

INTRODUCTION OF PRODUCTS

FUJI THERMO-BLOCK, TYPE TE 21 F

Introduction

Thermo-electric cooling was pictorially advertised a few years ago and attracted much attention in various fields as an outstanding topic in electronic engineering. It has now entered the stage of practical use, accompanying the recent remarkable advances in semiconductor techniques.

Fuji Electric has recently completed standardizing a fan-cooled type thermo-block fully utilizing the results of semiconductor research performed over the years as well as the associated manufacturing and engineering techniques.

Fuji Electric has also completed preparations for mass production. Given in the following is a general description of the block.

Principle and Construction of Thermo-block

Thermo-block is based on the Peltier effect. Fuji Electric has developed a thermo-block displaying superior thermal-absorption efficiency, by adopting the p and n type semiconductors of the bismuth telluride type with a high figure merit.

The thermo-block has exothermic properties at the side opposite to that of heat absorption, so that the liberated heat is radiated. The thermo-block, type TE 21 F employs a direct thermal transfer system, in

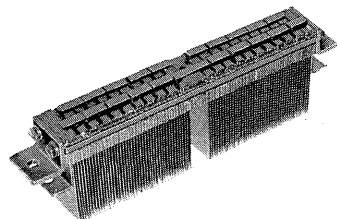


Fig. 1 Outer view of type TR 21 F

which cooling fins are installed directly to the heat-radiation surface which is cooled by an air flow of 2 m/s. This system permits the most efficient thermal radiation. Fuji Electric manufactures not only fan-cooled types, but also self-cooled and water-cooled types.

Features

- 1) Having no moving and corrosive parts, the block undergoes no noise, vibration, or trouble, providing for longer lifespan and may be tilted or

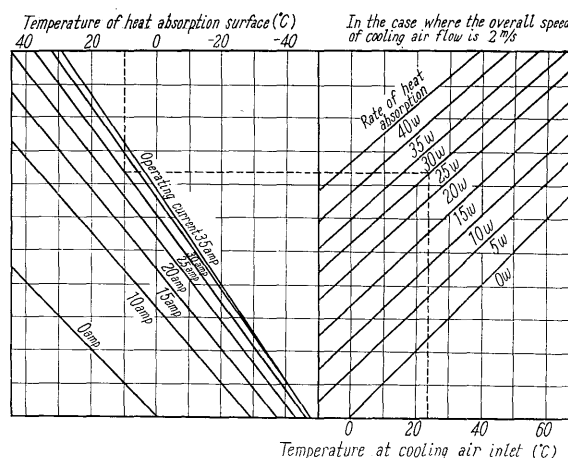


Fig. 2 Characteristics of type TF 21 BF

turned upside down without affecting the performance of the block in the slightest degree.

- 2) Employing the direct thermal transfer system, the block has a high thermal absorption efficiency.
- 3) Easy selection of temperature control, cooling and heating makes the block highly suitable for use as a constant temperature control.

Ratings and Performance

For the fan-cooled type thermo-block, there are three different types of nominal operating current, including 30, 20, and 10 amp.

Their ratings are shown in Table 1.

The performance characteristics of the thermo-block are given in Fig. 2, taking type TE 21 BF as an example.

Table 1 Ratings of Fan-cooled Thermo-block

Type	TE 21 BF	TE 21 CF	TE 21 DF
Nominal Operating Current (amp)	30	20	10
Maximum Operating Current (amp)	36	24	12
Operating Voltage (v)	Dc 1.6		
Speed of Cooling Air Flow (m/s)	2		
Maximum Permissible Temperature (°C)	80		