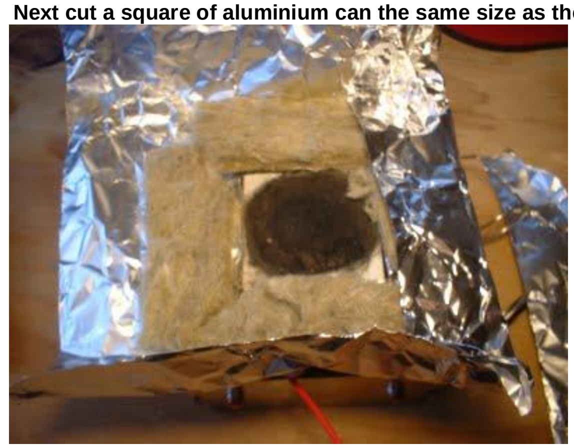
I used Rockwool insulation between the candle tin and the heat sink to try and keep hot and cold parts separate. I bought this rock wool from a garden centre, you can but it in small 3" by 3" block for insulating plants. I just folded the foil over the edges, on the other side I cut out a 40mm*40mm square to fit over the peltier.

This is what the insulator should look like. You need to make the two holes for the bolts, I just used a BIC pen.

This is what the insulator should look like. You need to make

Next cut a square of aluminium can the same size as the peltier chip and sand the paint off with some fine sandpaper. Apply thermal compound and fit it over the peltier chip. It will be compressed by the steel can so don't worry if it doesn't quite fit!

Or this, for the new version :
This is the finished rockwool and pelter the tin can lid keeps the peltier held firm against the heat sink. The



bolts are positioned to keep the peltier centred in the Heinz tin. Don't over tighten the bolts as it will just bend the tin can lid.

The candle rests on a aluminium can the height of which can be adjusted to suit the flame. The can sits inside of a small Heinz baked beans tin. The Heinz tin has a lip around the top which the peltier rest on. I used a ruler to get the size right, I made it so that the biggest flamed candle would be around 6mm away from the ruler. There is plenty of room then for adjustment from the candle height adjustment screw.
The Aluminium can is filled with Rock Wool underneath to keep the heat. You'll need to poke a space in the middle for the adjustment bolt.

Because the Aluminium can is smaller in diameter than the steel can I had to use a cardboard buffer to prevent the can from tipping to an angle. The cardboard is sandwiched between two cans away from the flame and insulated by Rock Wool so there is almost no chance of it catching fire. If it ever does, I will have to use something different!

Here you can see I fixed the candle height adjustment thread with some glue. The can rests on the top of this bolt.

Here it is from the side, the slot is where you can put the candle. You'll need to cut the candle door slot this is around 50mm by 30mm high. Make sure you sand the edges to prevent any injury. I have also drilled little ventilation holes all around the top of the can. They are about 3mm.

Here is the 2.5 mm output jack for power. Inside that little plastic cylinder is a joule thief to step up the power output. I simply glued this to the bottom of the can. YOu'll need to solder the peltier wires onto the joule thief - make sure you get the polarity right, test it both ways to see which way works.

Testing and use

The TEG should be finished now and you're ready to test it.

First of all - not all tea lights are created equal. Some burn incredibly bright, some burn with a flame so small you need a microscope to see it.... We need a candle with a good flame. Some candles come with really long wicks, trim them to around 8mm long as a long wick makes a sooty flame.

Lower the candle height adjustment bolt to it's lowest setting. Place the candle on the coke can and let it heat up. Have a look where the flame is, it should be around 4mm below the peltier, if it's too far away then you can raise the candle height, if it's too close then you need to modify the adjustment mechanism so that it accepts the candles without leaving soot everywhere.

With the peltier heated up (only takes around a minute) you can now test the TEG - there should be some power! Try various things like LED's a radio your phone etc. The output of my version was around 0.5W.

……………………………………………….

2.14 into this video shows motor being turned using 1 pettizer:
http://www.youtube.com/watch?v=_TuTGLS8nqI
Additional text for above video:
his is my homemade thermoelectric generator that i made using a peltier cooler (12V 60W TEC1-12706) that i bought from ebay. For the cold side i used an old AMD processor cooler which is obviously aluminum, and for the hot side i used a chipset cooler from an old motherboard, which is made out of copper and it 's considerably smaller than the cold side. My multimeter wasn't functioning very well (for some reason the reading of the current was impossible) so i'm not sure about the output power, but it has to be a little more than 2 watts...

ne wants the cold ceramic plate at the bottom of a cold liquid container, because the liquid which becomes a little warmer will rise being replace by the coldest liquid in the container by natural convection.

One wants the hot ceramic plate at the top of a hot liquid container, because the liquid which becomes a little colder will sink being replaced by the hottest liquid in the container by natural convection.

The main problem with peltier elements like this is they go puff at 200 degrees. I have 6 150W peltiers - heat sinking is very, very important

TEC1-12709 - 100 watt peltzier is used for high temp/demand applications
http://www.amazon.com/s/ref=nb_sb_noss_1/185-8092931-9696220?url=search-alias%3Delectronics&field-keywords=TEC1-12709

ow, there was the woman who was a biologist, that invented a sun powered micro refrigerator, using what she learned in biology about how our bodies get rid of heat.

2 aluminum containers, same height, 1 is smaller in diameter to have some space between the container walls if we insert the smaller one into the larger one.

The outer container has many small holes or larger holes with a screen wrapped around it. In the space between the container walls, you put sand, dirt, sponge, what ever that might absorb water. Put an insulated lid on it and put it in the sun. The evaporation through the screen/holes brings down the inner container to 42 deg F.
:o :o

Now, if those efforts were combined, the sun can be used to 'power' the hot side of the chips, and the 'cold' side. And if we consider the amount of heat on the hot side of the chip from the sun, then the solar refrigerator would be better than just running a lot of water for the cold side. ;]

t is a very old idea, electricity from a temperature difference. The effect is called "thermoelectric effec" or "Seebeck effect", see for instance http://en.wikipedia.org/wiki/Seebeck_effect#Seebeck_effect .

I used two Peltier elements in series with a size of 30 mm x 30 mm x 3.6 mm each http://uk.farnell.com/multicomp/mcpe-127-10-13/peltier-cooler-38-1w/dp/1639751

Each Peltier element is held between two flat aluminium bars, one hot and the other cold. Heat is provided by a candle and coldness by cold water (in a container).

See the attached photos showing a crude contraption. The output is up to 2,8 Volt (no load, 10 Mega Ohm digital volt meter, two Peltier elements in series) and up to 80 mA (short circuit current).

When running a Joule Thief driving a gutted CFL or a 220V 1W LED lamp, the Voltage holds at about 1,25 Volt and the current is about 68 mA (about 80 mW). Of course neither the gutted CFL nor the 220V 1W LED lamp have full brightness.

An output of 80 mW is not much, but with a better design and more powerful Peltier elements an output of 1 Watt seems to be feasible.

I found very good Peltier elements for electricity generation at
http://thermalforce.de/de/product/thermogenerator/index.php?uid=f06c1126a7b53e606196e78a328e41e9&ref=
but one probably can also find some in the US or elsewhere.

A design I will try next is depicted in the attached drawing.

The difference between cooling elements and generator elements is in the temperature resistance. There are generating elements which can be run at several hundred degrees (centigrades) of temperature difference. The cooling elements are designed for a temperature difference of about 70Â° (centigrades).

The basic idea:

During winter (where I live) one just has to put a bucket of water outside to cool it to freezing temperatures. In the house one then uses a candle as heat source (and cold water) to drive a thermoelectric generator which could power a small reading or novelty lamp.

I like to light a tiled stove during winter, which could also provide heat for a thermoelectric generator (again coldness from cold water).

The cold water is of course heated up over time and has to be exchanged every hour or so (depending on the volume of the cold water container).

Greetings, Conrad

Evaporative Cooling:

nstructions

1

Pinch off two 2-inch-long pieces from the stick of epoxy putty. Use the ruler to measure the 2-inch lengths of epoxy putty. Mix one of the 2-inch-long pieces in your hands until you begin to feel heat coming off of the putty mass and you see that it is one consistent color. Now use the epoxy putty to plug the drain hole in the bottom of the 24-inch-diameter clay flower pot. Knead the other 2-inch piece of epoxy putty.

Plug the drain hole in the bottom of the 20-inch diameter clay flower pot with the epoxy putty. This is necessary to make certain that the coolant of the cooling system for the water does not leak out.

2

Pour 3 inches of sand into the 24-inch-diameter clay flower pot. Use the ruler to make sure you get this depth of sand. Then put the 20-inch-diameter clay flower pot into the 24-inch diameter clay flower pot. Now fill the area between the two pots with sand.

The cooling system device is now completed.

3

Wet the towel with water until it is saturated. Do this by submerging it into the bucket full of water. Now fold the towel up and lay it to the side. This wet towel will be the lid for the cooling system.

4

Place the 6-pack of 20-ounce water bottles full of water into the 20-inch diameter clay flower pot. These bottles of water will be cooled by evaporation action in the cooling system.

5

Pour water from the bucket full of water into the space between the two flower pots. Do this until the sand between the flower pots cannot hold any more water. The water is the coolant.

6

Lay the wet towel on top of the cooling system device. Make sure to completely cover the top of the interior clay flower pot.

7

Wait for about two hours and the water bottles in the cooling system device will be cooled to a temperature of about 45 degrees Fahrenheit. This occurs by the water in the towel and in the space between the two flower pots evaporating and cooling the temperature of the inside of the interior flower pot.

Technical Chart of Peltziers and Power Output:
http://thermalforce.de/de/product/thermogenerator/index.php?uid=f06c1126a7b53e606196e78a328e41e9&ref=

Heatsink Search Terms:
round heatsink
LED Aluminium Heatsink

This one has a hole in it:
http://www.aliexpress.com/item/new-Wholesale-10pcs-lot-3-5w-LED-Aluminium-Heatsink-Silver-Round-Heatsink-Compound/601681622.html

If we need in 3W power we must have 100W thermal flow through Peltier modules. Of course, campfire can give bigger thermal power, than 100W (until 1-5kW), but cooling modules… It is the problem. Air cooler for 100W is massive thing. As variant of solution of this problem is water cooling. In this situation we have light, small size generator (about 110-130 gr) and the need for pipes, tanks (bottles) and water.
Volume of water flow is: heat capacity of water is Cp = 4.1855 [J/(g·K)] (15 °C, 101.325 kPa),
real value of delta T between out/input of cooler is 10-20K, therefore

- Mwater(100W)=W/(Cp*deltaT), g/sec; Mwater=100/(4.1855*20)=1.19 g/sec ~72 g/min ~ 4.3 L/hour. If use 2l bottles it needs add water to bottle every half-hours. It don't look like at very horrible.

....

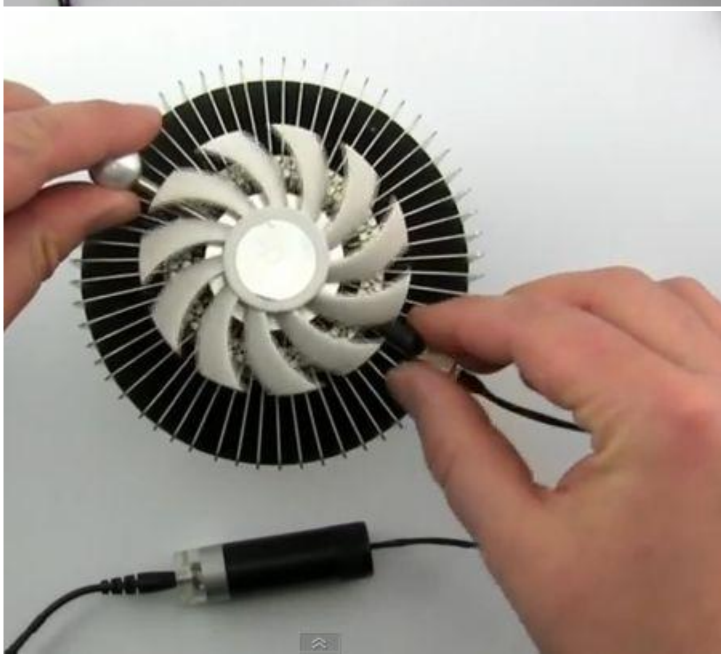
TEC 12706 is a high temp Peltizer:

The greater you can keep the temp difference, the more voltage will be created

1.46 uses car usb car cable to charge iphone
http://shelf3d.com/KSbgRMLZsQA#Steam Powered iPhone - Thermoelectric Generator

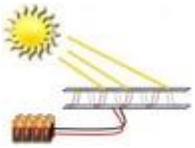
2 peltier modules can be stacked on top of eaaach other wired in parrallel
a supercapacitor (0.0 47 farad, 47,000 microfarad at 6.3 volts) is run
before the motor

....
Below is a simple evaporative cooling concept…



Fan is USB powered by an emergency backup plug in….although convective pinwheel may also work - (Emergency Cell Phone Charger - also includes usb cables) is what may be on the bottom left of photo.

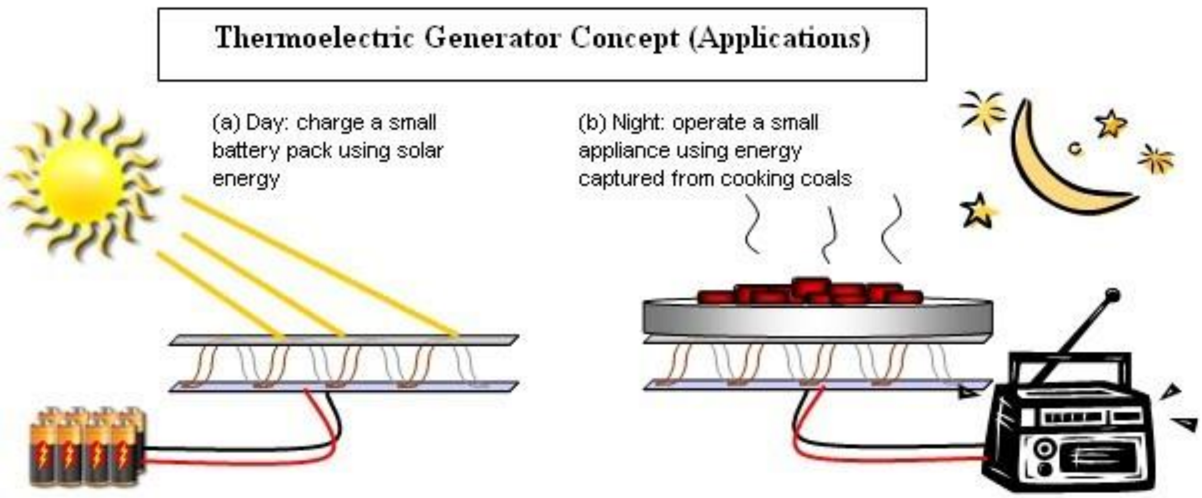
Solar Thermoelectric Generator



This is a conceptual design for a thermoelectric generator that can be made of ordinary materials. The design is intended for parts of the world where silicon technology isn't available or isn't affordable, where a solution needing little or no mechanical skill is desirable, and where a small amount of power is needed to charge batteries for a radio or low-power light.

Introduction

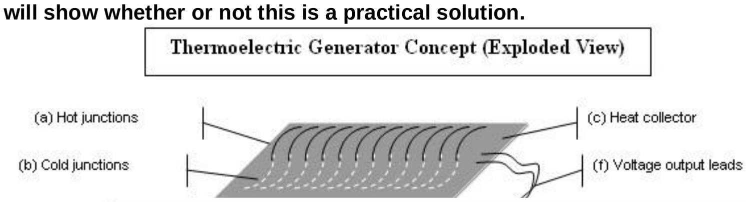
Refer to the *Applications* drawing below. In this design, the thermoelectric generator's upper heating surface is made of an insulating material such as fired clay, stone, or porcelain. During the day (a), sunlight heats the surface and provides energy to charge a small battery pack. At night (b), a charcoal cooker set on top of the heating surface provides energy to operate a small appliance such as a radio. In this case, the generator is capturing energy from the cooker that would normally be dissipated into the floor and wasted.



Construction Overview

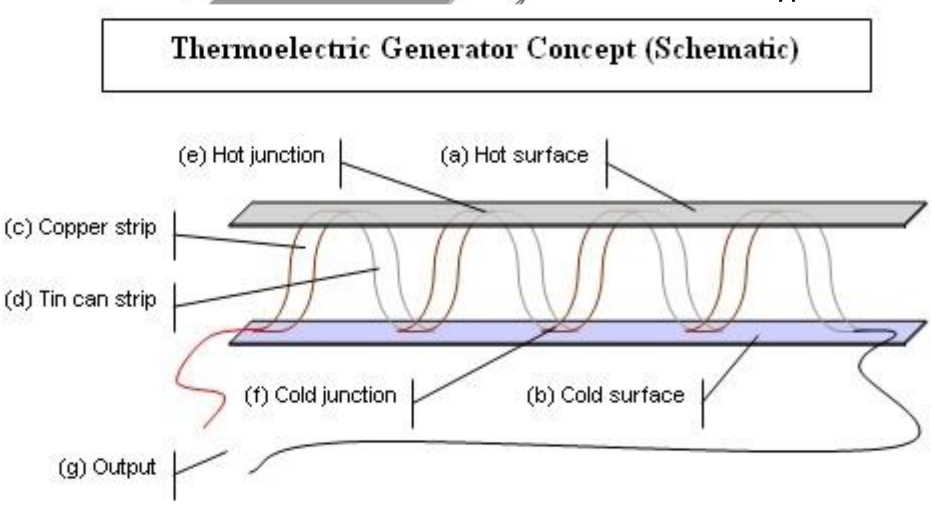
Refer to the *Exploded View* drawing below. The generator consists of an array of thermocouples made from two different metals such as copper and strips cut from tin cans or discarded copper and aluminum wire (a,b). It is best to join the metals by soldering or welding, but if that isn't possible the joints can be made by crimping the metal strips or twisting wire pairs together. The top surface of the generator (c) is painted flat black to absorb solar energy and heat the top thermocouple junctions (a). The lower thermocouple junctions rest on a cooling sheet (d), and there is an airspace (e) between the heating surface and the cooling surface. Thus, the top thermocouple junctions are hot and the lower junctions are cool, and this differential generates a thermoelectric current (f). To provide additional heat-sinking capacity, the cooling surface rests on metal pipes (g) driven deep into the earth. If water can be made to circulate through the pipes using gravity feed (i.e. diverting water from a stream) the cooling effect will be much better, but this is not a requirement. The generator's output supplies a charge controller (h), which may be just a simple diode and low-cost regulator (7812, LM317, etc.) or a commercial unit. The battery under charge (i) is supplied by the charge controller.

The main drawback of this concept is that thermocouples made from common wire alloys probably generate very little power, but this is offset by the low cost and simplicity of this design (provided raw materials like discarded wire, scrap metal and pipe are readily available). Experimentation will show whether or not this is a practical solution.



Construction Detail

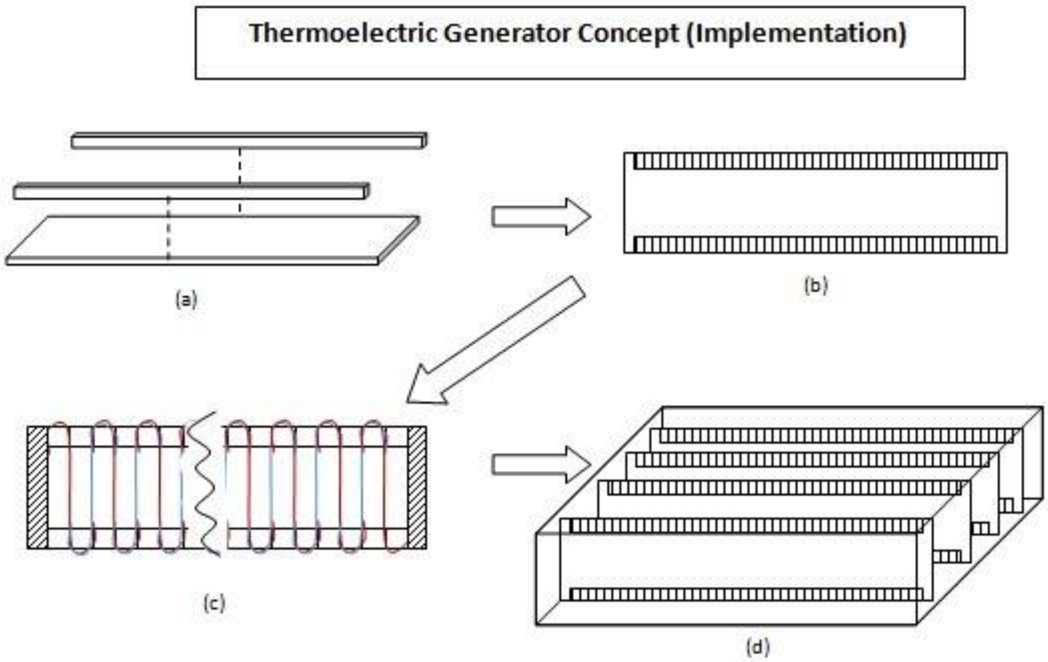
Refer to the *Schematic* drawing below. This drawing shows the hot and cold surfaces (a,b) and the arrangement of the metal thermocouples (c,d). The hot surface (a) is made of any durable insulating material painted flat black. If used both for solar and cooking heat application, the upper surface can be made of stone or porcelain so that either a metal solar heat collector or a metal charcoal cooker can be placed on top of it as a heat source. The exact configuration isn't important, but what is needed is maximum heat transfer and no electrical conductivity. The cold surface (b) is a slab of fired clay, porcelain, slate, etc. that is a good thermal conductor, but an electrical insulator. It should be shaded and painted a light color to minimize energy absorption. Alternating strips of copper (c) and scrap tin (d) are soldered or brazed together and bent into the undulating shape in the illustration. Each connecting joint is a thermocouple junction (e,f). The upper thermocouples (e) contact the hot surface, and the lower thermocouples (f) rest on the cold sheet. Opposite ends of the metal strips provide a voltage potential (g). If using copper and aluminum wire, the wires can be wrapped on a supporting flat panel, and the ends tightly twisted at each thermocouple junction.



The thermocouples can be glued to the upper surface using a high temperature epoxy such as JB Weld or can simply be threaded through slots cut in the material. The lower thermocouples make pressure contact with the cooling plate so that the unit can be taken apart for maintenance. The schematic illustration shows just one portion of the thermoelectric generator. It will be necessary to connect a large number of such cells in series to obtain a useful voltage and in parallel to obtain a useful current level. The thermoelectric generator will need to generate more power than is required to charge the battery. For example, design the generator to output 14 volts at 250 mA and regulate that down to 12 volts at 200mA (about 6W). I can tell you that it will probably take a lot of thermocouples to generate that kind of power, and you would need to cram them into about one square meter, if possible. You might choose to make modular units that can be wired up in a "farm" for a more scaleable solution.

Implementation

Refer to the *Implementation* drawing below. From hard, dry, seasoned wood, make a frame (a) by gluing together two narrow strips of wood and a flat backing. The two thin strips should be slightly shorter than the backing to allow a narrow shoulder at each end of the backing. This shoulder will slot into the frame (d). Cut a series of slots in the narrow strips (b) for the length of the strips. Thread alternating metal strips through the slots (c) for the length of the strips as shown. Make as many of these assemblies as desired, and slot them into a frame (d). Interconnect groups of these assemblies in series for more voltage and in parallel for more current, as desired. To use the framed assemblies, simply place the frame on a cold surface such as a slab of marble or fired clay and then set a second hot surface on top of the frame. A temperature difference between the hot and cold sides will generate electricity. For example, you can put a metal cooker on the top marble slab and set the whole unit on a stone floor. The top slab will get hot and the stone floor will draw heat away from the bottom slab. Alternatively, you can cool the bottom slab with a water pipe and set a piece of black metal on top so that the metal gets very hot in the sun. This will generate electricity from sunlight. Make sure that the wood and glue you use can withstand high temperatures. It is very important to use an insulating material like stone, ceramic, or fired clay for the top and bottom slabs. Do not set metal objects directly on the generating assemblies, because this will short them out.



Cautions

- Do not hook the generator directly to a battery to charge it. Be sure to use a charge controller or, at a minimum, a diode and current-limiting resistor. If you hook up a battery directly, and the resistance of the generator is too low, then it will get hot and will probably ruin your batteries or even make them explode. Don't ever try to recharge non-rechargeable batteries.
- Since the generator stand provides a good ground, there should be a lightning arrestor or other tall object nearby to deflect lightening strikes.
- The charging battery should be kept inside a ventilated, solid chamber, both to keep the battery cool, and to contain any accidental explosion of the battery. The battery could even be below-ground as long as it's protected from flooding water. Ventilation is crucial.
- If the thermocouple joints are soldered, make sure the solder can withstand the heat generated in the unit. If the thermocouples are twisted together, the joints may need ongoing maintenance due to corrosion/oxidation.

Thermal generators 40x40mm, values at 100 K? T

	l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
	mm	V	A	Ω	α	κ	W	° C	
TEG 241-200-1 sheet	40 * 40 * 3.6	11,20	1.10	6.9	0,104	0.70	3.1	200	
TEG 199-150-2 sheet	40 * 40 * 3.2	8.86	3.60	1.67	0,082	1.56	8.0	150	Element with high surface power density
TEG 199-200-5 sheet	40 * 40 * 3.2	8.64	3.45	1.70	0,080	1.69	7.5	200	Element with high surface power density
TEG 199-200-6 Datasheet	40x40x3, 6	8.85	2.31	2.60	0,082	1.13	5.12	200	currently not available
TEG 254-200-7 Datasheet	40 * 40 * 3.8	11.02	1.08	6.90	0,102	0.66	2.99	200	
TEG 241-180-8 Datasheet	40 * 40 * 4.8	11.34	0.59	13.04	0,105	0.37	1.68	180	Element with low thermal conductivity
TEG 127-200-9 Datasheet	40 * 40 * 4.8	5.60	1.20	3.20	0,052	0,344	1.67	200	Element with low thermal conductivity
TEG 199-200-11 Datasheet	40 * 40 * 3.9	8.74	1.86	3.20	0,081	0,900	4.06	200	
TEG 254-200-12 Datasheet	40 * 40 * 4.8	11.120	0.58	13.00	0,103	0,357	1.62	200	Element with low thermal conductivity
TEG 287-200-14 Datasheet	40 * 40 * 4.8	12.09	0.91	9.00	0,112	0,518	2.76	200	Element with high thermopower
TEG 241-120-15 Datasheet	40 * 40 * 3.9	10.15	0.98	7.00	0,094	0.560	2.50	120	Low cost element for the low-temperature range
TEG 287-150-16 Datasheet	40 * 40 * 3.8	13.00	0.96	9.25	0,121	0,680	3.14	150	New!

shared elements? T values at 100 K

	l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
	mm	V	A	Ω	α	κ	W	° C	
TEG 254-150-19 serial Datasheet	40 * 40 * 3.6	11.23	1.14	6.7	0,104	0.611	3.20	150	4 ports, optional serial or parallel
TEG 254-150-19 parallel Datasheet	40 * 40 * 3.6	5.20	3.11	1.67	0,052	0.611	3.20	150	4 ports, optional serial or parallel
TEG 254-150-36 serial Datasheet	30x60x3, 6	11,30	0.94	8.1	0,104	0.60	2.65	150	4 ports, optional serial or parallel
TEG 254-150-36 parallel Datasheet	30x60x3, 6	5.33	1.90	2.02	0,052	0.60	2.65	150	4 ports, optional serial or parallel

cost elements, values at 100 K? T

	l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Price
	mm	V	A	Ω	α	κ	W	° C	€
TEG 127-150-21 Datasheet	30x30x3, 3	5.29	0.93	3.85	0,049	0.35	1.23	150	€ 20.60
TEG071-150-22 Datasheet	30x30x3, 6	2.80	2.24	0.85	0,026	0.35	1.57	150	€ 12.60
TEG-071-200-22 Datasheet	30x30x4, 8	3.45	1.21	1.94	0,032	0.23	1.04	200	€ 14.90
TEG-127-150-23 Datasheet	40x40x4, 2	5.50	1.27	3.00	0,052	0.560	1.79	150	€ 24.60
TEG-127-200-24 Datasheet	40x40x3, 3	5.29	3.33	1.08	0,049	1,000	4.40	200	€ 29.60

Thermal generators 30x30mm, values at 100 K? T

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 127-150-26 Datasheet	30x30x3, 6	5.83	1.16	3.41	0,054	0.313	1.7	150	low thermal conductivity
	TEG 127-200-27 Datasheet	30x30x4, 2	6.05	0.75	5.50	0,056	0,300	1.13	200	
	TEG 127-200-28 Datasheet	30x30x4, 8	5.10	0.77	6.60	0,056	0,180	1.00	200	very low thermal conductivity
	TEG 241-150-29 Datasheet	30x30x3, 6	10.36	0.70	10.00	0,096	0,440	1.83	150	New!
	TEG 127-175-25 Datasheet	30x30x3, 6	6.43	1.20	3.55	0,059	0,270	1.97	175	New! High efficiency!
	TEG 127-175-26 Datasheet	30x30x2, 8	6.37	3.18	1.36	0,059	0,700	5.07	175	New! High efficiency!

Micro TEG, less than 30 x 30 mm, values at 100 K? T

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 017-150-29 Datasheet	15x15x3, 7	0.43	1.39	0.21	0,004	0,034	0.15	150	
	TEG 049-150-30 Datasheet	25x25x3, 7	1.72	2.05	0.57	0,016	0.19	0.89	150	
	TEG 127-200-04 Datasheet	9,8 x9, 8x2, 3	6.37	0.22	19.34	0,059	0.05	0.36	200	New!
	TEG 127-200-06 Datasheet	13x13x2, 1	6.26	0.48	8.88	0,058	0.09	0.75	200	New!

High-temperature elements, values at 200 K? T

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo- by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 200K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 127-230-31 Datasheet	50x50x3, 4	11.44	10.67	0.67	0,052	2.00	30.5	230	currently not available
	TEG 127-230-32 Datasheet	40x40x3, 4	11.28	4.61	1.54	0,052	0,850	13.0	230	
	TEG 126-260-34 Datasheet	56x56x4, 1	9.4	6.5	0.90	0,044	1.40	15.5	260	briefly up to 380 ° C
	TEG 241-260-35 Datasheet	56x56x4, 4	15.48	4.2	2.3	0,072	1.40	16.2	260	currently not available
	TEG 263-250-36 Datasheet	50x50x3, 1	17.2	6.7	1.60	0,080	2.30	28.9	250	
	TEG 127-250-37 Datasheet	50x50x4, 3	9.7	7.5	0.80	0,045	1.90	18.3	250	
	TEG 127-250-38 Datasheet	62x62x4, 8	9.4	16.9	0.35	0,044	2.9	39.9	250	
										currently not available

High-temperature elements, temperature resistance> 300 ° C? T values at 270 K

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo-by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 270K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 126-330-39 Datasheet	40x40x3, 6	10.5	3.40	1.65	0,034	0.50	9.00	330	high-temperature stable
	TEG 126-330-40 Datasheet	56x56x4, 8	8.65	10.52	0.44	0,028	1.35	22.70	330	high-temperature stable
	TEG 199-330-41 Datasheet	40x40x3, 6	12.36	3.67	1.80	0,040	0.65	9.60	330	high-temperature stable
	TEG 241-330-42 Datasheet	56x56x3, 8	16.38	6.30	1.39	0,053	1.5	25,80	330	New! High-temperature stable

Rectangular elements? T values at 100 K

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo-by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 254-150-36 Datasheet	30x60x3, 6	11.3	0.94	8.1	0,104	0.6	2.65	150	two-part element with 4 cables

50 x 50 mm elements and greater values at 100 K? T

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo-by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 450-200-45 Datasheet	57x54x3, 4	23,70	1.09	14.80	0,220	1.40	6.5	200	Element with high output voltage
	TEG 199-200-46 Datasheet	56x56x4, 0	8.86	2.86	2.10	0,082	1.50	6.34	200	Performance? T 200K = 24.0 Watt
	TEG 127-200-47 Datasheet	51x51x4, 0	4.86	4.71	0.70	0,045	1.45	5.73	200	Performance? T 200K = 22.0 Watt
	TEG 199-200-48 Datasheet	50x50x4, 5	8.1	1.83	3.00	0,075	0.85	3.71	200	Performance at 200K? T = 17 watts
	TEG 199-200-49 Datasheet	56x56x3, 9	8.85	3.76	1.6	0,082	1.50	8.32	200	very good efficiency

	TEG 161-200-50 Datasheet	45x45x3,8	7.56	2.85	1.8	0,070	1.30	5.40	200	
	TEG 241-150-51 Datasheet	55x55x4,8	10.26	1.07	6.5	0,095	0.64	2.75	150	New! Lower thermal conductivity
	TEG 288-200-52 Datasheet	62x62x4,2	8.64	4.51	1.3	0,080	2.80	9.70	200	New!
	TEG 127-180-53 Datasheet	55x55x5,6	5.72	2.31	1.68	0,053	0.70	3.3	180	New! Lower thermal conductivity

Round elements? T values at 100 K

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo-by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 100K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
	TEG 253-150-40 Datasheet	Ø 62 h = 3.9	10.10	2.53	4.00	0,101	1,282	6.38	200	nich currently available

Thermoelectric generators with mounted heatsink? T values at 200 K

		l * b * h	Idle voltage	Short-closing current	Resistance stand (Ri)	Thermo-by virtue of (V / K)	Thermal conductance (W / K)	el Performance at T = 50K	Max Temp	Remark
		mm	V	A	Ω	α	κ	W	° C	
stable at high temperatures To operate in an open flame.	TEG 097-300-33 Datasheet	100x50x120	5.50	0.17	25.0	0,025	0,020	0.25	1000	At 400 K? T = 2 watts

Individual thermocouples P + N - Type, 10 x 10 x 10 mm for temperatures up to 550 ° C

Thermocouples		l * b * h	el.Wider-stand (P_Type)	el.Wider-stand (N_Type)	Thermo-by virtue of (P_Type)	Thermo-by virtue of (N_Type)	Thermal conductance (P_Type)	Thermal conductance (N_Type)	Max Temp	Remark
		mm	· Cm	· Cm	α, V / K	α, V / K	κ, W / K.cm	κ, W / K.cm	° C	
	TEG 001-800-01 Datasheet	10x10x10	0.0009	0.001	0.0002	0.0002	0,017	0,019	550	Delivery Pairwise P + N-Type
	TEG 001-800-02 Datasheet	1,4 x1, 4x1,6	0.0009	0.001	0.00021	0.00023	0,017	0,019	550	Delivery Pairwise P + N-Type

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