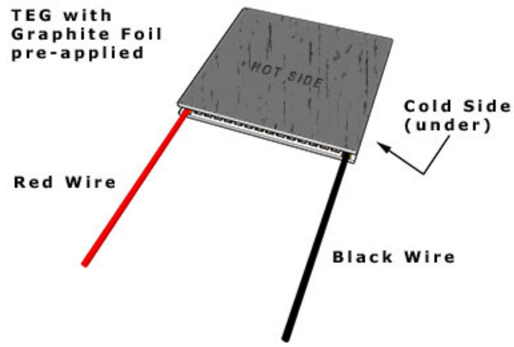
TEG Specification Sheet

Seebeck Thermoelectric Generator

Part #	T_{max} (°C)
1261G-7L31-10CX1	320°C

Note:
Hot side is rated to a maximum of 320°C continuous
Cold side is rated to a maximum of 180°C continuous.

Both sides of the TEG have a graphite foil pre-applied as a thermal interface material (TIM). There is no need to add any additional thermal grease or compounds.

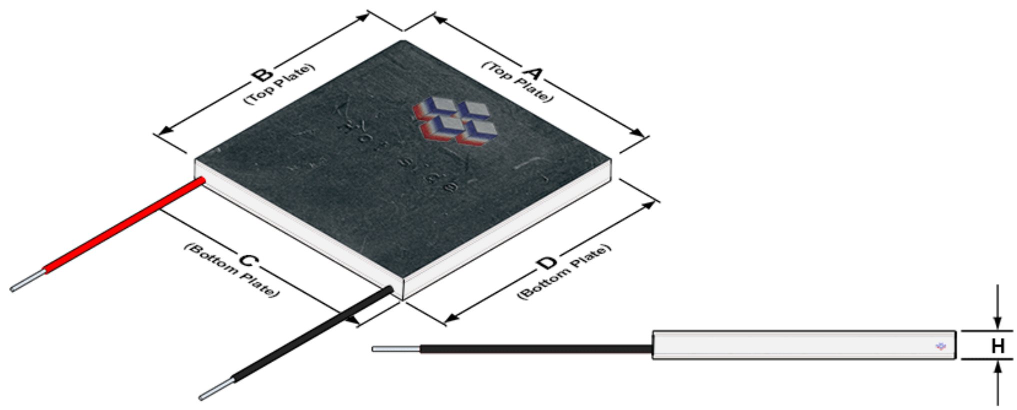


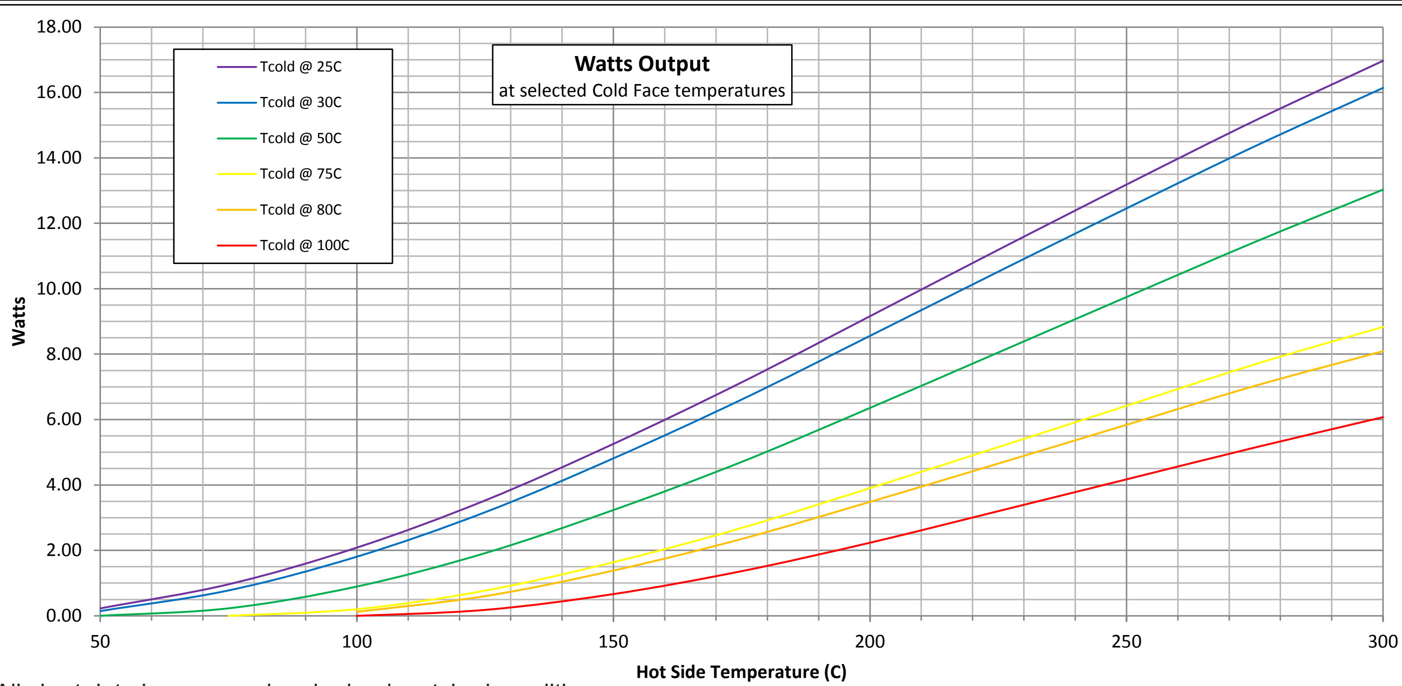
Top Plate				Bottom Plate				Height w/ Foil		Lapped Height	
A		B		C		D		H		H	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
56.0	2.205	56.0	2.205	56.0	2.205	56.0	2.205	4.7	0.185	4.4	0.173

Weight (w/o leads)
60 grams

AC Resistance
0.65 ohms @ 27°C

Thermal Conductivity
1.75 watts/m K @ T_h=300°C





*All chart data is measured under load matched conditions.

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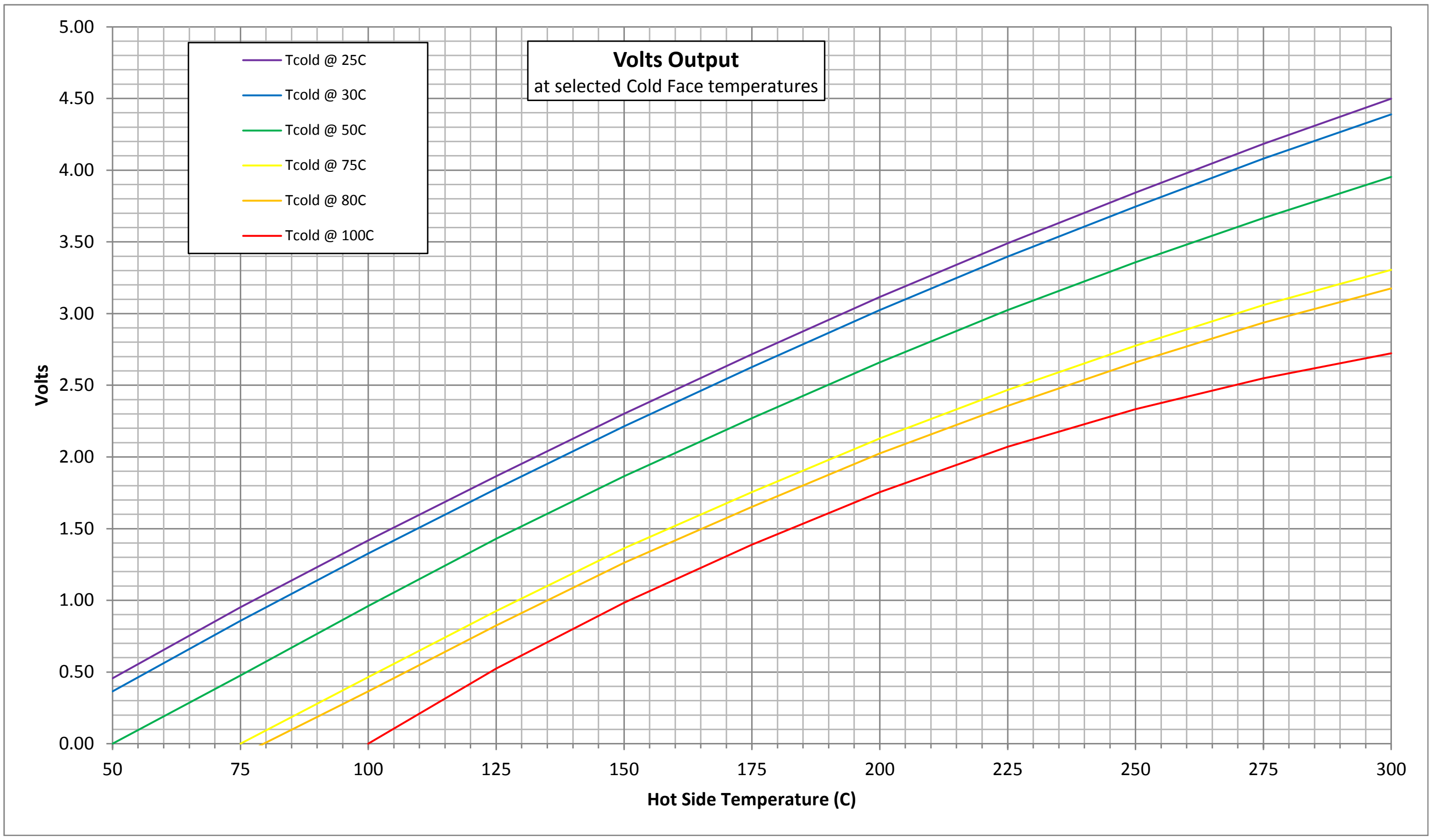
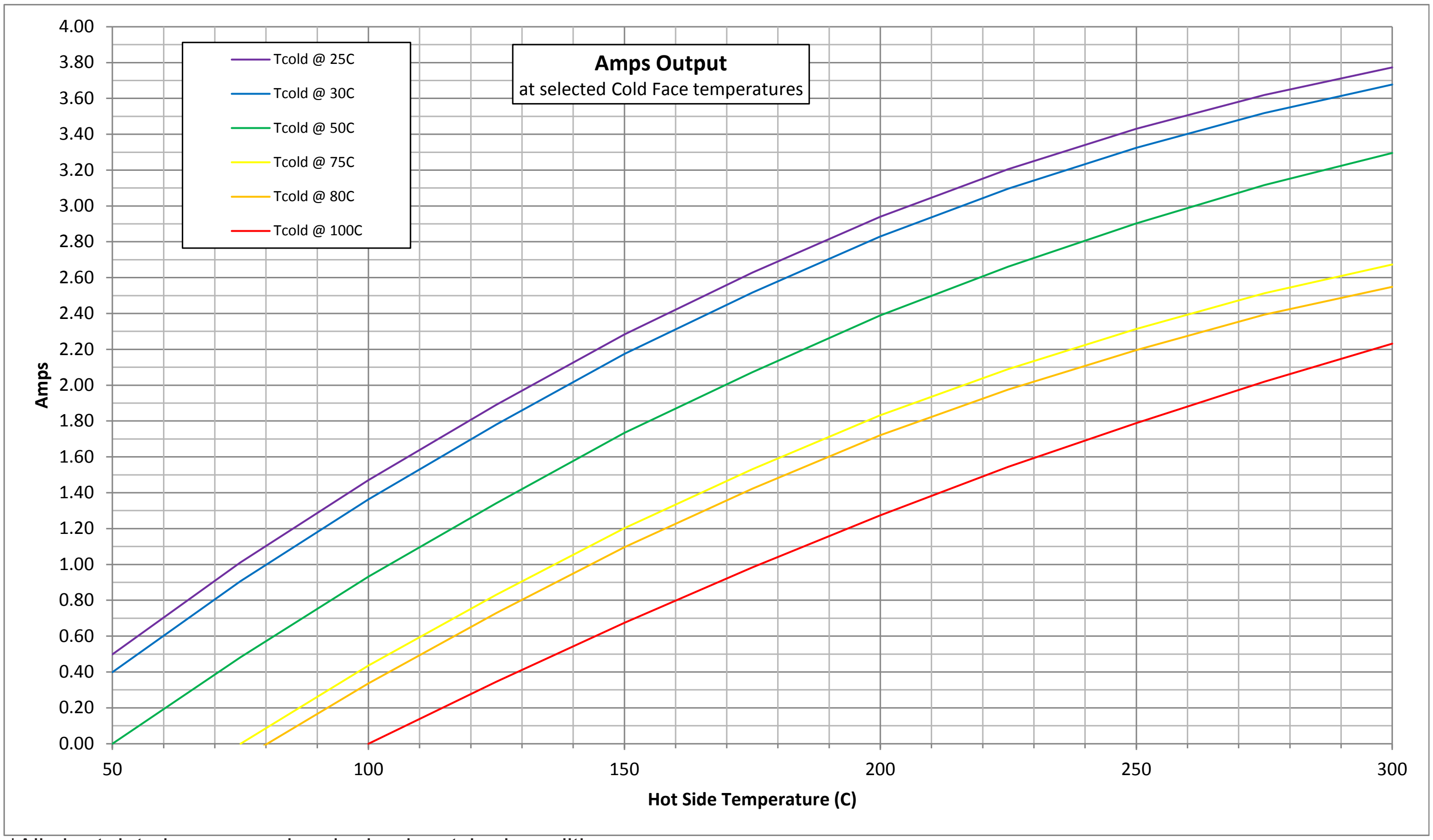
All technical information and data in this document is based on tests and measurements and is believed to be accurate and reliable. Product testing by the purchaser is recommended in order to confirm expected results for specific applications. Materials and specifications are subject to change without notice. REV. 5-12-2014





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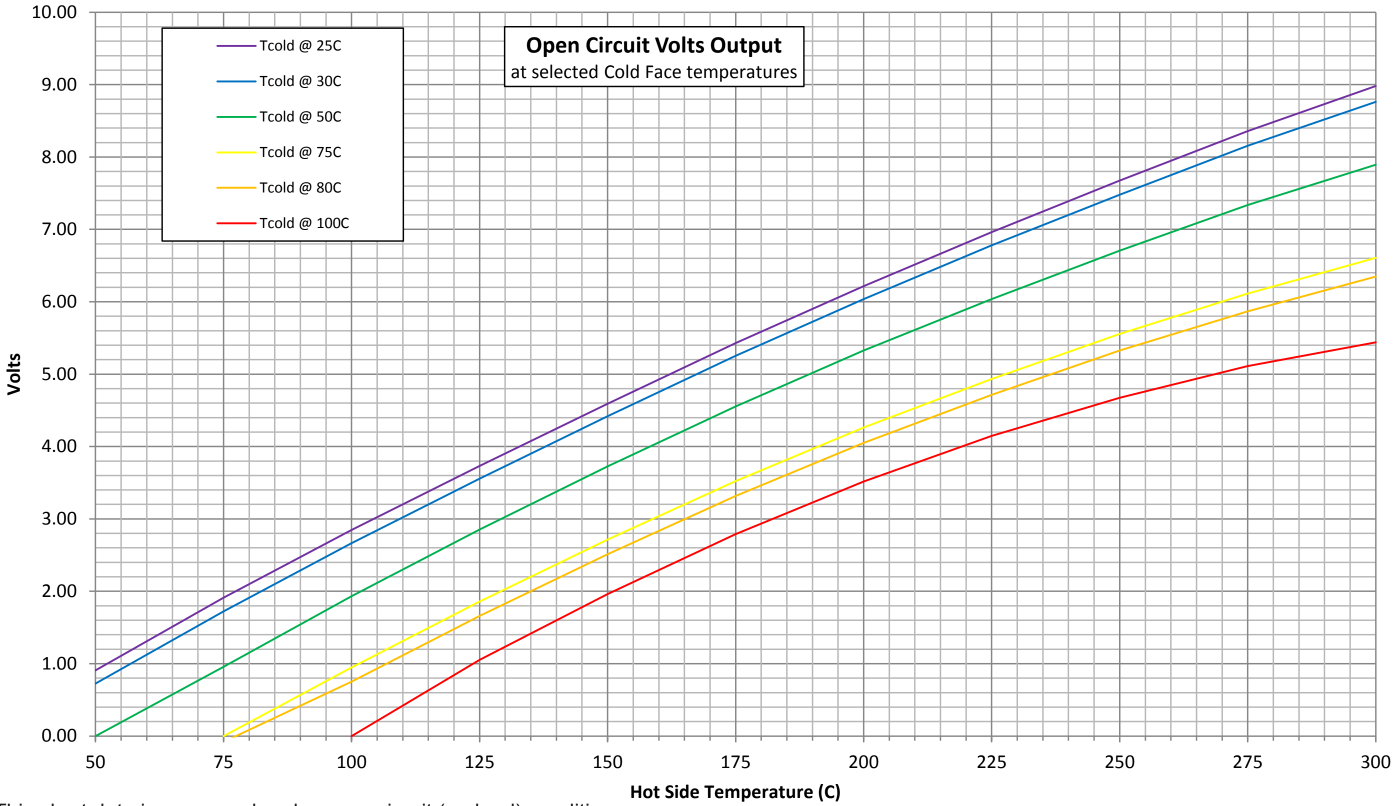
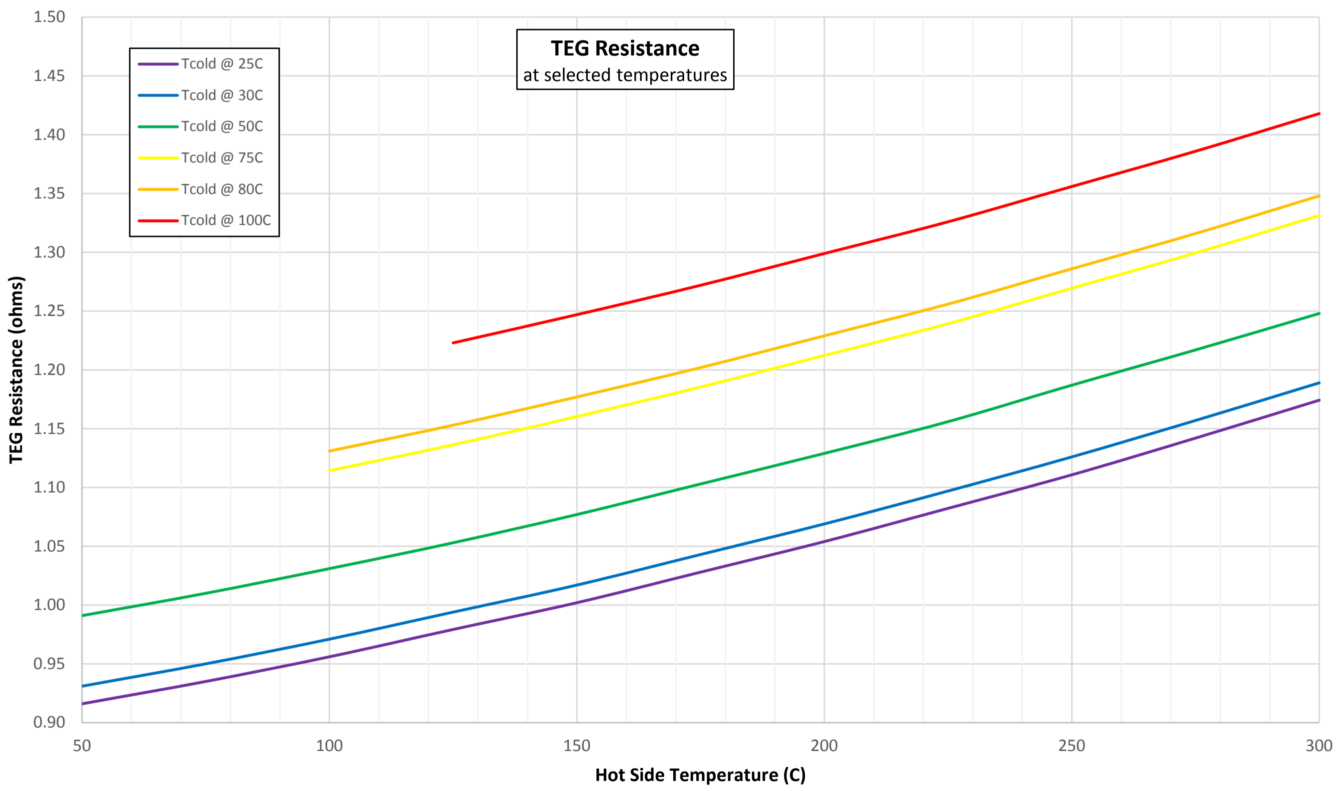


*This chart data is measured under open circuit (no load) conditions.



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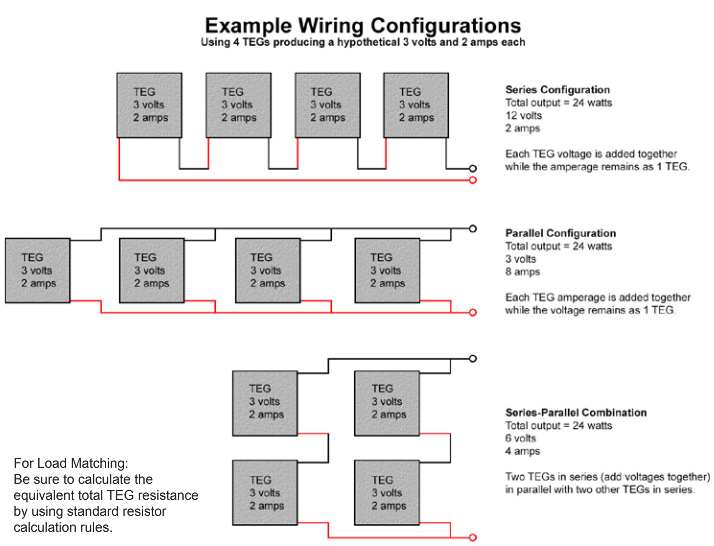
How to use the Charts:

1. Determine the Hot Side and Cold Side temperatures the TEG will be exposed to.
2. Find the Hot Side temperature using the horizontal (X) axis on the Volts, Amps, or Watts chart.
3. Follow a vertical line from the Hot Side temperature until you meet the curve that represents the Cold Side temperature. Mark this point. [It is OK to interpolate between the lines if your cold side value is between one of the curves]
4. Follow a horizontal line left from this point towards the vertical (Y) axis and read off the value where it intercepts.

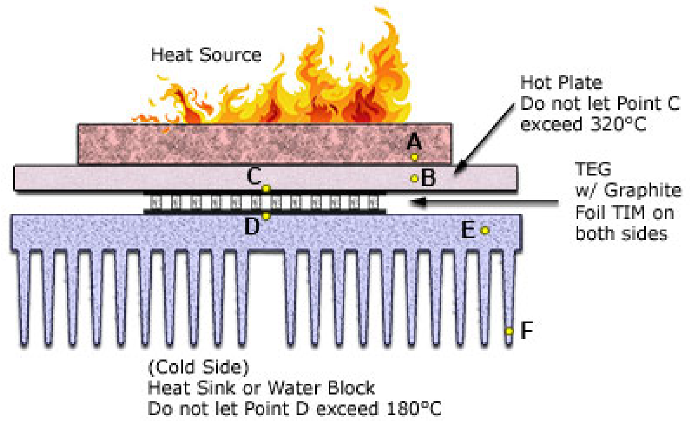
Example:
You determine the Hot Side temperature will be 250°C and the Cold Side temperature will be 30°C. Look at the Volts chart. Find the 250°C value on the horizontal (X) axis and follow a vertical line up until you meet the 30°C blue Cold Side curve. The vertical 250°C line and the 30°C blue curve meet between two of the horizontal grey lines. Follow a line to the left until you meet the vertical (Y) axis. The line corresponds to about 3.75 volts, since it is about 1/2 of the way between the 3.7 volt grey line and the 3.8 volt grey line. Using the same method on the Amps chart shows an output of approximately 3.3 amps.

Open Circuit and Load conditions: (Please see diagram below)
A "Load" is any device that is connected to the TEG that will consume power generated by the TEG. It can be many things such as a motor, LED, light bulb, electronics, a battery (being charged), etc. A TEG is considered "Loaded" when it is connected to these devices. A TEG is considered "Open Circuit" when NO load is connected. A chart for Open Circuit Voltage is provided to show the maximum voltage produced by the TEG.

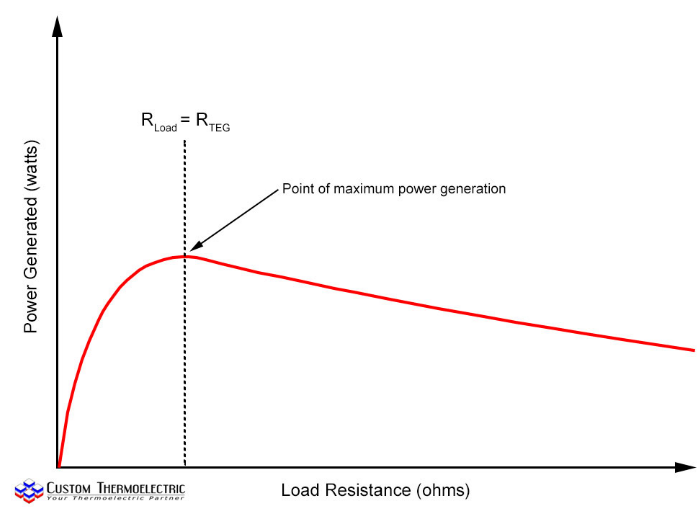
TEG connected to LOAD   TEG is Open Circuit (no Load)



About Temperatures and Points of Measurement:
TEGs generate electrical power based off of a provided temperature difference. The greater the temperature difference, the greater the power output. But it is also important to know where these temperatures are measured, else your design will give you unexpected results. Consult the diagram below. Temperature measurement points are labeled as A, B, C, D, E, and F. Point A is the temperature of your heat source. Point B is typically the measurement on the hot plate of your assembly and will be a lower value than Point A. Point C is measured just at the TEG to hot plate interface and is the actual Hot side temperature the TEG will "see". Point D is measured at the Cold side to sink interface and is the Cold side temperature the TEG will "see". Point E is measured elsewhere on the Sink and is usually less than point D. Point F is measured on the edge of the sink and is usually much lower than point D or E. <u>All the charts are based off of measurements taken at points C and D</u>. Keep in mind, also, that the heat is passing through the TEG and will end up on the cold side. This will raise the temperature of your Sink and will have an effect on Point D, usually raising it higher than you think it is.



About Load Matching:
TEGs will deliver the maximum Power output (Power = Volts x Amps) when the Load resistance equals the TEGs internal resistance. ($R_{Load} = R_{TEG}$) Use the chart "TEG resistance" to determine the TEG's resistance at the temperatures you will provide it. If you cannot match the load, then always try to keep the load resistance slightly higher than the TEG resistance rather than lower.
When using multiple TEGs, calculate the equivalent total TEG resistance to find the Load resistance. Use standard series, parallel, and combined series-parallel resistor rules to calculate the equivalent total resistance for all the TEGs.



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