

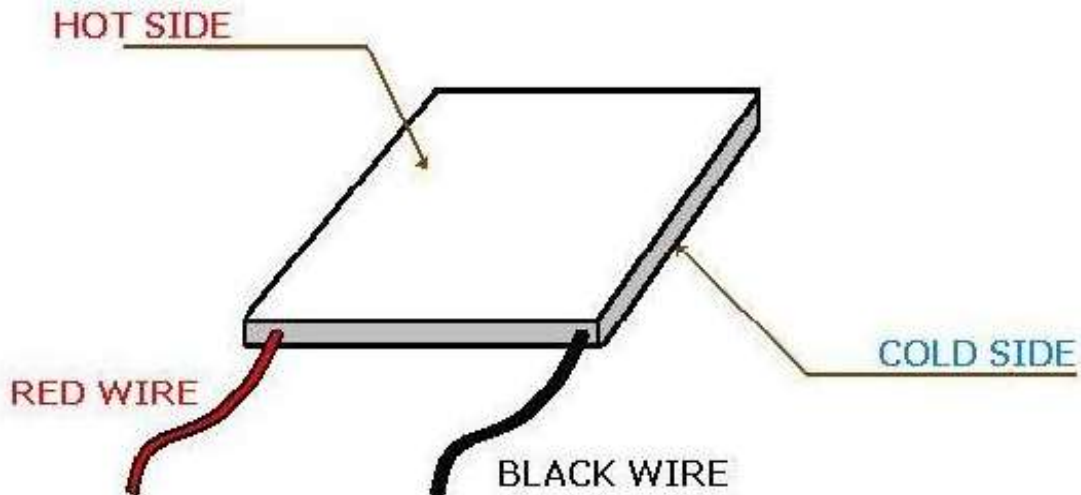


Thermal Electronics Corp.

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Application Notes

Installation must be performed as below. failure to do so will result in premature failure of TEG's



NOTES:

1. Look at the drawing make sure the orientation of the TEG modules is identical.
2. Assembler must attach **"HOT SIDE"** to the heat source.
3. Attach **"COLD SIDE"** to the cold source (ex.cold water or heatsink)
4. Always apply a high thermal grease to both sides of the module.

No grease is required with graphite overlay option.



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Specification for Power Modules TEG1-XXXX-X.X

Thermoelectric power module TEG1-XXXX-X.X is designed and manufactured using technology that allows for converting heat directly into electricity. These modules are constructed of Bismuth-Tellurium (Bi-Te) based thermoelectric semiconductor material. The modules are constructed with the ability to operate at temperatures up to 320°C (608°F) continuously and intermittently up to 340°C (644°F) heat source. It is advised to **regulate the TEG to temperatures not above 300°C (572°F)**. The module will generate DC current as long as there is a temperature difference (ΔT) across the module. As the difference becomes larger, greater amounts of DC current will be produced. Always apply an electrical load for better heat flow.

*******PLEASE TAKE NOTE:** Before applying a heat load.

IMPORTANT:

Always makes sure that the cold side is active. The cold side of the TEG cannot go above **190°C**. The construction of the TEG uses two methods of bonding. This allows the hot side to be exposed to greater temperature than the cold side.

Foot note: At 27°C the Module has an AC resistance of 1.3 to 1.8 Ohms measured @ 1000 Hz Our limited warranty of this product from defect, but during assembly this procedure must be followed, failure to do so will null and void any warranty. We take no responsibility for improper assembly!

3. Clamping the modules by bolting.

Clamping module between the heat source and the heat sink by simply bolting along the edges of the modules, you should take care following points in your assembly:

- 1.) Before bolting, apply a light load in line with center of module by using clamp or weights. Bolt carefully, by applying torque in small increments, alternating between screws. Use a torque limiting screw driver. The recommended compression for a module in such assembly is 40 to 50 pounds per square inch of module surface area.

Using the following equation you can solve for torque per screw:

$$T = (C \times D \times F \times \text{in}^2) / (\# \text{ of screws})$$

T = torque per screw (in-lbs)

C = torque coefficient (0.20 as received, 0.15 lubricated)

D = nominal screw size (4/40 = 0.112, 6/32 = 0.138, 8/32 = 0.164)

F = Force (lbs / in²)

in² = Module surface area (length x width)