

UNIVERSAL MODULES 12 - 24 - 48 V!

NEW!



Box 86, General Post Office
Chernivtsi, 58000, Ukraine
Fax:(380 -3722) -41917, 41909
Phone: (380-3722) -41909,44422,
E-mail:altec@ite.cv.ua

THERMOELECTRIC COOLING MODULES

Altec - 076
40 x 43 mm



• Articles with thermoelectric modules are fed from DC sources. A thermoelectric module usually has one operating voltage, 12 V, for instance. However, during the exploitation it is necessary to supply thermoelectric devices from different sources, for instance, from 12 or 24 V car supply line, from 50 V railway transport supply line, from AC supply line of various voltage. Thus, electronic voltage converters are used in thermoelectric devices that made the article more expensive, and they increase the consumed power.

• Using Altec-076 module you can do away with without an electronic converter or to use more cheap electronic converters.

• Altec-076 module consists of four electrically insulated sections. Each section has 254 legs of 1.5x0.7x0.7 mm. Total number of legs in a module is 1016. Each section has individual electrical leads arranged at the edges of a ceramic plate of 40x43 mm (Fig.1).

• Leads connection provides parallel switching of sections. In this case the module voltage supply is 12 V. In parallel-series connection the module voltage supply is 24 V; in series connection of sections the module voltage supply is 48 V. Respective commutator may establish one of three supply regimes of the module: 12 V, 24 V; 48 V.

• In series connection of sections you may use a simplified and cheaper AC to DC converter.

• Thus, the use of Altec-076 modules in thermoelectric articles allows to reduce their cost, weight, dimensions and to improve the convenience of exploitation.

• The module is intended for the creation of required temperature cooling conditions, thermostating or heating in various articles with thermoelectric cooling, thermostating or conditioning.

• The multi-purpose module for the development of household appliances, medical equipment, measuring engineering, other goods and devices.

• The module offers improved characteristics of reliability and stability to various effects.

• The module has been designed on the basis of the latest technological achievements of the Institute of Thermoelectricity, National Academy of Science, Ukraine.

• In designing the module use has been made of the latest theory of thermoelectric modules reliability developed in the Institute of Thermoelectricity, National Academy of Science, Ukraine.

• In designing the module use has been made of the results of extensive reliability tests of modules conducted by the Institute of Thermoelectricity, National Academy of Science, Ukraine, during the recent 25 years.

- Technologies of the Institute of Thermoelectricity were marked with the "International Golden Award for Technology and Quality".
- The module utilizes high-quality Al_2O_3 ceramic plates.
- The module utilizes commutating copper plates with anti-diffusion coatings.
- The module utilizes high quality thermoelectric materials of own production based on *Bi-Te-Se-Sb*. The materials have small-angle controlled unit crystal disorientation that provides high figure of merit combined with increased mechanical strength.
- The module utilizes multi-layer anti-diffusion barriers 25 μ m thick providing high reliability and long service life.
- The modules utilize plastic commutating solders with controlled thickness which provide high resistance to cyclic temperature effects.
- The modules utilize special configuration of ceramic plates providing high resistance to cyclic temperature effects.
- The modules utilize efficient technologies for leg material joining with anti-diffusion barriers. The engagement strength reaches the leg material strength.
- The modules utilize highly efficient silicone sealants which have undergone multi-year tests under conditions of outer space, elevated humidity, etc.

- Basic parameters of modules:

- dimensions: 43x40x3,3 mm; (See Fig.1);

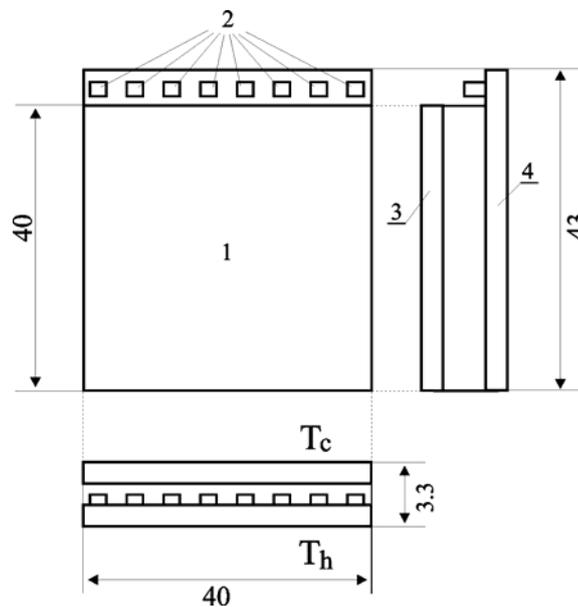


Fig.1. Diagram of a thermoelectric module

- 1 - module; 2 - electric contacts from sections;
- 3 - 40x40 ceramics plate; 4 - 43x40 ceramics plate;
- T_c - temperature of ceramic plate 3 outside surface;
- T_h - temperature of ceramic plate 4 outside surface.

- max. operating voltage $U_{max} = 15 \text{ V}; 30 \text{ V}; 60 \text{ V};$
- max. operating current $I_{max} = 5,8 \text{ A}; 2,9 \text{ A}; 1,45 \text{ A};$
- operating temperature range 200-420 K;
- max. cooling performance at 300 K $Q_0=55 \text{ W};$
- max. temperature difference at ceramics hot side temperature $T_h=300 \text{ K}$ is $\Delta T_{max}=72\pm 2 \text{ K};$

- As optional variation to the module 8 or 2 conductors can be connected, section commutation may be parallel, parallel-series, series.

- Additional module parameters and information about reliability is presented at customer's request.

- Prices for a module depending on the order volume are sent at customer's request.

- Module's characteristics are given in Fig.2.

Orders for modules and additional information:

E-mail: ite@inst.cv.ua,

Fax:(380 3722) 41917, 41909

Phone:(380 3722) 41909, 44422

Mail: General Post Office, P.O. Box 86, Chernivtsi, 58002, Ukraine.

Additional information can be found on the page in Internet

<http://ite.cv.ukrtel.net/altec>

Contact tel. (380 3722) 41909

Contact person Valery Rasinkov

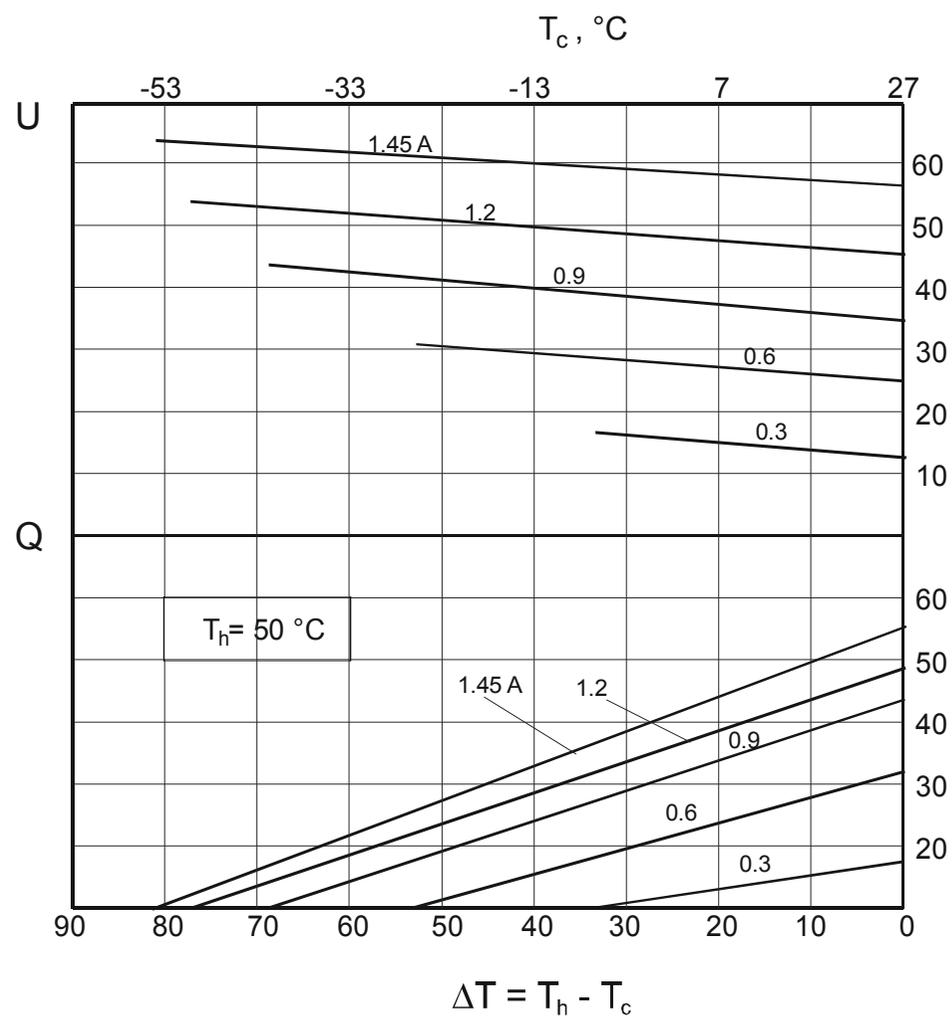
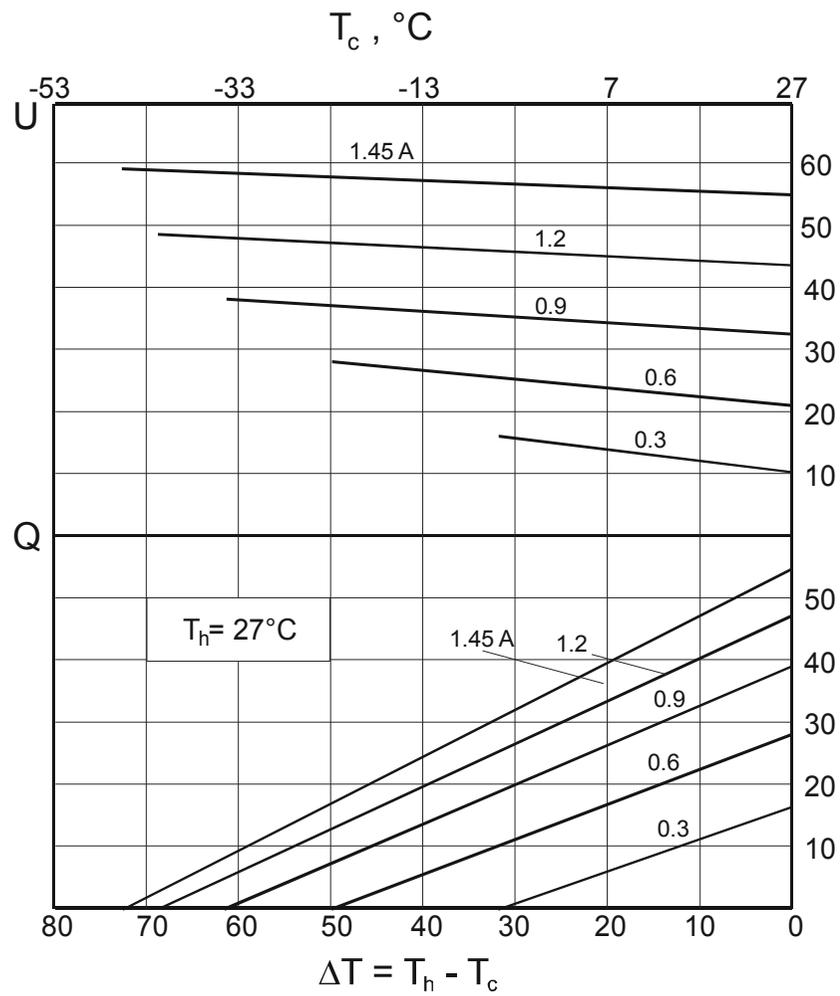


Fig.2.