THERMOELECTRIC MODULES

Technology & Product Solution

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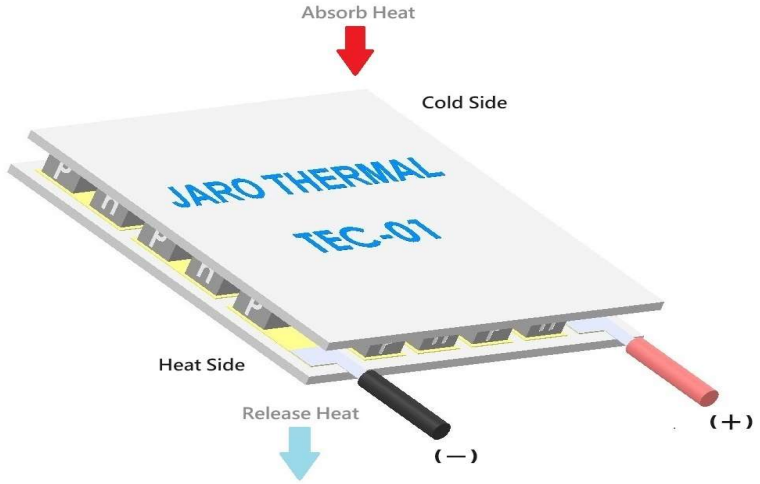
Contents

Introduction

The technology of TEC Cooling relies primarily on the Peltier Effect to achieve cooling or heating. The Peltier Effect is the phenomenon where heat is generated between two different conductive materials when an electric current passes through them. Specifically, when an electric current flows through one conductive material, it causes electrons to move within the material, resulting in electron transitions from a higher energy level to a lower one. During this process, energy is either released or absorbed in the form of heat. This means that if an electric current flows through one conductive material and passes through another, one side becomes hot while the other side becomes cold.



Features

Rapid Cooling and Heating:

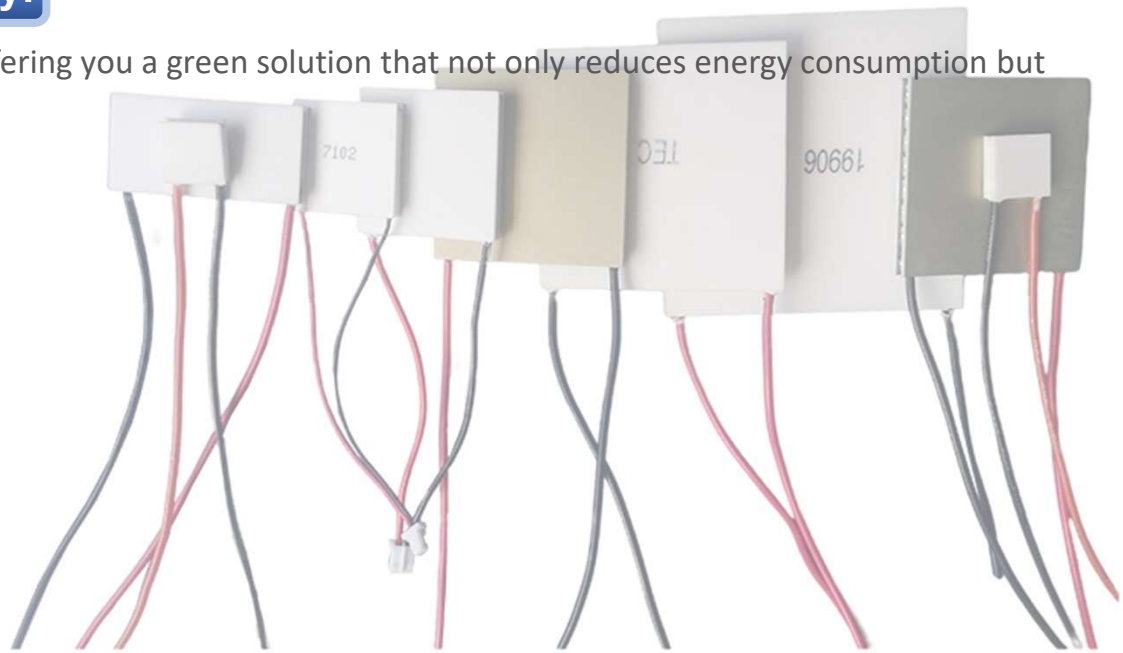
TEC excel at swiftly lowering or raising temperatures, ensuring that your devices or applications consistently perform at their best.

Silent and Compact Design:

TEC stand out with silent, compact design, and lightweight construction, making them highly appealing and suitable for a variety of space-constrained applications, enhancing system versatility.

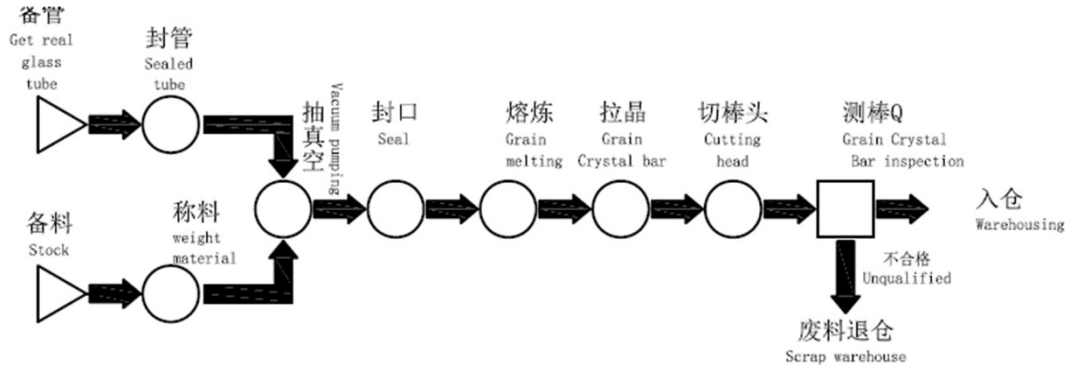
Energy-Efficient and Eco-Friendly:

TEC incorporate energy-saving technology, offering you a green solution that not only reduces energy consumption but also cuts down on costs.

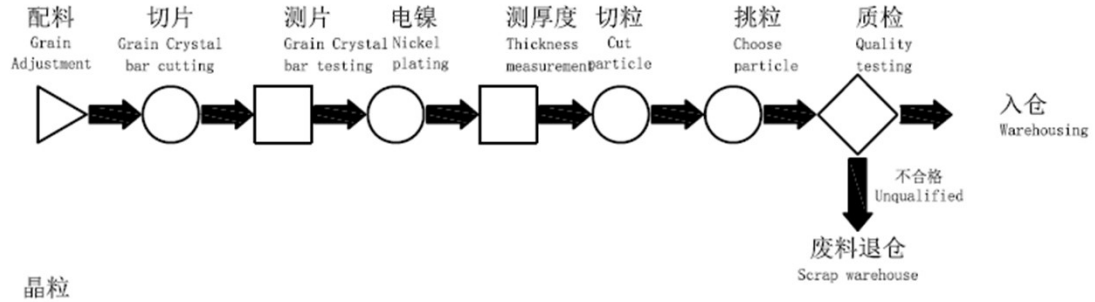


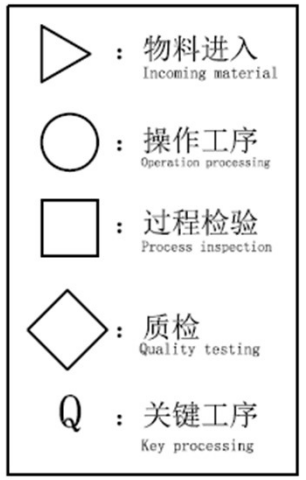
Production Process

晶体材料 Crystal material

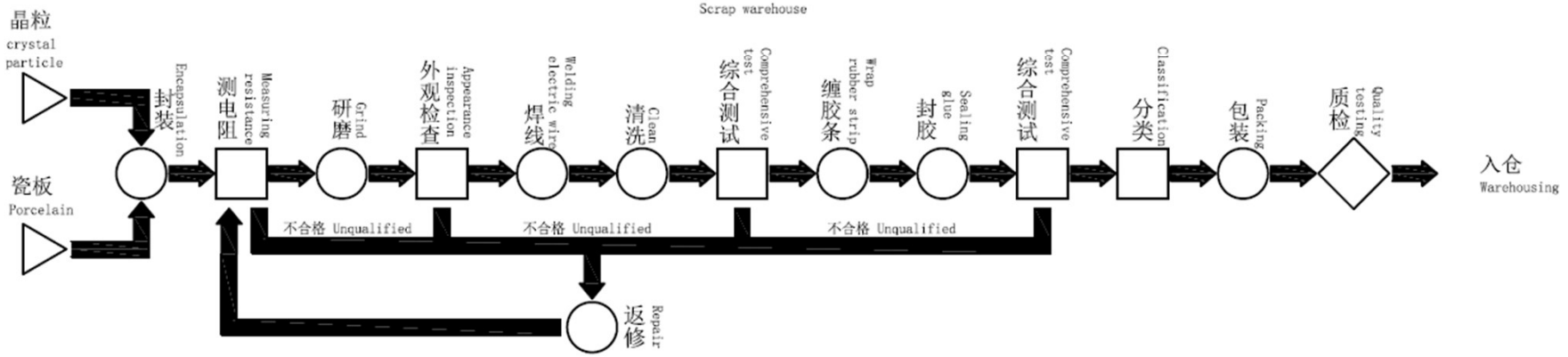


晶粒切割 Crystal cutting

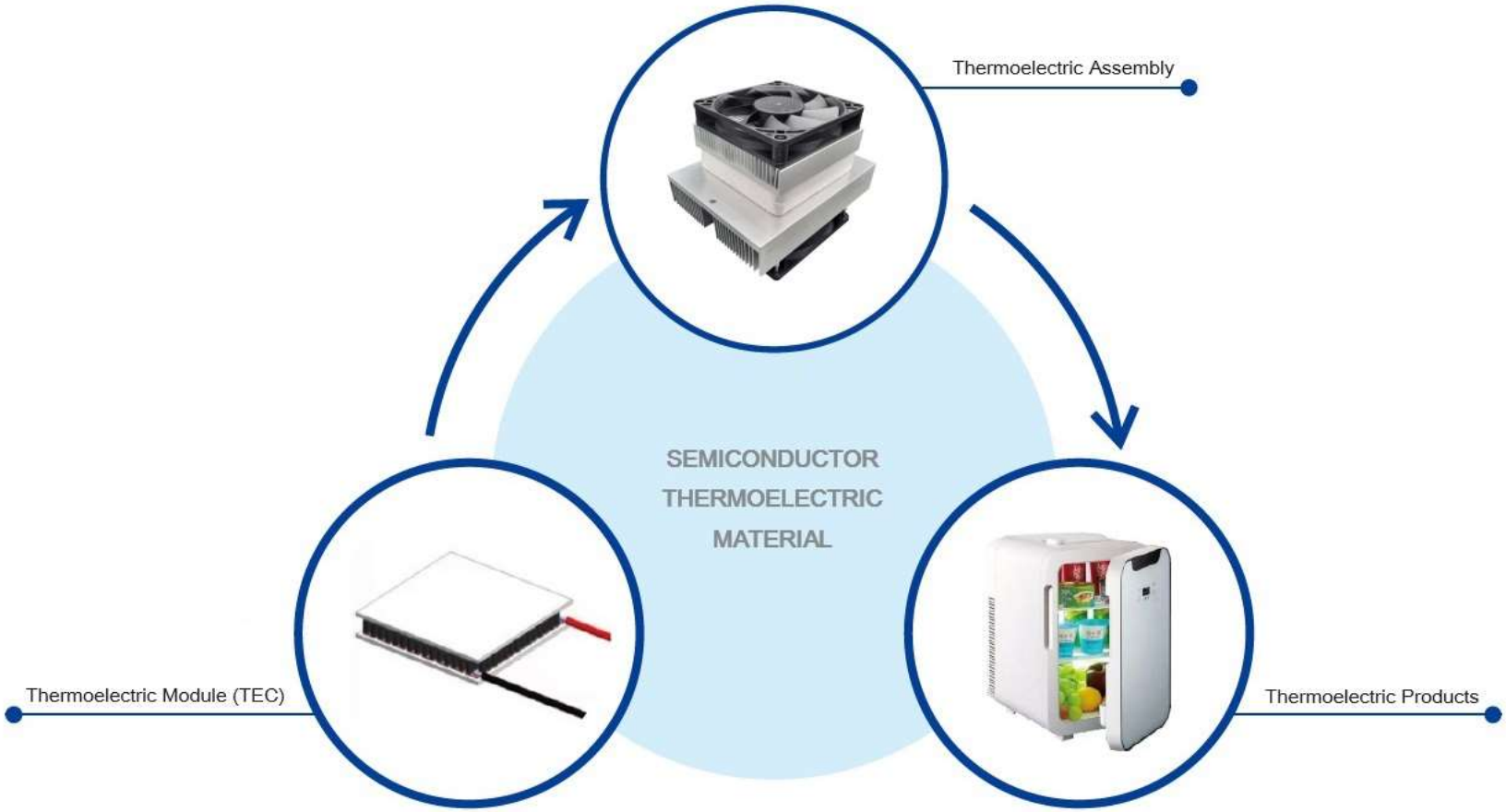




封装测试 Package test



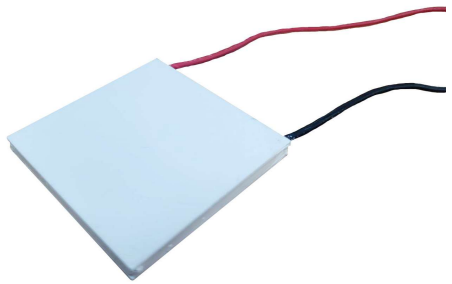
Thermoelectric Industry Chain



TEC PRODUCTION LINE

Single-Stage Thermoelectric Modules

It can meet the requirements of most medium to high power cooling or heating applications and is widely used in industries such as electronics, scientific instruments, medical and biotechnology equipment, and consumer appliances.



P/N	I max (A)	U max (V)	ΔT Max (°C)	QC Max (W)	Dimension (mm)
TEC1-00703	3.10	0.80	66	1.50	10*10*5
TEC1-01707	7.15	2.00	68	8.30	15*15*4
TEC1-03106	6.00	3.70	68	13.00	20*20*4
TEC1-03114	14.20	3.70	71	29.30	30*30*5
TEC1-04909	9.20	5.90	71	29.70	36*36*6
TEC1-04914	14.15	5.90	71	46.00	36*36*5
TEC1-06308	8.20	7.10	68	37.00	20*40*4
TEC1-07107	7.30	8.50	68	34.80	30*30*4
TEC1-07110	10.15	8.50	68	49.70	30*30*3
TEC1-09605	5.20	11.50	63	32.60	40*40*4

TEC PRODUCTION LINE

Multi-Stage Thermoelectric Modules

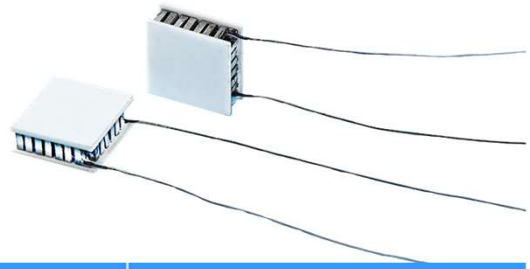
This design is intended to achieve a larger temperature difference than single-stage TEC, making it suitable for localized cooling at low temperatures. It is primarily used in applications such as infrared sensors, CCDs, optical instruments, and more.

P/N	I max (A)	U max (V)	ΔT Max (°C)	QC Max (W)	Dimension (mm)
TEC2-19002	1.60	17.30	104	11.00	L1:15*30 / L2:30*30 / T8
TEC2-03805	4.80	4.10	105	4.00	L1:12*12 / L2:15*15 / T5
TEC2-11105	5.00	13.30	110	12.25	L1:14*14 / L2:14*27 / T4
TEC2-08806	5.50	11.10	105	13.00	L1:15*15 / L2:30*30 / T7
TEC2-14706	5.50	12.40	95	29.70	L1:25*25 / L2:30*30 / T5
TEC2-32406	6.00	28.20	98	69.00	L1:40*40 / L2:40*40 / T6
TEC2-18507	6.50	17.90	100	37.00	L1:30*30 / L2:40*40 / T7
TEC3-09904	4.30	8.10	117	6.10	L1:9*13 / L2:13*19 / L3:22*28 / T10
TEC3-11905	4.50	8.60	111	9.70	L1:15*15 / L2:20*20 / L3:30*30 / T9

TEC PRODUCTION LINE

Miniature Thermoelectric Modules

Suitable for various low-power refrigeration or heating applications. Typically used in cooling or heating laser diodes, infrared devices, optoelectronics, electronic equipment and other low-power devices

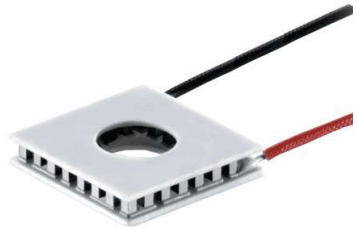


P/N	I max (A)	U max (V)	ΔT Max (°C)	QC Max (W)	Dimension (mm)
TES1-00702	2.50	0.85	67	1.20	8*8*4
TES1-01702	2.50	2.10	67	2.95	12*12*4
TES1-01703	3.00	2.10	67	3.40	12*12*4
TES1-01704	4.20	2.00	68	4.80	13*13*3
TES1-03102	2.20	3.75	68	4.30	15*15*4
TES1-03103	3.10	3.70	63	5.20	10*10*2
TES1-03104	4.10	3.75	68	8.75	15*15*3
TES1-03104	4.20	3.70	63	9.55	15*15*4
TES1-03105	5.15	3.75	68	10.90	15*15*4
TES1-03505	5.15	4.20	65	12.70	8*30*3

TEC PRODUCTION LINE

Center Hall Thermoelectric Modules

Standard products designed based on customer needs, used in a variety of refrigeration and heating applications in the optical field. The main uses are industrial machines, optical instruments, etc.



P/N	I max (A)	U max (V)	ΔT Max (°C)	QC Max (W)	Dimension (mm)
TECC-02303-01	3.00	3.30	83	5.10	15*15*3, D3
TECC-02303-02	3.00	3.30	83	5.10	15*15*7, D3
TECC-02303-03	3.00	3.30	83	5.10	18*18*8, D3
TECC-02304-01	4.00	3.30	83	6.80	15*15*5, D3
TECC-02304-02	4.00	3.30	83	6.80	15*15*7, D3
TECC-02304-03	4.00	3.30	83	6.80	18*18*8, D3

TEC PRODUCTION LINE

Thermal Cycling Thermoelectric Modules

A product specially designed to cope with high-speed temperature cycles, providing longer life under the same temperature cycle conditions. Mainly used in PCR and analyzers.

P/N	I max (A)	U max (V)	ΔT Max (°C)	QC Max (W)	Dimension (mm)
TECT-01708	8.70	1.90	70	10.10	15*15*3
TECT-01714	14.00	2.10	71	16.10	22*22*5
TECT-03108	8.70	3.50	70	18.20	20*20*3
TECT-03114	14.00	3.75	71	29.30	30*30*5
TECT-04909	9.00	5.90	71	29.70	36*36*6
TECT-04914	14.00	5.90	71	46.20	36*36*5
TECT-06308	8.70	7.10	70	37.00	20*40*3
TECT-07108	8.70	8.00	70	41.70	30*30*3
TECT-07109	9.00	8.60	71	43.10	44*44*6
TECT-07114	14.00	8.60	71	67.00	44*44*5

Power Generation Thermoelectric Modules

TEG power generation thermoelectric modules can directly convert heat into electricity without moving components as long as there is a temperature difference between the two ends of the thermoelectric chip. It can be widely used in small generators that utilize waste heat or in remote areas with high reliability requirements

P/N	Max Output Power (W)	Resistance (Ω)	Max Operating Temp. (℃)	Conversion Efficiency (%)	Dimension (mm)
TEG1-071-1.4-1.6	5.00	0.60	250	5.60	30*30*4
TEG1-127-1.4-1.6	9.00	1.00	250	5.60	40*40*4
TEG1-127-1.8-2.0	12.10	0.80	250	5.70	50*50*4
TEG1-127-2.8-1.6	24.30	0.30	250	5.20	62*62*5
TEG1-128-1.0-1.2	5.70	1.60	250	5.50	30*34*4
TEG1-199-1.4-1.6	14.00	1.60	250	5.60	50*50*4
TEG1-242-1.0-1.2	10.60	3.00	250	5.50	40*44*4

Thermoelectric Assembly

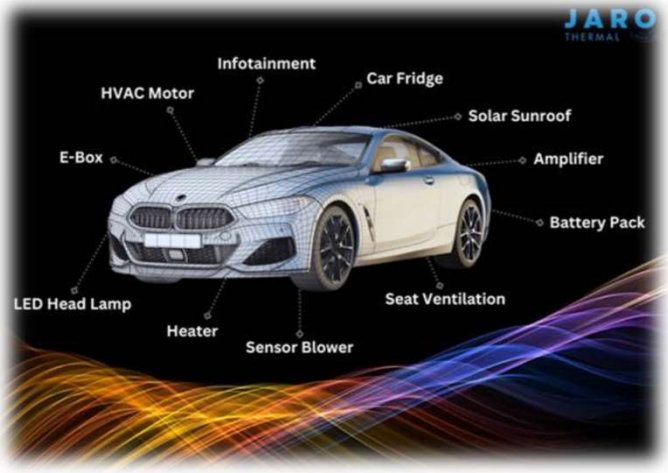
◎ Product Overview:
Providing reliable refrigeration capabilities for cooling applications through the use of air cooling and heat dissipation. Widely employed in scenarios such as maintaining constant temperature in communication battery compartments and cooling control boxes for industrial equipment.

◎ Applications:
. Enclosure Heat Dissipation
. Cooling for Food and Beverages
. Heat Dissipation for Mobile Base Stations and Signal Tower Battery Cabinets
. Outdoor Power Distribution Station Cooling

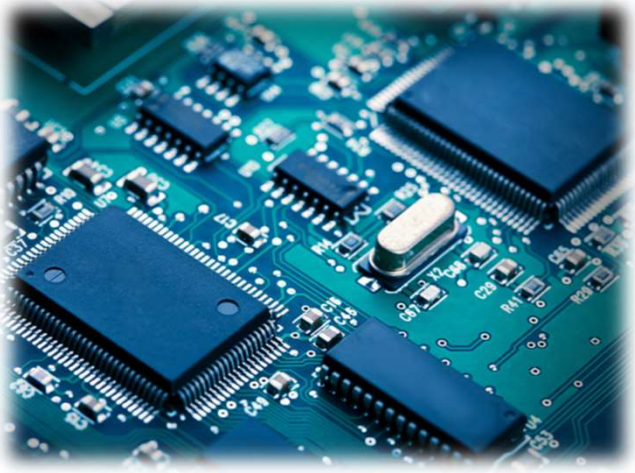
THERMOELECTRIC PRODUCT

Application Area

Consumer



Smart Cars



Electronics

Optical

Space Military

Biomedical

Thank You.

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We Keep the World Cool™