Hi-Z TECHNOLOGY, INC.
Materials • Devices • Systems

HZ10-1-1
Preliminary

10W TEG Module
Data Sheet

FEATURES

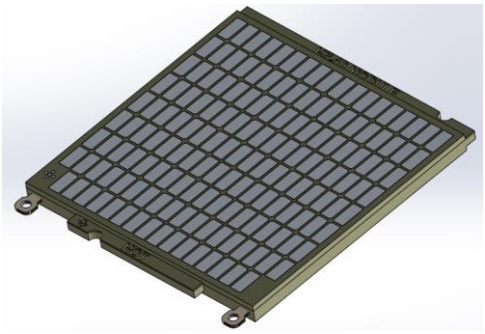
- **Produces 10W or more electrical power @ Th = 250°C, Tc = 50°C** (see Note 1 in page 2)
- **Maximum hot side temperature 350°C** (see Note 2 in page 2)
- **Rugged Construction (no brittle structural ceramic, no solders, fiber glass reinforced framework tolerant to abuse)**
- **Long lifetime (< 4% annual power degradation @ Th = 230°C)**
- **Not vulnerable to thermal shock or quick thermal cycling**
- **Strong embedded electrical terminals good for soldering or spot welding**
- **Notches (used with lock pins) for easy alignment & installation**
- **Cold side temperature tolerance as high as the hot side**

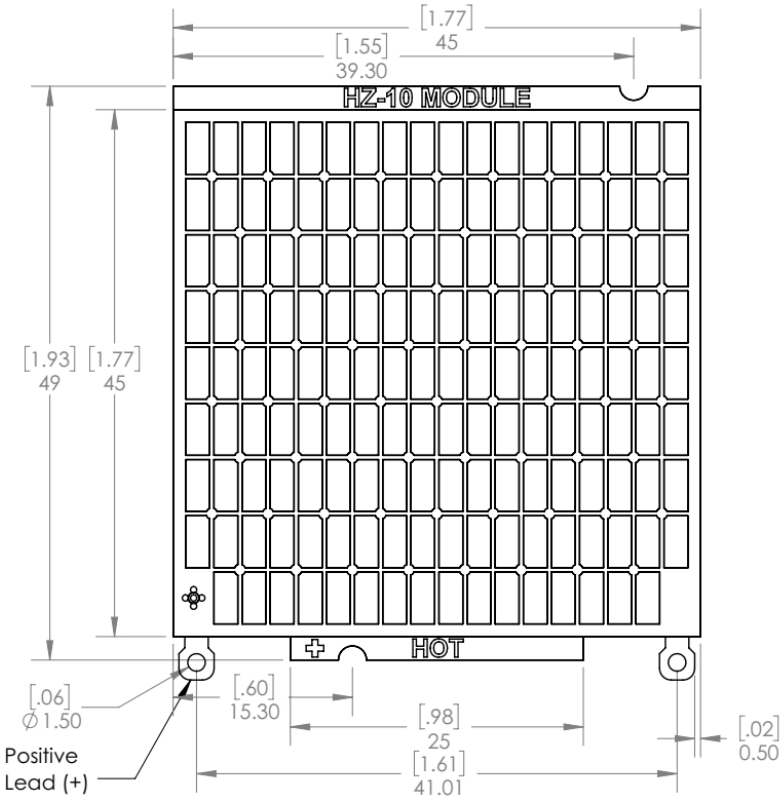
DESCRIPTION

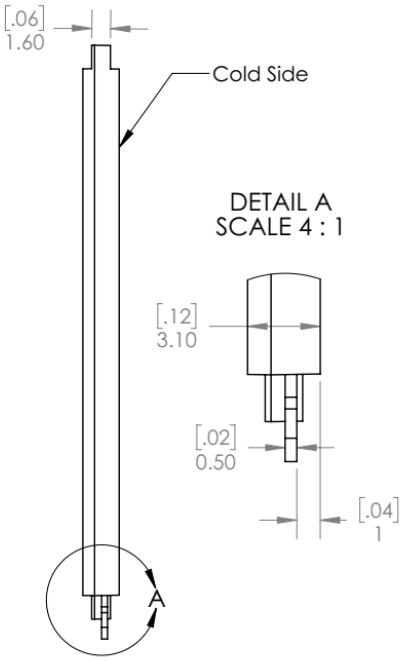
This single-part eggcrate module is especially robust and able to tolerate hot side temperature up to 350°C and frequent thermal cycling. These exceptional temperature capabilities are made possible by the thermally bonded metal conductors that eliminate the presence of any solders.

HZ10's minimized height of the thermoelectric elements makes the module highly cost efficient.

While the module's standard form and dimensions are specified below, custom dimensions, shape and terminal configuration may be available.







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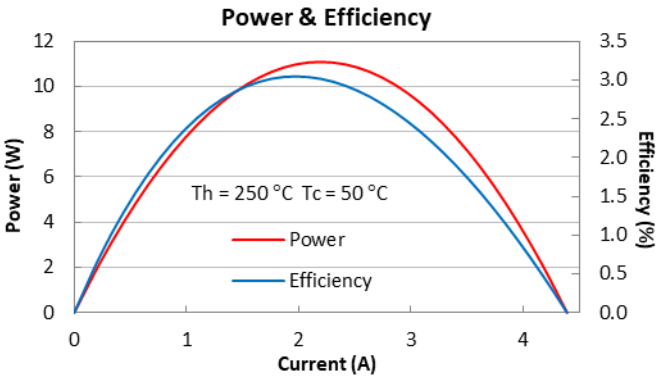
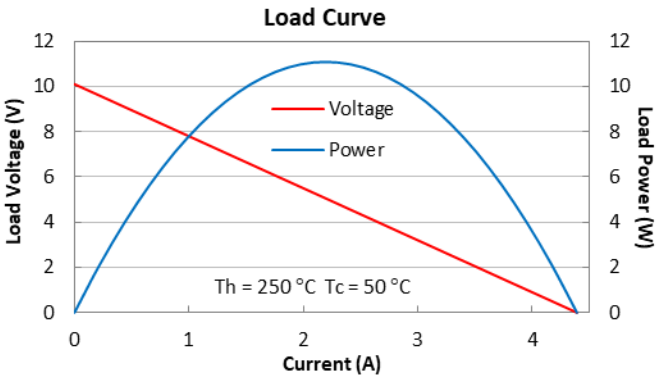
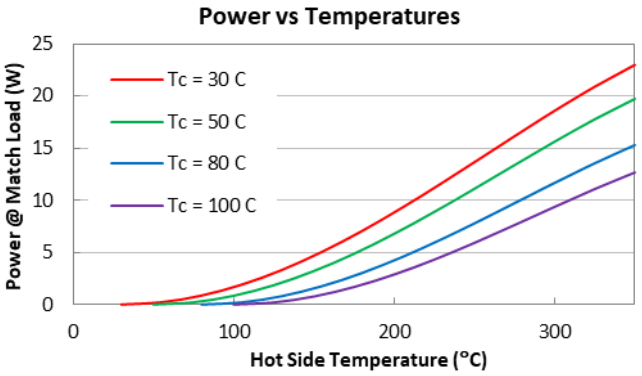
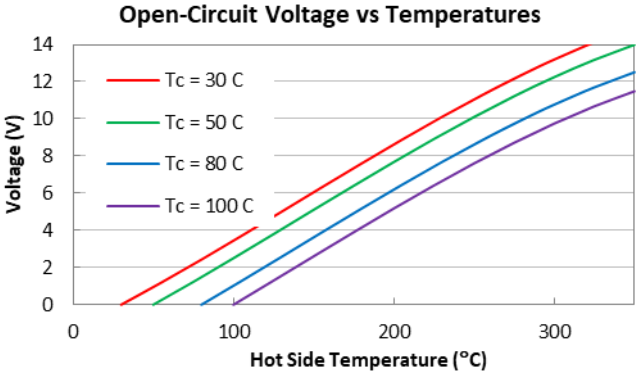
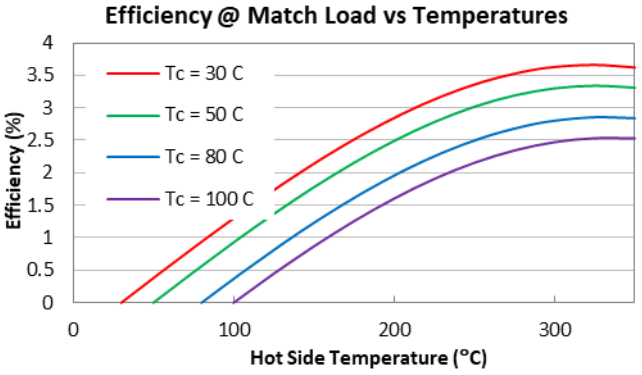
Estimated Thermal and Electrical Characteristics					
Parameter	**Conditions**	**min**	**typ**	**max**	**units**
Power	Th=250°C, Tc=50°C @matched load	10.0	10.5	11.0	W
Open Circuit Voltage	Th=250°C, Tc=50°C	10.0	10.5	11.0	V
Matched load Voltage	Th=250°C, Tc=50°C	5.0	5.25	5.5	V
Internal Resistance	Th=250°C, Tc=50°C	2.5	2.55	2.6	Ω
	Th = Tc = 25°C	1.4	1.5	1.6	Ω
Current	Th=250°C, Tc=50°C @matched load	1.8	2.0	2.2	A
	Th=250°C, Tc=50°C @short circuit	3.6	4.0	4.4	A
Heat Flow	Th=250°C, Tc=50°C @matched load	330	350	370	W
	Th=250°C, Tc=50°C @open circuit	265	280	295	W
Heat Flux	Th=250°C, Tc=50°C @matched load	16	17	18	W/cm^2
Mass		20	20.5	21	g











Notes

[1] Stated temperatures are assumed to be on the module surface and not the heat exchangers. To achieve the specified performance, please refer to our module installation guide.

[2] Our tests indicate that the module can tolerate temperatures up to 350°C without being damaged. However the module performance degrades much faster at higher temperatures. For maximum life expectancy the hot side temperature should not exceed 230°C while 250°C can be a good choice for a balanced performance between lifetime and power/efficiency.