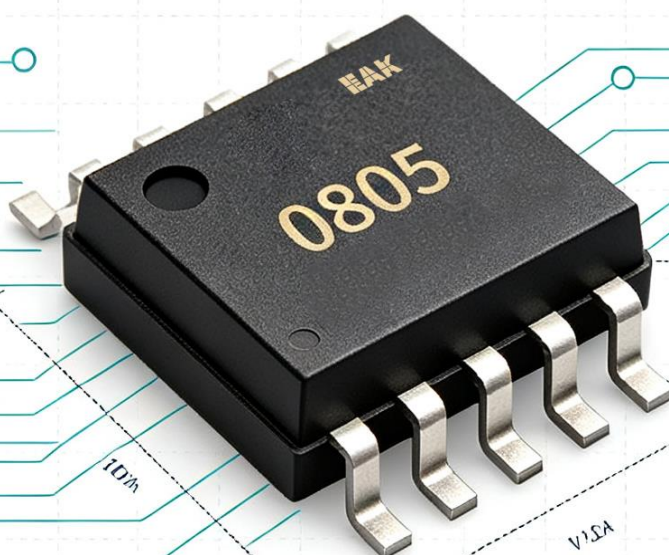


Product Datasheet

TTV DataSheet | RTX 5090



Product Name: EAK-TTV

Model: RTX 5090

Datasheet Version: V1.0

Revision Date: 2026-03

EAK-TTV (RTX 5090) Product Datasheet

1、Product Overview

This datasheet is the dedicated technical specification document (V1.0) for the self-developed model EAK-TTV-5090 by Shenzhen Songhao Electronics Co., Ltd., which is compatible with NVIDIA RTX 5090 graphics cards. It fully records all-dimensional design parameters, production processes, performance indicators, structural dimensions and supporting application schemes of the thermal conduction heating substrate matched with this graphics card. It can be uniformly referenced by customers for R&D model selection, structural design, complete machine assembly, reliability testing, incoming inspection and after-sales technical communication.

The EAK-TTV series thermal substrates are custom-developed for high-power heat dissipation scenarios of NVIDIA RTX 5090 high-end graphics cards. Relying on the company's mature high-temperature sintered heating layer process and core aluminum nitride high thermal conductivity substrate technology, it solves the heat dissipation challenge of high heat flux density under 600W full

load of high-end graphics cards. Compatible with industrial cold plate heat dissipation systems, it meets multiple precision performance requirements including high insulation, high structural strength, low surface roughness and excellent flatness. It is widely applied in AI computing servers, high-end graphic workstations, high-performance rendering hosts, professional graphics card water cooling modules and other scenarios.

2、Core Design Advantages

This product adopts high thermal conductivity aluminum nitride as the base substrate material, integrated with high-temperature sintered heating layer forming technology, to realize stable integrated output of thermal conduction, electrical insulation and structural strength. Its insulation withstand voltage exceeds the safety threshold of 2500V, providing extremely high electrical safety margin. The standard overall dimension is 38.4×30.3×3mm, featuring a compact and small structure that perfectly fits the original installation space of RTX 5090 graphics cards without extensive modification to the complete machine structure.

It can stably operate at a thermal power of 600W under 220V working conditions, with an input voltage adjustment range of 0~98%, adapting to voltage environments in multiple regions and various power regulation demands. The matched cold plate heat dissipation mode can rapidly export heat generated by the graphics card under sustained high load, preventing hardware thermal throttling and aging damage. The surface processing precision is strictly controlled: surface roughness $Ra < 0.3\mu m$ and overall flatness $< 0.3\%$, ensuring tight contact with the graphics core and cold plate contact surface to greatly reduce interface thermal resistance. The substrate bending strength $\geq 450MPa$, with outstanding deformation and impact resistance, avoiding warping and cracking during long-term installation for extended service life. Its temperature coefficient $\leq 100PPM$, resulting in small thermal performance fluctuation and stable temperature control accuracy under high-low temperature cycling working conditions.

The product reserves standardized expansion structures, supporting external power lead assembly, customized mounting brackets and thermocouple temperature measuring point installation. It adopts an integrated single heat source design without zoning, featuring simple wiring and convenient temperature control

debugging. It is compatible with automatic production line assembly and manual module assembly, meeting the demands of mass industrial production.

3、 Document Scope & Usage Specifications

3.1 This datasheet only applies to the standard EAK-TTV (RTX 5090) product of Songhao Electronics. Parameters of non-standard customized modified products shall be subject to the customized change order confirmed with official seals by both parties.

3.2 All dimensional, electrical, mechanical and thermal indicators in the document are standard factory test data obtained under normal temperature laboratory environments. For special working conditions such as extreme high/low temperature, high humidity and corrosive environments, customers shall contact our Technical Department in advance to confirm compatibility.

3.3 Customers may directly quote the parameters marked in this datasheet as design basis for product structural modeling, complete machine thermal simulation and safety certification. If parameter adjustment is required, contact our Sales and Technical Team to obtain the latest version of specification document.

3.4 The document is attached with product outline dimension drawings and physical structure reference diagrams, intuitively displaying the product contour, thickness layers and reserved mounting positions to assist customers in rapid structural docking.

4、Enterprise Technical Service Instructions

Shenzhen Songhao Electronics Co., Ltd. owns a production factory in Quanzhou, Fujian Province, with integrated capabilities including substrate R&D, precision machining, high-temperature sintering and finished product inspection. We can provide full-process supporting services from sample prototyping, mass production to after-sales technical support for customers.

For business inquiries including product model selection, structural modification, heat dissipation scheme optimization, sample testing and bulk quotation, please send emails to the business mailbox: xiaofei@eak.com.cn.

For technical issues including parameter debugging, failure analysis, safety testing and temperature control scheme design, send emails to the technical support mailbox: highprecisex@gmail.com, or contact us via phone: +86 136-3295-7632.

Our office is located at Room 905, Jingting Building, Dongzhou Community, Guangming Subdistrict, Guangming District, Shenzhen. Customers are welcome to visit our site for on-site inspection and sample testing.

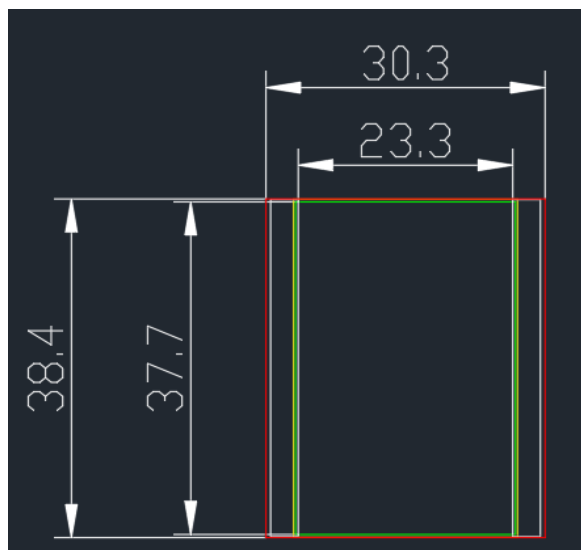
Version V1.0 of this datasheet is officially effective. Subsequent process iterations and parameter optimizations will release updated versions to replace the old ones. The final interpretation right of all technical parameters belongs to Shenzhen Songhao Electronics Co., Ltd.

Appendix:

Main Process & Parameter Specifications

<i>Substrate Material</i>	Aluminum Nitride
<i>Insulation Withstand Voltage</i>	>2500V
<i>Overall Dimension</i>	38.4 x 30.3 x 3 (mm)
<i>Rated Thermal Power</i>	600W @ 220V
<i>Input Voltage Adjustment Range</i>	0~98%
<i>Heat Dissipation Mode</i>	Cold Plate
<i>Surface Roughness</i>	Ra < 0.3μm
<i>Flatness</i>	< 0.3%
<i>Bending Strength</i>	≥450MPa
<i>Heating Layer Process</i>	High-Temperature Sintering
<i>Temperature Coefficient</i>	≤100PPM
<i>Expansion Configuration</i>	Support external power leads, customized mounting brackets and thermocouple installation; integrated single heat source without zoning

Process & Physical Drawings



Overall dimension:
38.4 x 30.3 x 3 (mm)



Support power lead
connection, bracket assembly
and thermocouple
installation



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