Generating thermoelectric modules

Nations the world over are actively searching for alternative, clean energy sources. Using the thermoelectric modules to generate electro energy is becoming vital, valid choice. Interest in energy sources such as thermoelectric generating modules is warming because of the latest achievements in the sphere of thermoelectric technology and constructions.

Using the generating thermoelectric modules (TGM), produced by KRYOTHERM, makes it possible to provide generation of the electro energy with up to 10 W with direct current voltage up to 6 V with one TGM with a temperature difference of 100 °C.

Main TGM application:

- utilization of worthless heat at transport installations (automobiles, ships);
- autonomic supply of energy to electronic blocks for water boilers and disposal plants;
- cathodic protection of the oil and gas pipelines;
- conversion of natural heat resources — geothermal waters, etc into electric energy;
- autonomic power supply of low-power electric devices.

Application recommendations:

1. Generating modules (TGM) must be installed on flat surface. This requirement is especially vital for the cold side of TGM. The purity of surface processing on which TGM is installed must be better than 20 microns.
2. The pressing force must be not less than 12-15 kg/cm^2
3. Temperature of the hot seam shall not exceed 200 °C

Attention! During the exploitation of TGM with the decrease of electric load an increase of the hot seam temperature up to 5 % off the difference between hot and cold sides of the module can follow.

Performance Data

Type	Geometrical dimensions, mm			Cold end = 50 0C Hot end = 150 0C					
				Internal resistance	Heat resistance	Voltage	Current	Power	Efficiency
	A	B	H	Ohm	K/W	V	A	W	%
TGM-127-1.0-0.8	30	30	3.1	2.41	1.40	1.83	0.76	1.38	2.3
TGM-127-1.0-1.3	30	30	3.6	3.92	2.27	2.18	0.56	1.21	2.7
TGM-127-1.0-2.5	30	30	4.3	7.53	4.36	2.55	0.34	0.86	3.2
TGM-127-1.4-1.5	40	40	3.9	2.46	1.43	2.25	0.91	2.05	2.8
TGM-127-1.4-2.5	40	40	4.8	3.84	2.23	2.50	0.65	1.63	3.2
TGM-199-1.4-0.8	40	40	3.2	1.93	0.45	2.19	1.14	2.49	1.8
TGM-199-1.4-1.2	40	40	3.6	2.89	0.68	2.69	0.93	2.50	2.2
TGM-199-1.4-1.5	40	40	3.9	3.85	0.91	3.03	0.79	2.39	2.4
TGM-287-1.0-1.3	40	40	3.6	8.85	1.00	4.54	0.51	2.33	2.5
TGM-287-1.0-1.5	40	40	3.8	10.20	1.16	4.77	0.47	2.23	2.7
TGM-287-1.0-2.5	40	40	4.8	17.00	1.93	5.49	0.32	1.77	3.1

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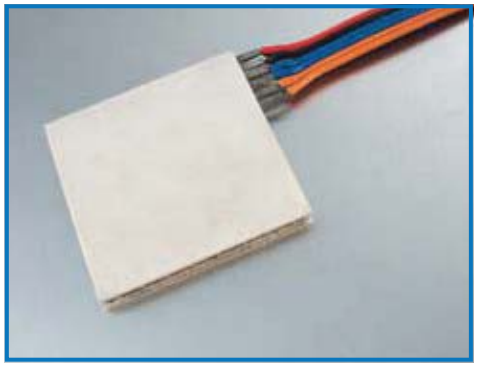
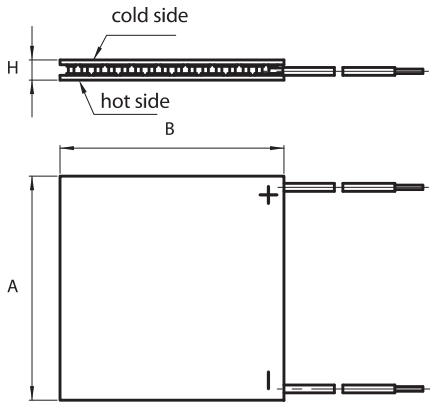


System of notation

A universal abbreviation is used to notate generating modules: **TGM-N-C-h**, where:

TGM — product contraction — generating thermoelectric module;
N — number of thermocouples in the module;
C — length of the rib of the thermoelectric element basis (in millimeters);
h — height of the thermoelectric element (in millimeters)

For example, in the module TGM-127-1.0-2.5: 127 thermocouples (254 thermoelectric elements), every element has the cross-section of 1.0×1.0 mm and is 2.5 mm high.



Performance Data

Type	Cold end = 100 0C Hot end = 200 0C					
	Internal resistance	Heat resistance	Voltage	Current	Power	Efficiency
	Ohm	K/W	V	A	W	%
TGM-127-1.0-0.8	2.51	1.36	1.73	0.69	1.19	2.0
TGM-127-1.0-1.3	4.07	2.21	2.07	0.51	1.05	2.4
TGM-127-1.0-2.5	7.84	4.26	2.43	0.31	0.75	2.8
TGM-127-1.4-1.5	2.56	1.39	2.13	0.83	1.78	2.4
TGM-127-1.4-2.5	4.00	2.17	2.38	0.60	1.42	2.7
TGM-199-1.4-0.8	2.00	0.44	2.07	1.03	2.14	1.5
TGM-199-1.4-1.2	3.01	0.67	2.55	0.85	2.16	1.9
TGM-199-1.4-1.5	4.01	0.89	2.88	0.72	2.06	2.1
TGM-287-1.0-1.3	9.21	0.98	4.30	0.47	2.01	2.2
TGM-287-1.0-1.5	10.60	1.13	4.52	0.43	1.93	2.3
TGM-287-1.0-2.5	17.70	1.88	5.22	0.29	1.54	2.6

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