T·Global
高柏科技

18年專業熱工程解決方案經驗，提供客戶端最佳解決方案
並整合完整的熱工程產品列，提供靈活彈性與即時的服務

熱模擬分析服務 | 導熱介面材料 | 散熱片 | 熱導管 | 均溫板 | 電磁波吸收材料 | 致冷晶片 | 風扇

PRODUCT CATALOGUE

MORE INNOVATION LESS HEAT

提供全方位解熱方案

Customized Services

無最低訂購量限制
前期測試無負擔

Professional Consultation

根據不同個案的機構設計
找到適合的解熱方案

Fastest Lead Time

送樣最快1天｜交期15天
工作日24小時內回覆

T·Global Technology

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高柏總公司
成立於 2003 年

T-Global 專注於全方位解熱方案之研發及材料製造、銷售，並本著快速服務客戶及彈性生產的理念，以滿足客戶對於電子產品解熱的各種需求。T-Global 累積多年的研發成果及銷售經驗，使得我們的產品在不含代理商的客戶下，於全球已有超過 3,000 家直接客戶的肯定並持續指定使用中。

T-Global Technology is dedicated to the development, manufacture and research of thermal solution engineering and materials. We provide our customers with rapid sampling, customized manufacturing and professional technical support. With rich experience in research, development and marketing, T-Global is already become the designated and direct supplier of over 3,000 enterprises worldwide.

12 個通路據點
(含經銷或代理商通路)

台灣 桃園總部
美國 洛杉磯
中國 東莞
英國 路德威斯
中國 昆山

T-Global 致力於提供完整而全面的散熱產品與服務，不論是現有產品或是未來的新興科技，T-Global 都能滿足您的需求，找到最佳的解決方案。T-Global 團隊能為您提供迅速而敏捷的服務，透過與合作夥伴共事，確保 T-Global 的產品與服務能解決您的散熱問題，我們擁有傲人的企業文化，以前瞻性的眼光鎖定未來新能源、5G、電動車等新興科技，專注於與夥伴建立長期穩定的合作關係，藉此贏得顧客、夥伴與員工的信賴。

我們期許自己能為下一代的科技助一臂之力，藉由創新散熱產品與服務推進科技的發展，在這裡，您可以一次購足所需的散熱材料，我們能為您找到最合適的散熱方案，替您解決最困擾的散熱問題。

At its core, T-Global provides comprehensive thermal products and services, helping companies find the thermal solution they're looking for both in current products and in the technologies of the future. T-Global accomplishes this by providing fast service and remaining agile. We work alongside our partners, doing whatever it takes to make sure that they have the right product and the right solution to solve their thermal challenge. It is through our unique culture that we get this done. We pride ourselves on being reliable to our customers, partners and fellow employees, being Forward-thinking so that we can anticipate the challenges of the future, such as new energy, 5G, and electric vehicles, among others. Being attentive to these issues allows us to be your partner for the long term.

In short, T-Global is committed to helping the next generation of technology move forward by providing thermal products and services. We are the company, the people, who answers your thermal problems. We are your one-stop thermal shop.

以愛護大地的
地球公民為自我期許

高柏科技所生產的導熱介面材料，皆符合綠色環保及 RoHS、REACH 等歐盟相關綠色環保規範。並在日常生活中要求員工執行相關業務活動時，也需致力於節能、減少二氧化碳。

高柏科技在持續追求不斷成長之際，也以致力愛護大地的地球公民為自我期許，期許能為地球環保盡一份心力。

All products from T-Global are RoHS and REACH compliant. Additionally all employees of T-Global follow a green code of practice.

1. More efficiently use of energy.
2. Reduced carbon footprint
3. Development on low environmental impact materials

T-Global takes CSR (Corporate Social Responsibility)seriously.

研究開發與認證

高柏科技自有完整生產工廠於臺灣，並設有最完整先進的研發總部，配合技術演進創新、市場趨勢及客戶需求進行不同領域與不同層次的高水平研究開發，提供客戶資訊、通訊、電信、消費電子、照明、醫療電子及能源等領域的熱管理解決方案。除了憑藉公司多年經驗技術外，高柏科技也與在台灣各大技術研發中心及教學院所合作，如此才能更快速的開發出優良的新產品。

身為熱工程解決方案先驅，高柏科技致力於創造能源永續與高性價比產品，並持續尋求不斷的進步與升級再達成產業的發展先機，高柏科技除了擁有經驗豐富的開發及設計團隊，能針對不同領域的客戶個別需求進行高度客製化的設計外，本身亦配備有最先進實驗室等級的設備來協助研發人員進行測試並輔佐驗證設計成品，堅持最高規格的測試儀器並與全球同步更新並行。各個研發及評估流程亦秉持嚴謹細密的精神，使產品都能呈現穩定的可靠度，滿足客戶的期許，最終贏得客戶長久的信賴與支持。高柏科技自有工廠也已取得 ISO9001、ISO14001 認證，產品符合 UL、RoHS 及 REACH 規範，於熱工程領域中提供更有保障與優異的產品。

T-Global Technology has a complete production factory and research department in Taiwan. We keep on doing various innovations to meet the rapid change of marketing demands and customer demands. We offer total thermal solution for the customer in information, communication, electronic, optronics, automotive, lighting and medical device industries.

Being the thermal solution engineering leading company in Taiwan, T-Global aimed at producing environmentally friendly and competitive price products. Not only has the well-experienced innovation and design team, but T-Global also can provide customized design services to different industries' customers.

Natural Convection Constant Temperature and Humidity Cabinet

Initial Stage Viscous Testing Machine

Retentivity Testing Machine

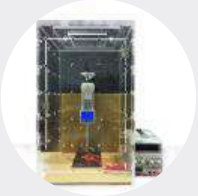
Hardness Tester

Thermal Conductivity and Thermal Resistance Test Device

Constant Temperature and Humidity Cabinet

High and Constant Temperature Tester

Dielectric Voltage Withstand Test Equipment



Dummy Heater

Tensile Testing Machine

Wind Tunnel Test Workshop

Thermal Diffusivity Measuring Instrument

電動車與汽配

Automotive

極高的可靠性 Extremely High Reliability

更惡劣的環境 Harsher Environment

更長的使用壽命 Longer Vehicle

更高效的發電功率 More Efficient Power Generation

汽車產業為技術與資本密集的產業之一，其產業鏈相當龐大。從過去的傳統轎車、SUV、多功能休旅車，到現在全球各車廠最重視的智慧電動車輛，汽車產業的發展與應用皆帶動了產業鏈許多商機。隨著 AIoT 的發展，更開啟了汽車智慧化的更多可能性，並加速了人與機器、機器與機器間的整合，包含自駕系統、安全輔助系統、透明顯示元件、車聯網、新型態車用人機介面系統……等，智慧車輛必定會成為未來的「第三生活空間」。

The automobile industry is one of the industries with technology and capital intensive. Its industrial chain is quite large. From traditional cars, SUVs, multi-purpose recreational vehicles, to the electric vehicles. For now, the world's car manufacturers pay most attention to electric vehicles. The development and application of the automotive industry have driven many business opportunities in the industry chain. With the development of AIOT, it has opened up more possibilities for smart car and accelerated the integration of human and machine, including self-driving system, safety assist system, transparent display components, car networking, and Human Machine Interface...etc.

產品應用 Applications

電動汽車、混合動力汽車、電源系統、電池模組、車載電子設備、變頻驅動器、充電系統、行車記錄儀、駕駛輔助系統
Electric Vehicles (EV), Hybrid Vehicles (HV), Power Modules, Batteries, Onboard Electronics, Variable Frequency Drives (VFD), Charging System, Driving Recorders, Driving Assistance Systems

產品推薦 Suggested Products

導熱矽膠片 Thermal Pad

導熱膠泥 Thermal Putty

熱導管 Heat Pipe

散熱模組 Thermal Module

5G 應用

5th Generation Mobile Networks

高導熱性能 High Thermal Performance
可壓縮性 Compressibility
空間限制 Space Limitation
長期穩定性 Long-term Stability

4G 網路僅推出九年，全球即迎來 5G 技術的時代。為了實現龐大的 5G 服務，對於基礎 4G 建設的技術演進至關重要，需要一致且可靠的性能，並且利用不同的佈署規劃與光纖傳輸技術，滿足 5G 的容量、改善延遲情況。
智慧製造、車聯網、遠端醫療、智慧城市、沉浸式互動娛樂、大規模物聯網、高畫質行動串流等，皆是 5G 應用可期待的產業。高柏科技憑藉多年的熱工程經驗，與各大學術合作的研究知識，不僅解決您目前的散熱挑戰，更可以與您攜手面對未來所有的困難。

After 9 years from the release of 4G network, we are ushered in the era of 5G technologies globally. In order to achieve huge 5G services, it is essential for the technological evolution of basic 4G construction. Consistent and reliable performance is required, and different deployment plans and optical fiber transmission technologies are used to meet 5G capacity and improve latency.
Smart manufacturing, connected cars, telemedicine, smart cities, immersive interactive entertainment, large-scale Internet of Things, high-definition mobile streaming, etc. are all promising industries applying 5G. With more than a decade of thermal engineering experiences and research knowledge in cooperation with academics. We will be the partner not only resolving your current cooling challenges, but also overcoming all future thermal-related difficulties.

產品應用 Applications

通訊基地台、光纖模組、智慧製造、車聯網、遠端醫療、智慧城市、沉浸式互動娛樂、大規模物聯網、高畫質行動串流
Cell Site, Fiber-optic Module, Smart Manufacturing, Connected Cars, Telemedicine, Smart Cities, Immersive Interactive Entertainment, Large-scale Internet of Things, High-definition Mobile Streaming

產品推薦 Suggested Products

導熱矽膠片 Thermal Pad

熱導管 Heat Pipe

均溫板 Vapor Chamber

散熱模組 Thermal Module

通訊
Telecom

高導熱性能 High Thermal Performance
可壓縮性 Compressibility
空間限制 Space Limitation
長期穩定性 Long-term Stability

近年科技產業最大的亮點，無非是 5G 的商轉，除了推進過往的高速行動傳輸應用，更加速應用於智慧製造、車聯網、遠端醫療、智慧城市、沉浸式互動娛樂、大規模物聯網、高畫質行動串流等產業。
為了實現龐大的 5G 全球服務，電信業者皆緊鑼密鼓的進行 5G 基礎建設，各家廠商也都在積極布局，如雲端業者建置運算與儲存設備、AI 業者於智慧型手機的滲透、家庭上網與 Wi-Fi 6 標準結合的家用固定無線接取（FWA）…等。展望整個通訊產業鏈，未來十年我們將一起攜手邁向 5G 新紀元。

The biggest highlight of the technology industry in recent years is nothing more than the rise of 5G industry. This rise help to accelerate the development of high-speed mobile transmission applications, applications in smart manufacturing, Internet of Vehicles (IoV), remote medical care, smart cities, immersive interactive entertainment, large-scale IoT, High-definition mobile streaming and other industries.
In order to achieve 5G global services, telecom operators are intensively building 5G infrastructure, and various manufacturers are also actively deploying, such as cloud operators to build computing and storage devices, AI operators penetrating in smart phones, home Internet and Wi-Fi 6 standard combined with household fixed wireless access (FWA) ., etc. In the next ten years, we will move toward to a new era of 5G and we looking forward to it.

產品應用 Applications

行動路由器、家用路由器、機上盒、計算和存儲設備、交換機、收發器、通訊基地台
Mobile Routers, Home Routers, Set-top Boxes, Computing and Storage Devices, Switches, Transceivers, Cell Site

產品推薦 Suggested Products


導熱矽膠片 Thermal Pad


導熱膠泥 Thermal Putty


熱導管 Heat Pipe


散熱模組 Thermal Module

面板
Panel

柔軟性佳 Good Flexibility
成本考量 Cost Considerations
空間限制 Space Limitation
高穩定性 High Stability

目前各廠在顯示面板產業的佈局，以大尺寸、8K、OLED、柔性屏，四大趨勢為主，大尺寸面板產業儼然已成為一片紅海。相較過去 LCD 面板與 LED 的背光模組，OLED 憑藉在畫質、輕薄、高屏占比等方面的優勢，成為手機產業的重要發展方向。
而在電競產業，則以 micro-LED，靠著 ns 級的響應時間與高發光效率、低耗能特性，搶進電競產業的毫秒商機，而台灣也將由工業技術研究院引領，建構、整合台灣的 micro-LED 產業鏈，不僅要在電競產業脫穎而出，更進一步在車載應用等新興領域，搶下一片藍海。

At present, the display panel industry is mainly based on the four trends of large size, 8K, OLED, flexible screen, and the large size panel industry has become regular.Compared with LCD panels and LED backlight modules.In the past, OLEDs have advantages in picture quality, thinness, and high screen ratio, and have become important development directions for the mobile phone industry.
In the eSports industry, micro-LEDs rely on ns-level response times, high luminous efficiency, and low energy consumption characteristics to grab digital business opportunities in the e-sports industry. Taiwan will also be LED and transformed by the Industrial Technology Research Institute. The integration of Taiwan's micro-LED industry chain must stand out in the eSports industry and emerging fields such as automotive applications.

產品應用 Applications

薄型化與柔性屏的產品、T-CON、COF、LED 背光模組、LCD、OLED、micro-LED、TV、穿戴設備、電腦
Thin and Flexible Screen Products, T-CON, COF, LED Backlight Module, LCD, OLED, micro-LED, TV, Wearable Device, Computer

產品推薦 Suggested Products

導熱矽膠片 Thermal Pad

導熱膠帶 Thermal Tape

石墨片 Graphite Sheet

散熱模組 Thermal Module

電源供應
Power Supply

高導熱性能 High Thermal Performance
低熱阻 Low Thermal Resistance
高電器絕緣性 High Electrical Insulation
高穩定性與可靠度 High Stability & Reliability

電源供應器主要適用於伺服器、電視、電腦和網通等產品，為電子業中的傳統產業，過去筆電及伺服器的價格壓力大、毛利也不斷地遭到壓縮，但近年來電動車、工業自動化…等事業群已接近收割，使得電源供應器重新受到重視。
且許多新興產業如 5G、AI、電競產品…等，追求的電源供應器元件體積更小、功率提高，對電源供應器的散熱解決方案是一大挑戰。

The power supply is a traditional industry in the electronics industry which mainly applicable to products such as servers, televisions, computers, and Netcom. In the past, the price pressure of laptops and servers was high, and the gross profit was continuously compressed. However, industries such as electric vehicles and industrial automation are gradually rising up which make power supplies again important. Furthermore, many emerging industries such as 5G, AI, e-sports products are pursuing smaller and greater power supply components which is a challenge for the power supply's thermal dissipation solution.

產品應用 Applications

PCB、PSU、主機板、RAM、CPU、硬碟、顯示卡、工業電腦、高速計算電腦、伺服器機房
PCB, PSU, Motherboard, RAM, CPU, Hard Disk, Graphics Card, Industrial Computer, High-speed Computing Computer, Server room

產品推薦 Suggested Products

導熱矽膠片 Thermal Pad

導熱膠帶 Thermal Tape

相變化材料 Phase Change Materials

複合式材料 Composite Materials

散熱模組 Thermal Module

醫療軍用

Medical & Military

高導熱性能 High Thermal Performance

更惡劣的環境 Harsher Environment

更長的使用壽命 Longer Vehicle

極高的可靠性 Extremely High Reliability

軍規與醫療產業，托 5G 的帶動，未來在技術應用上也更加的廣泛與創新，如虛擬實境技術，可建構一個三維戰場環境圖像，有利軍隊在作戰時進行虛擬練習；也成為醫療人員訓練時的助力，省去活體實驗的成本。另外人工智慧的技術，也將取代部分人力，透過大數據進行大量的運算，提高軍事與醫療的精準度。而綜觀軍事與醫療的產品規格，皆要求精確、穩定性佳、可靠度高的產品與解熱方案，可預期未來的技術，將帶給軍用與醫療產業嶄新的革命。
高柏科技也持續走在市場與技術的最前端，與各大學術單位、研究中心合作，研發全球最薄均溫板，預計可為產業帶來革命性創新。

Military regulations and the medical industry supported by 5G, they will also be more extensive and innovative in technology applications in the future. For instance, virtual reality technology, which can construct a three-dimensional battlefield environment image, which is conducive to the military to conduct virtual exercises during combat. Also, become medical personnel during training process, in order to eliminating the cost of living experiments. In addition, artificial intelligence technology will also replace part of labor forces, and perform a large number of calculations through big data to improve military and medical accuracy.
Looking at the military and medical product specifications, all require precise, stable, and reliable products and solutions. It is expected that future technologies will bring a new revolution in the military and medical industries. T-Global Technology also continues to be at the forefront of the market and technology, and cooperates with major academic institution and research centers to research and develop the world's thinnest vapor chamber, which is expected to bring revolutionary innovation to the industry.

產品應用 Applications

醫療儀器設備、醫療顯示器、軍事運輸、軍事電子設備、國防機械
Medical Equipment, Medical Display, Military Transportation, Military Electronic Equipment, Defense Machinery

產品推薦 Suggested Products

導熱矽膠片 Thermal Pad

導熱膏 Thermal Grease

均溫板 Vapor Chamber

散熱模組 Thermal Module

所有散熱
都是從導熱開始

Customized Service | **Professional Consultation** | **Fasteast Lead Time**

TG-A2200 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 單面無黏性，方便施工
  One side is non-sticky and easy to assemble
- 超軟特性，壓縮性好
  Ultra soft and good compressibility
- 絕緣性佳
  Good insulation

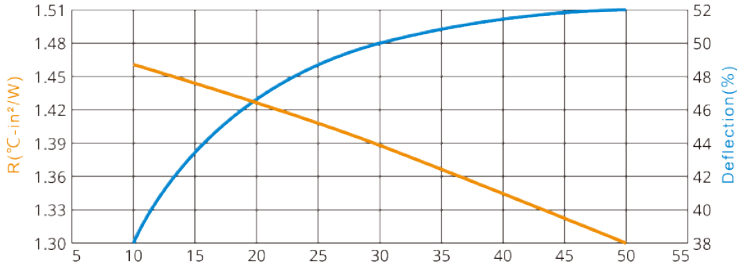
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

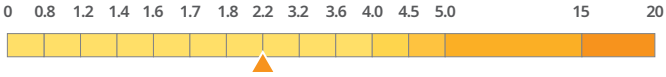
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

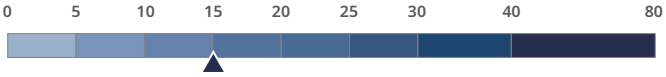


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.460	38
30	1.390	50
50	1.300	52

導熱係數 Thermal Conductivity : 2.2 W/mK

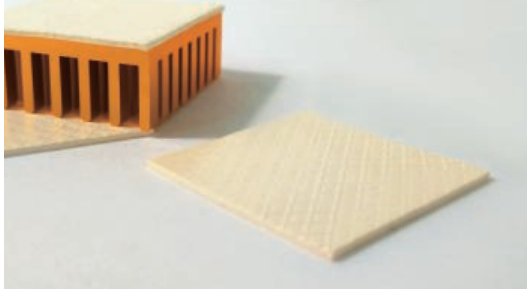


硬度 Hardness : 15 (Shore 00)



Properties	TG-A2200	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2.2	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
顏色 Color	灰 Gray	-	-	目視 Visual
耐燃等級 Flame Rating	V-1	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	5	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	2.7	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-40~+180	°C	-	-
體積阻抗 Volume Resistance	3×10^{12}	Ohm-m	-	ASTM D257
延展率 Elongation	55	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	15	Shore 00	±5	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes



TG-A3500 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 良好的導熱特性
  Very good thermal conductivity
- 高壓縮性
  High compressibility and compliancy
- 具自黏性
  Natural tack

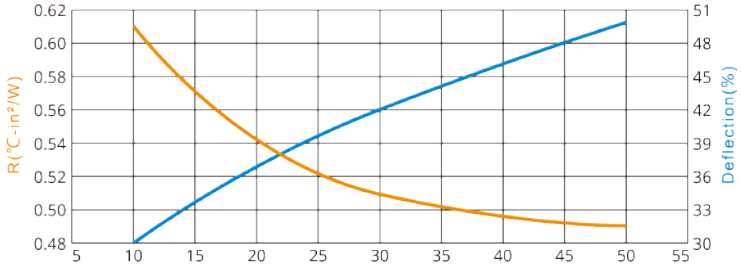
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

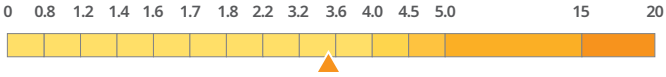
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

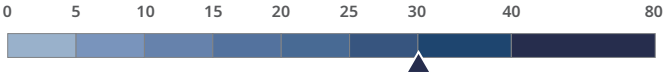


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.610	30
30	0.510	42
50	0.490	50

導熱係數 Thermal Conductivity : 3.5 W/mK

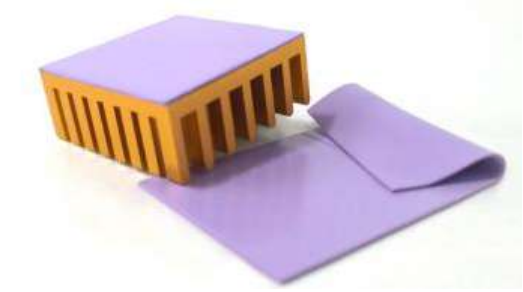


硬度 Hardness : 30 (Shore 00)



Properties	TG-A3500	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	3.5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
顏色 Color	黃 Yellow	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	6	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	2.3	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	°C	-	-
體積阻抗 Volume Resistance	8×10^{12}	Ohm-m	-	ASTM D257
延展率 Elongation	80	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	30	Shore 00	±15	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes



TG-A4500 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 高壓縮性
  High compressibility and compliancy
- 具自黏性
  Natural tack

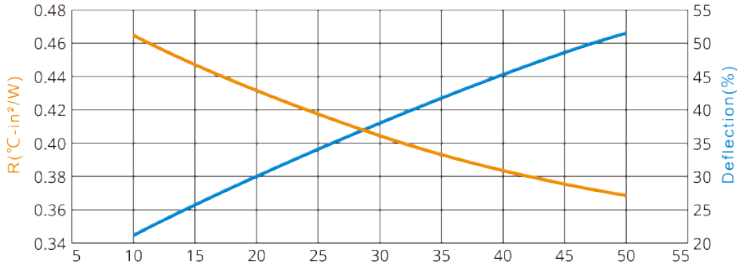
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

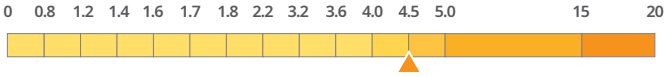
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

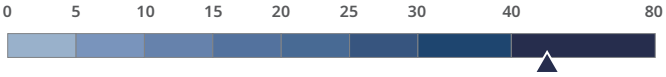


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.465	21
30	0.405	38
50	0.369	52

導熱係數 Thermal Conductivity : 4.5 W/mK

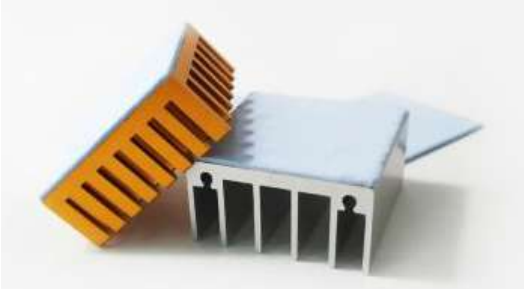


硬度 Hardness : 50 (Shore 00)



Properties	TG-A4500	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	4.5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
顏色 Color	紫 Purple	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	6	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.1	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	1×10^{13}	Ohm-m	-	ASTM D257
延展率 Elongation	50	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	50	Shore 00	±15	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes



TG-A6200 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 高壓縮性
  High compressibility and compliancy
- 具自黏性
  Natural tack

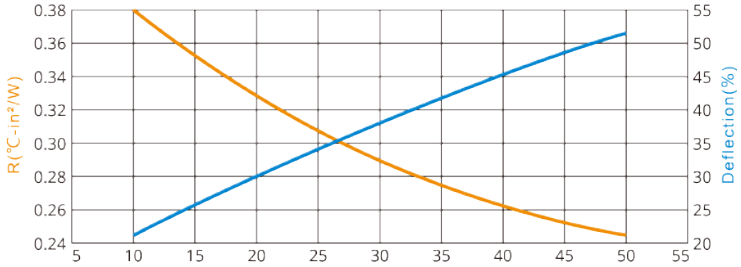
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

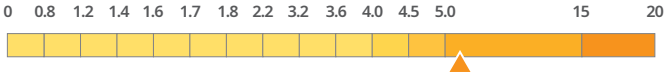
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

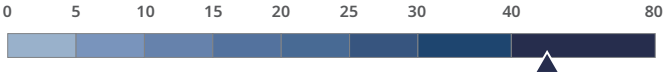


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.380	21
30	0.290	38
50	0.245	52

導熱係數 Thermal Conductivity : 6.2 W/mK



硬度 Hardness : 50 (Shore 00)



Properties	TG-A6200	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	6.2	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
顏色 Color	藍 Blue	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	6	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.1	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	1×10^{13}	Ohm-m	-	ASTM D257
延展率 Elongation	50	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	50	Shore 00	±15	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-A1250 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 低熱阻
  Low thermal resistance
- 高壓縮性
  High compressibility and compliancy
- 絕緣性佳
  Good electrical insulation

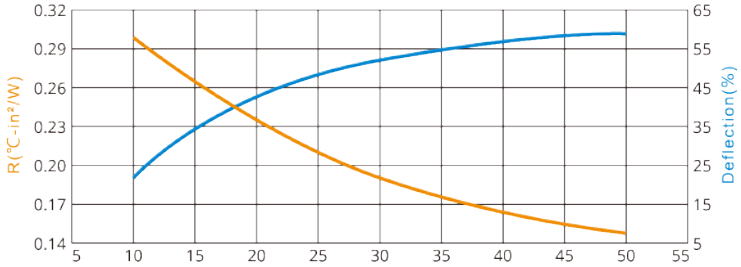
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

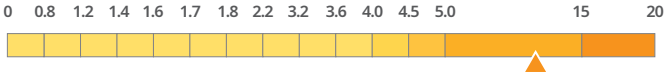
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

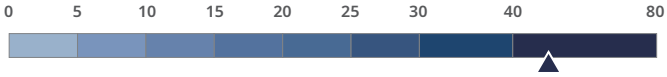


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.304	19
30	0.194	53
50	0.147	58

導熱係數 Thermal Conductivity : 12.5 W/mK



硬度 Hardness : 50 (Shore 00)



Properties	TG-A1250	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	12.5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
顏色 Color	綠 Green	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	6.5	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.3	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	1×10^{13}	Ohm-m	-	ASTM D257
延展率 Elongation	40	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	50	Shore 00	±8	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-A1450 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 低熱阻
  Low thermal resistance
- 絕緣性佳
  Good electrical insulation

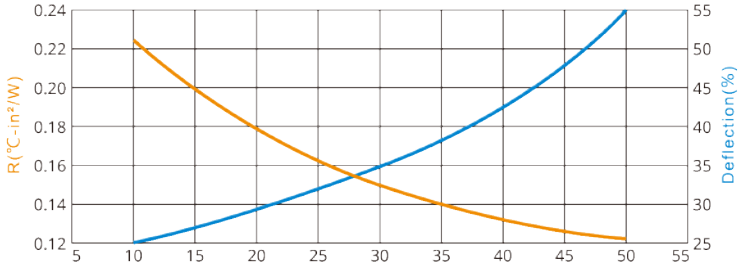
產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

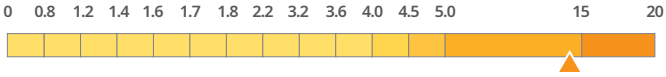
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

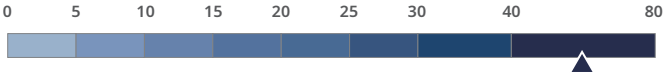


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.223	25
30	0.150	35
50	0.122	55

導熱係數 Thermal Conductivity : 14.5 W/mK



硬度 Hardness : 60 (Shore 00)



Properties	TG-A1450	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	14.5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
顏色 Color	紅 Red	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	4	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.6	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	7×10^{12}	Ohm-m	-	ASTM D257
延展率 Elongation	30	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	60	Shore 00	±5	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-A1660 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 低熱阻
  Low thermal resistance
- 絕緣性佳
  Good electrical insulation

產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.209	19
30	0.112	24

導熱係數 Thermal Conductivity : 16.6 W/mK

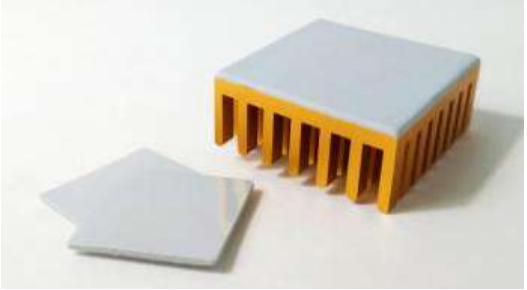
0 0.8 1.2 1.4 1.6 1.7 1.8 2.2 3.2 3.6 4.0 4.5 5.0 15 20

硬度 Hardness : 65 (Shore 00)

0 5 10 15 20 25 30 40 80

Properties	TG-A1660	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	16.6	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
顏色 Color	深灰 Dark Gray	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	5	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.6	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	5×10^{12}	Ohm-m	-	ASTM D257
延展率 Elongation	20	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	65	Shore 00	±5	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes



TG-A1780 超軟導熱矽膠片
Ultra Soft Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 低熱阻
  Low thermal resistance
- 絕緣性佳
  Good electrical insulation

產品應用端 Applications

極適用於高效能產品 Best for high power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.161	12
30	0.089	18

導熱係數 Thermal Conductivity : 17.8 W/mK

0 0.8 1.2 1.4 1.6 1.7 1.8 2.2 3.2 3.6 4.0 4.5 5.0 15 20

硬度 Hardness : 65 (Shore 00)

0 5 10 15 20 25 30 40 80

Properties	TG-A1780	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	17.8	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
顏色 Color	淺灰 Light Gray	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	4	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	3.5	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150	° C	-	-
體積阻抗 Volume Resistance	6×10^{12}	Ohm-m	-	ASTM D257
延展率 Elongation	20	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	65	Shore 00	±5	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-A 玻纖系列導熱矽膠片
Fiberglass Mesh Series Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 高導熱特性
  High thermal conductivity
- 表面附著玻纖
  Fiberglass on one side
- 不易變形
  Non deforming
- 絕緣耐電壓高
  Electrical insulation

產品應用端 Applications

適用須耐電壓產品 Suitable for voltage-resistant products

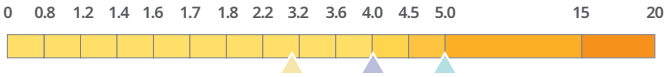
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

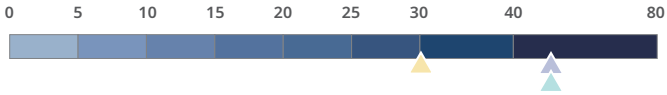
熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

TG-A3500F			TG-A4500F			TG-A6200F		
Pressure(psi)	R(°C-in²/W)	Deflection(%)	Pressure(psi)	R(°C-in²/W)	Deflection(%)	Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.91	4	10	0.59	3	10	0.53	3
30	0.86	6	30	0.56	5	30	0.51	5
50	0.82	7	50	0.53	7	50	0.48	7

導熱係數 Thermal Conductivity : 3/4/5 W/mK



硬度 Hardness : 30/50/50 (Shore 00)



Properties	TG-A3500F	TG-A4500F	TG-A6200F	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	3	4	5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~8.0			mm	-	ASTM D374
	0.0197~0.3149			inch	-	ASTM D374
顏色 Color	黃 Yellow	紫 Purple	藍 Blue	-	-	目視 Visual
補強材 Reinforcement Carrier	玻纖 Fiberglass mesh			-	-	-
耐燃等級 Flame Rating	V-0			-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	>6			KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1			%	-	ASTM E595
密度 Density	2.3	3.1	3.1	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-50~+150			° C	-	-
體積阻抗 Volume Resistance	8×10^{12}	1×10^{13}	1×10^{13}	Ohm-m	-	ASTM D257
延展率 Elongation	80	50	50	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one			-	-	-
硬度 Hardness (Silicone Side)	30	50	50	Shore 00	±15	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-AK 高性能導熱矽膠片
High Performance Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 導熱良好
  Great thermal conductivity
- 不易變形
  Difficult to be deformed
- 施工性佳
  Easy to assemble

產品應用端 Applications

適用於中低功率產品 Best for low and medium power applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

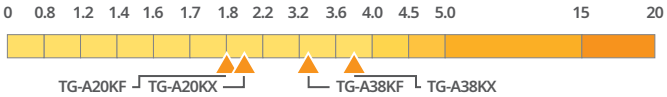
TG-A20KX		
Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.481	8
30	1.350	13
50	1.220	17

TG-A38KX		
Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.770	9
30	0.715	13
50	0.672	19

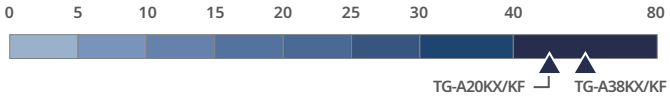
TG-A20KF		
Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.688	4
30	1.672	6
50	1.640	7

TG-A38KF		
Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.868	3
30	0.845	6
30	0.845	6
50	0.832	7

導熱係數 Thermal Conductivity : 2/3.8/1.8/3.3 W/mK



硬度 Hardness : 55/60/55/60 (Shore 00)



Properties	TG-A20KX	TG-A38KX	TG-A20KF	TG-A38KF	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2	3.8	1.8	3.3	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~10.0				mm	-	ASTM D374
	0.0197~0.394				inch	-	ASTM D374
顏色 Color	深灰 Dark Gray	藍 Blue	深灰 Dark Gray	藍 Blue	-	-	目視 Visual
補強材 Reinforcement Carrier	-		玻纖 Fiberglass mesh		-	-	-
耐燃等級 Flame Rating	V-0				-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	>5	>5	>8	>8	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	<1	<1	<1	%	-	ASTM E595
密度 Density	2	3.1	2.1	3.1	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-40~+180	-40~+200	-40~+180	-40~+200	° C	-	-
體積阻抗 Volume Resistance	3×10^{12}				Ohm-m	-	ASTM D257
延展率 Elongation	160	110	160 (Silicone Side)	110 (Silicone Side)	%	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one				-	-	-
硬度 Hardness	55	60	55 (Silicone Side)	60 (Silicone Side)	Shore 00	±8	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

GT10D 導熱矽膠片
Thermal Pad

RoHS Compliant

產品特性 Features

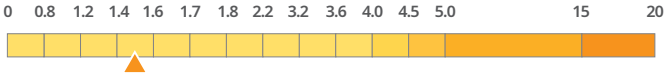
- 光滑的表面和低熱阻
  Smooth surface & low contact resistance
- 低熱阻抗
  Low thermal resistance
- 良好的穩定性
  High stabality
- 高可信度
  Great reliability

產品應用端 Applications

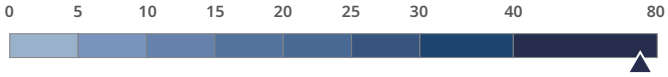
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

導熱係數 Thermal Conductivity : 1.5 W/mK



硬度 Hardness : 75 (Shore A)



Properties	GT10D	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.5	W/mK	±10%	ASTM D5470
厚度 Thickness	0.25	mm	-	ASTM D374
顏色 Color	粉紅 Pink	-	-	目視 Visual
補強材 Reinforcement Carrier	玻纖 Fiberglass mesh	-	-	-
耐電壓 Dielectric Breakdown Voltage	4	KV	±10%	ASTM D149
重量損失 Weight Loss	<0.2	%	-	ASTM E595
密度 Density	2	g/cm^3	±10%	ASTM D792
工作溫度 Working Temperature	-45~+180	° C	-	-
體積阻抗 Volume Resistance	$>10^{12}$	Ohm-m	-	ASTM D257
延展率 Elongation	50	%	-	ASTM D412
抗拉強度 Tensile Strength	>150	kgf/cm^2	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	75	Shore A	±7	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

GT 系列導熱矽膠片
Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 光滑的表面和低熱阻
  Smooth surface & low contact resistance
- 適用於恆溫輻射範圍之內
  Usable over a wide temperature range
- 電氣隔離與高耐電壓
  Electrical insulation; high breakdown voltage

產品應用端 Applications

適用於恆溫輻射範圍之內 Usable over a wide temperature range

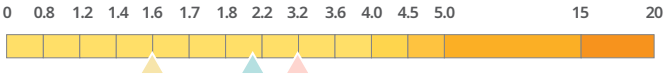
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

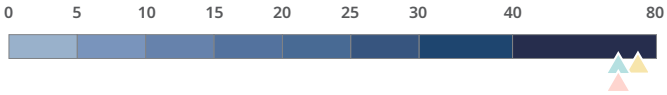
熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

GT15			GT20			GT30		
Pressure(psi)	R(°C-in²/W)	Deflection(%)	Pressure(psi)	R(°C-in²/W)	Deflection(%)	Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.67	<2.6	10	0.49	<2.6	10	0.52	<2.6
30	0.49	<2.6	30	0.41	<2.6	30	0.41	<2.6
50	0.39	18	50	0.34	22	50	0.37	6

導熱係數 Thermal Conductivity : 1.6/2.1/3.2 W/mK

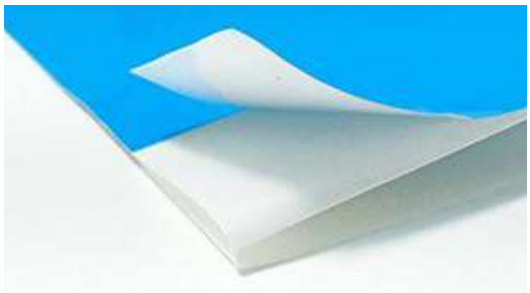


硬度 Hardness : 75/70/70 (Shore A)



Properties	GT15	GT20	GT30	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.6	2.1	3.2	W/mK	±10%	ASTM D5470
厚度 Thickness	0.23	0.3	0.35	mm	-	ASTM D374
顏色 Color	黃 Yellow	綠 Green	粉紅 Pink	-	-	目視 Visual
補強材 Reinforcement Carrier	玻纖 Fiberglass mesh			-	-	-
耐燃等級 Flame Rating	V-0			-	-	UL 94
耐電壓 Dielectric Breakdown Voltage (AC)	4.1	4.1	3.1	KV/mm	±10%	ASTM D149
耐電壓 Dielectric Breakdown Voltage (DC)	6.1	6.1	5.1	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<0.2			%	-	ASTM E595
密度 Density	2.3	2.6	2.8	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-45~+180			° C	-	-
體積阻抗 Volume Resistance	$>10^{12}$	$>10^{12}$	$>10^{10}$	Ohm-m	-	ASTM D257
延展率 Elongation	60	60	30	%	-	ASTM D412
抗拉強度 Tensile Strength	200	200	100	kgf/cm²	-	ASTM D412
標準規格 Standard Format	單片狀 Sheets one			-	-	-
硬度 Hardness	75	70	70	Shore A	±3	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes



TG-T1000 導熱膠帶
Thermal Tape

REACH Compliant | RoHS Compliant

產品特性 Features

- 良好的黏著性 (Acrylic PSA)
  Good adhesion
- 高可靠度
  Great reliability
- C/P 值高
  Cost effective with great performance
- 加工容易
  Easy to assemble
- 依需求客製化
  Customization services for different industries

產品應用端 Applications

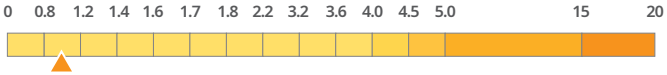
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

建議保存於 25℃ 以下之環境，並於 6 個月內使用完畢，以保持膠帶及離型紙具適當的黏合度。
T-global guarantees a 6 month shelf life at maximum continuous storage. Storage temperature should under 25℃ to maintain controlled adhesion to the liner.

產品物性 Properties

導熱係數 Thermal Conductivity : 1 W/mK



Properties	TG-T1000			Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1	1	1	W/mK	±10%	ASTM D5470
厚度 Thickness	0.15	0.25	0.5	mm	-	ASTM D374
顏色 Color	白 White			-	-	目視 Visual
補強材 Reinforcement Carrier	玻纖 Fiberglass mesh			-	-	-
工作溫度 Continuous Working Temperature	-30~120			° C	-	-
短期耐溫 Short time use temperature (30sec)	180			° C	-	-
密度 Density	1.2			g/cm^3	-	ASTM D792
初期黏性 Initial Tack	19	11	5	cm	-	PSTC-6
保持力 Holding Power 1000g@25° Cusing 1 in^2	>3000			min	-	PSTC-7
剝離強度 180° Peeling Strength (aluminum)	>14	>16	>19	N / 25mm	-	PSTC-101
耐電壓 Dielectric Breakdown Voltage (AC)	2	3	5	KV	±10%	ASTM D149
熱阻抗 Thermal Impedance@10psi	0.93	1.26	1.6	° C-in^2 / W		ASTM D5470
熱阻抗 Thermal Impedance@30psi	0.76	1.06	1.33	° C-in^2 / W	-	ASTM D5470
熱阻抗 Thermal Impedance@50psi	0.61	1.05	1.19	° C-in^2 / W	-	ASTM D5470

可依需求沖型裁切 Pre-cut for different shapes　　可製成捲料 Roll type is available

Li98 導熱膠帶
Thermal Tape

REACH Compliant | RoHS Compliant

產品特性 Features

- 良好的黏著性 (Acrylic PSA)
  Good adhesion
- 高可靠度
  Great reliability
- C/P 值高
  Cost effective with great performance
- 加工容易
  Easy to assemble
- 依需求客製化
  Customization services for different industries

產品應用端 Applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

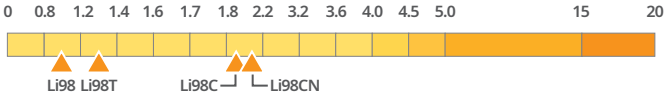
保存方式 Storage

建議保存於 25℃ 以下之環境，並於 6 個月內使用完畢，以保持膠帶及離型紙具適當的黏合度。

T-global guarantees a 6 month shelf life at maximum continuous storage. Storage temperature should under 25℃ to maintain controlled adhesion to the liner.

產品物性 Properties

導熱係數 Thermal Conductivity : 1(Li98) / 1.3(Li98T) / 1.9(Li98C) / 2.1(Li98CN) W/mK



Properties	Li98		Li98T	Li98C		Li98CN	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1	1	1.3	1.9	1.9	2.1	W/mK	±10%	ASTM D5470
厚度 Thickness	0.15	0.25	0.11	0.15	0.25	0.18	mm	-	ASTM D374
顏色 Color	白 White							-	目視 Visual
補強材 Reinforcement Carrier	玻纖 Fiberglass mesh		PET	玻纖 Fiberglass mesh		-	-	-	-
工作溫度 Continuous Working Temperature	-30~+120		-60~+120	-30~+120			° C	-	-
短期耐溫 Short time use temperature (30sec)	200						° C	-	-
密度 Density	1.85		1.6	1.8	1.8	1.8	g/cm^3	-	ASTM D792
抗拉強度 Tensile strength	200	400	400	200	400	-	psi	-	ASTM D412
玻璃轉化溫度 Glass Transition temperature	-30	-30	-	-27	-27	-30	° C	-	-
初期黏性 Initial Tack	10	8	10	14	12	15	cm	-	PSTC-6
剪切強度 Lap Shear Strength	61		60	55	50	55	N/cm^2	-	ASTM D1002
晶片抗切強度 Die Shear Strength@25° C	120		105	109	100	100	N/cm^2	-	-
晶片抗切強度 Die Shear Strength@80° C	69		60	68	68	55	N/cm^2	-	-
保持力 Holding Power 1000g@25° Cusing 1 in^2	>1000						min	-	PSTC-7
保持力 Holding Power 1000g@80° Cusing 1 in^2	>1000						min	-	PSTC-7
剝離強度 180° Peeling Strength (Aluminum)	>10	>12	>12	>6	>8	>8	N/in	-	ASTM D3330
耐電壓 Dielectric Breakdown Voltage (AC)	2	3.1	4.1	2	3.1	5.1	KV	±10%	ASTM D149
耐電壓 Dielectric Breakdown Voltage (DC)	3.1	4.1	5.1	3.1	4.1	6.1	KV	±10%	ASTM D149
熱阻抗 Thermal Impedance@10psi	0.93	1.26	0.63	0.64	0.89	0.73	° C-in^2/W	-	ASTM D5470
熱阻抗 Thermal Impedance@30psi	0.76	1.05	0.60	0.60	0.85	0.68	° C-in^2/W	-	ASTM D5470
熱阻抗 Thermal Impedance@50psi	0.61	1.06	0.59	0.53	0.87	0.66	° C-in^2/W	-	ASTM D5470

可依需求沖型裁切 Pre-cut for different shapes　　可製成捲料 Roll type is available

Li98P/Liv2 導熱膠帶
Thermal Tape

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 耐電壓高
  High voltage resistance
- 良好的黏著性 (Acrylic PSA)
  Good adhesive
- 高可靠度
  Great reliability
- 加工容易
  Easy to assemble
- 依需求客製化
  Customization services for different industries

產品應用端 Applications

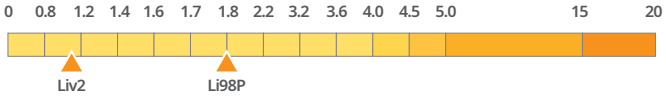
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

建議保存於 25℃ 以下之環境，並於 6 個月內使用完畢，以保持膠帶及離型紙具適當的黏合度。
T-global guarantees a 6 month shelf life at maximum continuous storage. Storage temperature should under 25℃ to maintain controlled adhesion to the liner.

產品物性 Properties

導熱係數 Thermal Conductivity : 1.8(Li98P) / 1.1(Liv2) W/mK



Properties	Li98P		Liv2		Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.8	1.8	1.1	1.1	W/mK	±10%	ASTM D5470
厚度 Thickness	0.125	0.14	0.15	0.25	mm	-	ASTM D374
顏色 Color	白 White				-	-	目視 Visual
補強材 Reinforcement Carrier	Polyimide		Fiberglass Mesh		-	-	-
工作溫度 Continuous Working Temperature	-30~+120				° C	-	-
短期耐溫 Short time use temperature (30sec)	250	250	180	180	° C	-	-
密度 Density	1.3	1.2	1.85	1.85	g/cm³	-	ASTM D792
抗拉強度 Tensile strength	500	600	200	400	psi	-	ASTM D412
玻璃轉化溫度 Glass Transition temperature	-25	-25	-30	-30	° C	-	-
初期黏性 Initial Tack	15	15	11	10	cm	-	PSTC-6
剪切強度 Lap Shear Strength	63	62	60	60	N/cm²	-	ASTM D1002
晶片抗切強度 Die Shear Strength@25° C	115	115	120	120	N/cm²	-	-
晶片抗切強度 Die Shear Strength@80° C	66	64	69	69	N/cm²	-	-
保持力 Holding Power 1000g@25° Cusing 1 in²	>10000				min	-	PSTC-7
保持力 Holding Power 1000g@80° Cusing 1 in²	>10000				min	-	PSTC-7
剝離強度 180° Peeling Strength (Aluminum)	>10	>10	15	16	N/in	-	ASTM D3330
耐電壓 Dielectric Breakdown Voltage (AC)	4.1	5.1	2.1	3.1	KV	±10%	ASTM D149
耐電壓 Dielectric Breakdown Voltage (DC)	5.1	6.1	3.1	4.1	KV	±10%	ASTM D149
熱阻抗 Thermal Impedance@10psi	0.78	0.87	0.76	1.26	° C-in²/W	-	ASTM D5470
熱阻抗 Thermal Impedance@30psi	0.75	0.81	0.70	1.12	° C-in²/W	-	ASTM D5470
熱阻抗 Thermal Impedance@50psi	0.73	0.79	0.63	1.07	° C-in²/W	-	ASTM D5470
耐燃等級 Flame Rating	V-0				-	-	UL94

可依需求沖型裁切 Pre-cut for different shapes　　可製成捲料 Roll type is available

Li2000/Li2000A 導熱膠帶
Thermal Tape

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 以矽膠為基底
  Silicone PSA
- 良好的黏著性
  Good adhesive
- 長時間耐溫高達 170° C
  Long time use temperature of 170° C
- 高電氣絕緣
  Electrical insulation

產品應用端 Applications

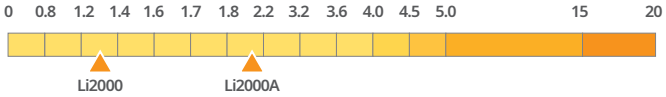
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

建議保存於 25℃ 以下之環境，並於 6 個月內使用完畢，以保持膠帶及離型紙具適當的黏合度。
T-global guarantees a 6 month shelf life at maximum continuous storage. Storage temperature should under 25℃ to maintain controlled adhesion to the liner.

產品物性 Properties

導熱係數 Thermal Conductivity : 1.3(Li2000) / 2.1(Li2000A) W/mK



Properties	Li2000		Li2000A	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.3	1.3	2.1	W/mK	±0.12	ASTM D5470
厚度 Thickness	0.15	0.25	0.2	mm	-	ASTM D374
顏色 Color	白 White			-	-	目視 Visual
補強材 Reinforcement Carrier	Fiberglass Mesh		-	-	-	-
工作溫度 Continuous Working Temperature	-45~170			° C	-	-
短期耐溫 Short time use temperature (30sec)	288	288	260	° C	-	-
密度 Density	1.6	1.6	2.3	g/cm^3	-	ASTM D792
初期黏性 Initial Tack	10	10	>30	° C	-	PSTC-6
剪切強度 Lap Shear Strength	74	76	35	cm	-	ASTM D1002
晶片抗切強度 Die Shear Strength@25° C	113	126	60	N/cm^2	-	-
晶片抗切強度 Die Shear Strength@80° C	80	85	50	N/cm^2	-	-
晶片抗切強度 Die Shear Strength@150° C	30	35	40	N/cm^2	-	-
保持力 Holding Power 1000g@25° Cusing 1 in^2	>40000			min	-	PSTC-7
保持力 Holding Power 1000g@80° Cusing 1 in^2	>40000			min	-	PSTC-7
保持力 Holding Power 1000g@150° Cusing 1 in^2	>10000			min	-	PSTC-7
抗拉強度 Tensile strength	450	650	-	psi	-	ASTM D412
耐電壓 Dielectric Breakdown Voltage (AC)	2	3.1	3.6	KV	±10%	ASTM D149
耐電壓 Dielectric Breakdown Voltage (DC)	3.1	4.1	4.6	KV	±10%	ASTM D149
體積阻抗 Volume Resistance	$>10^{12}$	$>10^{12}$	$>10^{9}$	Ohm-m	-	ASTM D257
熱阻抗 Thermal Impedance@10psi	0.68	1.13	0.69	° $C\text{-}in^2/W$	-	ASTM D5470
熱阻抗 Thermal Impedance@30psi	0.66	1.10	0.53	° $C\text{-}in^2/W$	-	ASTM D5470
熱阻抗 Thermal Impedance@50psi	0.61	1.04	0.49	° $C\text{-}in^2/W$	-	ASTM D5470
耐燃等級 Flame Rating	V-0			-	-	UL94

可依需求沖型裁切 Pre-cut for different shapes　　可製成捲料 Roll type is available

TG-S808 導熱膏
Thermal Grease

REACH Compliant | RoHS Compliant

產品特性 Features

- 高熱傳導係數
  High thermal conductivity
- 流平性佳 & 不溢流
  Good leveling agent & No overflow
- 有效填補表面不平整處
  Effectively fill the gap of the interface
- 低熱阻抗 / 低熱阻
  Low thermal impedance / thermal resistance
- 有機矽基材無環境污染
  Silicone base, No environmental pollution

產品應用端 Applications

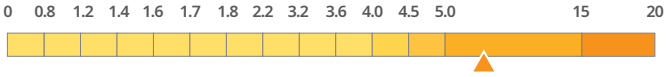
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

導熱膏在其未開封之狀態，於室溫 25° C 以下可保存 18 個月。
Thermal grease has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25° C.

產品物性 Properties

導熱係數 Thermal Conductivity : 8 W/mK



Properties	TG-S808	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	8	W/mK	±10%	ASTM D5470
顏色 Color	灰 Gray	-	-	目視 Visual
油分離度 Oil Dispersible	<0.1	wt%	-	24hr @150° C
重量損失 Weight Loss	<0.1	wt%	-	ASTM E595
密度 Density	3.2	g/cm^3	±10%	ASTM D792
工作溫度 Working Temperature	-40~+200	° C	-	-
體積阻抗 Volume Resistance	$>10^{13}$	Ohm-m	-	ASTM D257
標準規格 Standard Format	1kg	Pot	-	-

▶ 使用前若發現有油層分離現象，乃為散熱膏正常之撓變性現象，僅需攪拌均勻後，即恢復正常使用。
應避免灰塵或雜質附著於散熱膏上，導致熱阻增加而降低散熱效果。
開封後最適保存環境：恆溫冷藏，溫度範圍 +5℃ ~+15℃。建議半年內使用完畢。
If an oil layer is occurs on the top of the thermal grease, it belongs to a normal situation. We suggest stir it evenly before usage. Please avoid any dust or impurity adheres to thermal grease. This will increase the thermal resistance and reduce the heat dissipation effect. Condition of storage once opened: Constant temperature or cold storage, temperature between +5℃ ~+15℃ . Please finish it within six months.

S606 系列導熱膏
Thermal Grease

REACH Compliant | RoHS Compliant

產品特性 Features

- 良好的導熱性
  Good thermal conductivity
- 容易施工
  Easy to assemble
- 高穩定性
  High stability

產品應用端 Applications

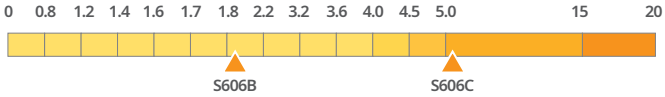
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

導熱膏在其未開封之狀態，於室溫 25° C 以下可保存 18 個月。
Thermal grease has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25° C.

產品物性 Properties

導熱係數 Thermal Conductivity : 1.9(S606B) / 5.3(S606C) W/mK



Properties	S606B	S606C	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.9	5.3	W/mK	±10%	ASTM D5470
顏色 Color	白 White	灰 Gray	-	-	目視 Visual
油分離度 Oil Dispersible	<0.2	<0.05	%	-	24hr @150° C
重量損失 Weight Loss	<0.5		%	-	ASTM E595
密度 Density	2.3		g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-40~+180		° C	-	-
黏度 Viscosity	30	125	Pa·s	-	ASTM D2196
體積阻抗 Volume Resistance	$>10^{11}$	$>10^{12}$	Ohm-m	-	ASTM D257
標準規格 Standard Format	1kg	1kg	Pot	-	-

▶ 使用前若發現有油層分離現象，乃為散熱膏正常之撓變性現象，僅需攪拌均勻後，即恢復正常使用。
應避免灰塵或雜質附著於散熱膏上，導致熱阻增加而降低散熱效果。
開封後最適保存環境：恆溫冷藏，溫度範圍 +5℃ ~+15℃。建議半年內使用完畢。
If an oil layer is occurs on the top of the thermal grease, it belongs to a normal situation. We suggest stir it evenly before usage. Please avoid any dust or impurity adheres to thermal grease. This will increase the thermal resistance and reduce the heat dissipation effect. Condition of storage once opened: Constant temperature or cold storage, temperature between +5℃ ~+15℃ . Please finish it within six months.

TG Putty 系列導熱膠泥
Thermal Putty

REACH Compliant | RoHS Compliant | UL Compliant

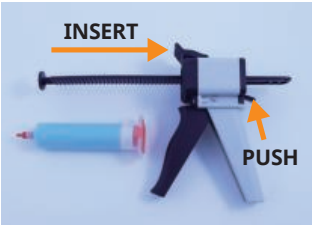
產品特性 Features

- 長期可靠度優異的含矽型導熱膠
  Silicone-type spacer with great long term reliability
- 較導熱片低的接觸熱阻
  Lower thermal resistance than thermal pads
- 介於液態和固態的物理特性，擁有非常低的熱阻抗
  Physical property between liquid and solid state
- 對應產品內高低不平的熱源
  Elimination of different heat source gap & heat sink
- 可使用點膠機設備作業
  Can be applied with dispenser

產品應用端 Applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

操作說明 Operation Manual



① Push the latch and insert the stick.

② Put the tube in and twist.

③ Close the cover.

④ Take off the plug.

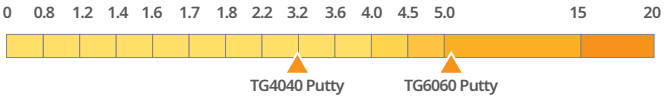
產品物性 Properties

可靠度 Reliability

(熱阻抗 Thermal Impendence)

	TG4040 Putty					TG6060 Putty				
Time	Initial	200 Hr	400 Hr	700 Hr	1000 Hr	Initial	200 Hr	400 Hr	700 Hr	1000 Hr
125° C Aging	0.058	0.059	0.060	0.059	0.060	0.052	0.051	0.050	0.052	0.052
160° C Aging	0.058	0.059	0.060	0.060	0.059	0.052	0.052	0.051	0.052	0.051
85° C / 85% RH	0.058	0.059	0.060	0.059	0.060	0.052	0.051	0.050	0.052	0.051

導熱係數 Thermal Conductivity : 3.2(TG4040 Putty) / 6.3(TG6060 Putty) W/mK



Properties	TG4040 Putty	TG6060 Putty	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	3.2	6.3	W/mK	±0.3	ASTM D5470
顏色 Color	藍 Blue		-	-	目視 Visual
固體含量 Solid Content	100(one-part)		%	-	-
黏度 Viscosity @0.5rpm	3000	2500~3000	Pa·s	-	Brookfield
密度 Density	3	3.3	g/cm^3	-	ASTM D792
體積電阻率 Volume Resistivity	10^{13}		Ohm-m	-	ASTM D257
工作溫度 Working Temperature	-50~+180		° C	-	-
標準規格 Standard Format	90g/165g/1kg	90g/181g/1kg	Tube/Pot	-	-

A96AB 導熱封膠
Epoxy Potting Compound

REACH Compliant | RoHS Compliant

產品特性 Features

- 環氧樹脂材料，高硬度可用於支撐
  Epoxy based material with high hardness for support
- 固化後保護電子元件防止受外界環境影響
  Protect components from any effect after curing
- 可用點膠機灌注
  Can be applied with dispenser
- 室溫或加熱熟化
  Room temperature or heating curing

產品應用端 Applications

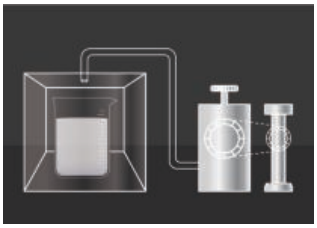
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

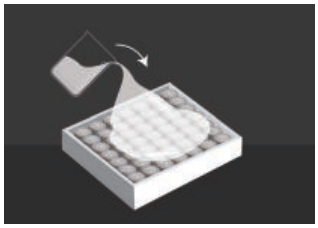
導熱封膠其在未開封之狀態，在室溫 25° C 以下可保存 12 個月。
Epoxy Potting Compound has a shelf-life of twelve (12) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at or below 25° C.

操作說明 Operation Manual

① Mix component A and B.



② Vacuum out air.



③ Pour potting compound.

產品物性 Properties

導熱係數 Thermal Conductivity : 2.6 W/mK

0 0.8 1.2 1.4 1.6 1.7 1.8 2.2 3.2 3.6 4.0 4.5 5.0 15 20

硬度 Hardness : 68 (Shore A)

0 5 10 15 20 25 30 40 80

Properties	A96AB	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2.6	W/mK	±0.25	ASTM D5470
顏色 Color	白 White/ 黑 Black	-	-	目視 Visual
耐電壓 Dielectric Breakdown Voltage	10.2	KV/mm	±1	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	1.8	g/cm^3	±0.2	ASTM D792
工作溫度 Working Temperature	-25~+150	° C	-	-
黏度 Viscosity	1800~2500	cps	-	ASTM D2393
固化時間 Curing Time @25° C	35	Hrs	-	-
固化時間 Curing Time @80° C	1.5	Hrs	-	-
標準規格 Standard Format	1kg	Pot	-	-
硬度 Hardness	68	Shore A	±8	ASTM D2240
混合比例 Mixing Ratio	13:1	gram	-	-

▶ A 劑為 epoxy 與導熱粉混合材料，因密度不同會造成沉澱分層，屬正常現象，使用前請用扁平刮刀或是其他不鏽鋼工具，均勻攪拌 A 劑，以獲得最好的導熱效果。
Component A is a mixed material of epoxy and thermal conductive powder. It is normal to cause precipitation and stratification due to different density. Before use, please use a flat spatula or other stainless tools to evenly mix component A to achieve the best thermal conductivity.

S730 導熱封膠
Silicone Potting Compound

REACH Compliant | RoHS Compliant

產品特性 Features

- 良好的導熱效能
  Good thermal conductivity
- 加熱熟化
  Heat curing
- 一比一比例易於混合
  A:B = 1:1; Easy to mix
- 可搭配擠出槍方便作業，容易施工
  Can be applied with pistol & Easy to assemble
- 低黏度
  Low viscosity

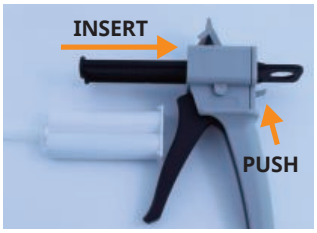
產品應用端 Applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

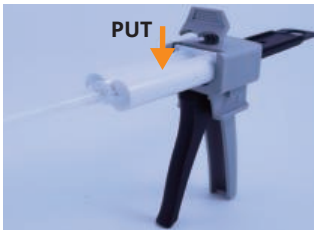
保存方式 Storage

導熱封膠其在未開封之狀態，在室溫 25° C 以下可保存 12 個月。
Epoxy Potting Compound has a shelf-life of twelve (12) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at or below 25° C.

操作說明 Operation Manual



① Push the latch and insert the stick.

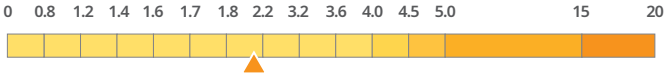


② Put the tube in.

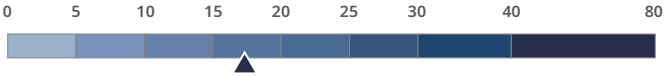
③ Close the cover.

產品物性 Properties

導熱係數 Thermal Conductivity : 2.1 W/mK



硬度 Hardness : 17 (Shore A)



Properties	S730	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2.1	W/mK	±10%	ASTM D5470
顏色 Color	灰 Gray	-	-	目視 Visual
耐電壓 Dielectric Breakdown Voltage	12.2	KV/mm	±10%	ASTM D149
體積阻抗 Volume Resistance	$>10^{13}$	Ohm-m	-	ASTM D257
密度 Density	2.5	g/cm^3	±10%	ASTM D792
工作溫度 Working Temperature	-50~+200	° C	-	-
黏度 Viscosity	<50000	cps	-	ASTM D2393
固化時間 Curing Time @25° C	300	Min	-	-
固化時間 Curing Time @60° C	30	Min	-	-
固化時間 Curing Time @100° C	5	Min	-	-
標準規格 Standard Format	100g/1kg	Tube/Pot	-	-
硬度 Hardness	17	Shore A	±2	ASTM D2240
混合比例 Mixing Ratio	1:1	gram	-	-

▶ A 劑為 epoxy 與導熱粉混合材料，因密度不同會造成沉澱分層，屬正常現象，使用前請用扁平刮刀或是其他不鏽鋼工具，均勻攪拌 A 劑，以獲得最好的導熱效果。
Component A is a mixed material of epoxy and thermal conductive powder. It is normal to cause precipitation and stratification due to different density. Before use, please use a flat spatula or other stainless tools to evenly mix component A to achieve the best thermal conductivity.

S720AB 導熱封膠
Silicone Potting Compound

REACH Compliant | RoHS Compliant

產品特性 Features

- 良好的導熱效能
  Good thermal conductivity
- 室溫熟化
  Room temperature
- 高穩定性
  High stability
- 防水氣 / 電子灌注封裝
  Water proof

產品應用端 Applications

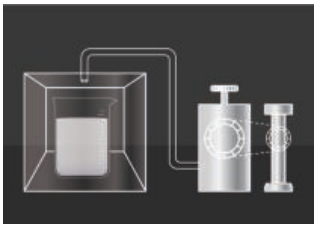
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

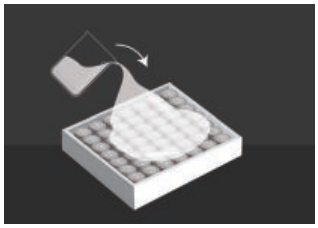
導熱封膠其在未開封之狀態，在室溫 25° C 以下可保存 12 個月。
Epoxy Potting Compound has a shelf-life of twelve (12) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at or below 25° C.

操作說明 Operation Manual

① Mix component A and B.



② Vacuum out air.



③ Pour potting compound.

產品物性 Properties

導熱係數 Thermal Conductivity : 0.8 W/mK

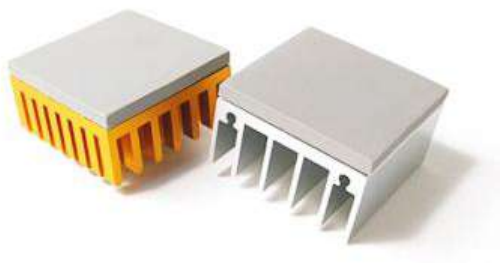
0 0.8 1.2 1.4 1.6 1.7 1.8 2.2 3.2 3.6 4.0 4.5 5.0 15 20

硬度 Hardness : 34~43 (Shore A)

0 5 10 15 20 25 30 40 80

Properties	S720AB	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	0.8	W/mK	±10%	ASTM D5470
顏色 Color	白 White	-	-	目視 Visual
耐電壓 Dielectric Breakdown Voltage	6.1	KV/mm	±10%	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	1.97	g/cm³	±10%	ASTM D792
工作溫度 Working Temperature	-40~+180	° C	-	-
黏度 Viscosity	2000~3000	cps	-	ASTM D2393
固化時間 Curing Time @25° C	35	Hrs	-	-
標準規格 Standard Format	1kg	Pot	-	-
硬度 Hardness	34~43	Shore A	±4~5	ASTM D2240
混合比例 Mixing Ratio	100:2	gram	-	-

▶ A 劑為 epoxy 與導熱粉混合材料，因密度不同會造成沉澱分層，屬正常現象，使用前請用扁平刮刀或是其他不鏽鋼工具，均勻攪拌 A 劑，以獲得最好的導熱效果。
Component A is a mixed material of epoxy and thermal conductive powder. It is normal to cause precipitation and stratification due to different density. Before use, please use a flat spatula or other stainless tools to evenly mix component A to achieve the best thermal conductivity.



PC93 非矽型導熱材料
Non-silicone Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 無低分子矽氧烷及矽油揮發
  Non siloxane and oil-bleed
- 材料柔軟且延展性好
  Ultra soft and great elongation
- 電氣絕緣
  Electrical insulation
- 低熱阻抗
  Very low thermal impedance

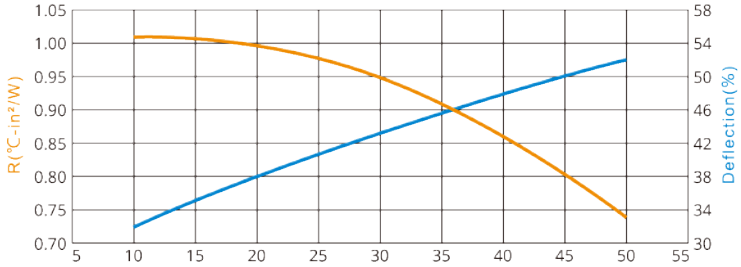
產品應用端 Applications

適用於易有矽油問題的產品 Applications that require no silicone

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

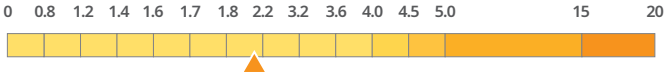
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

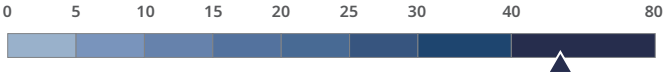


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.01	32
30	0.95	43
50	0.74	52

導熱係數 Thermal Conductivity : 2.1 W/mK



硬度 Hardness : 55 (Shore 00)



Properties	PC93	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2.1	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~5.0	mm	-	ASTM D374
	0.0197~0.1969	inch	-	ASTM D374
顏色 Color	灰 Gray	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	10.2	KV/mm	±1	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	2.1	g/cm^3	±0.2	ASTM D792
工作溫度 Working Temperature	-30~+125	° C	-	-
體積阻抗 Volume Resistance	$>10^{10}$	Ohm-m	-	ASTM D257
延展率 Elongation	350	%	-	ASTM D412
抗拉強度 Tensile Strength	1	kgf/cm^2		ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	55	Shore 00	±10	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

PC94 非矽型導熱材料
Non-silicone Thermal Pad

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 無低分子矽氧烷及矽油揮發
  Non siloxane and oil-bleed
- 材料柔軟且延展性好
  Ultra soft and great elongation
- 電氣絕緣
  Electrical insulation
- 低熱阻抗
  Very low thermal impedance

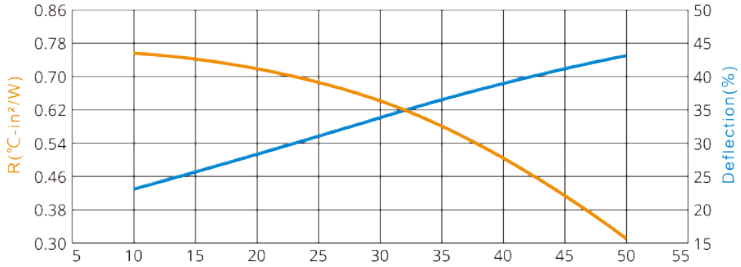
產品應用端 Applications

適用於易有矽油問題的產品 Applications that require no silicone

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

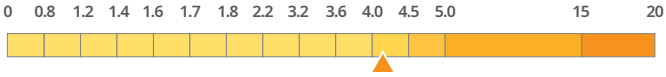
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

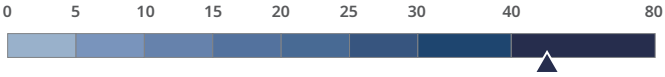


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.75	23
30	0.64	34
50	0.31	43

導熱係數 Thermal Conductivity : 4.2 W/mK



硬度 Hardness : 50 (Shore 00)



Properties	PC94	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	4.2	W/mK	±10%	ASTM D5470
厚度 Thickness	0.5~5.0	mm	-	ASTM D374
	0.0197~0.1969	inch	-	ASTM D374
顏色 Color	紅 Red	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
耐電壓 Dielectric Breakdown Voltage	10.2	KV/mm	-	ASTM D149
重量損失 Weight Loss	<1	%	-	ASTM E595
密度 Density	2.5	g/cm³	±0.2	ASTM D792
工作溫度 Working Temperature	-30~+125	° C	-	-
體積阻抗 Volume Resistance	>10¹⁰	Ohm-m	-	ASTM D257
延展率 Elongation	100	%	-	ASTM D412
抗拉強度 Tensile Strength	2	kgf/cm²		ASTM D412
標準規格 Standard Format	單片狀 Sheets one	-	-	-
硬度 Hardness	50	Shore 00	±10	ASTM D2240

可依需求沖型裁切 Pre-cut for different shapes

TG-N909 非矽型導熱膏
Non-silicone Thermal Grease

RoHS Compliant

產品特性 Features

- 高熱傳導係數
  High thermal conductivity
- 無添加矽油
  Silicone oil free
- 不溢流
  No overflow
- 低熱阻抗 / 低熱阻
  Low thermal impedance / thermal resistance
- 無矽基材環境污染
  Non-silicone base, No environmental pollution

產品應用端 Applications

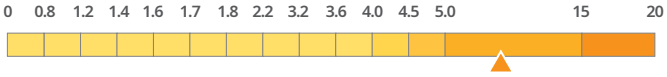
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

保存方式 Storage

導熱膏在其未開封之狀態，於室溫 25° C 以下可保存 18 個月。
Thermal grease has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25° C.

產品物性 Properties

導熱係數 Thermal Conductivity : 9 W/mK



Properties	TG-N909	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	9	W/mK	±10%	ASTM D5470
顏色 Color	灰 Gray	-	-	目視 Visual
油分離度 Oil Dispersible	<0.1	wt%	-	24hr @150° C
重量損失 Weight Loss	<0.1	wt%	-	ASTM E595
密度 Density	3.3	g/cm^3	±10%	ASTM D792
工作溫度 Working Temperature	-40~+200	° C	-	-
體積阻抗 Volume Resistance	$>10^{13}$	Ohm-m	-	ASTM D257
標準規格 Standard Format	1kg	Pot	-	-

▶ 使用前若發現有油層分離現象，乃為散熱膏正常之撓變性現象，僅需攪拌均勻後，即恢復正常使用。
應避免灰塵或雜質附著於散熱膏上，導致熱阻增加而降低散熱效果。
開封後最適保存環境：恆溫冷藏，溫度範圍 +5℃ ~+15℃。建議半年內使用完畢。
If an oil layer is occurs on the top of the thermal grease, it belongs to a normal situation. We suggest stir it evenly before usage. Please avoid any dust or impurity adheres to thermal grease. This will increase the thermal resistance and reduce the heat dissipation effect. Condition of storage once opened: Constant temperature or cold storage, temperature between +5℃ ~+15℃ . Please finish it within six months.

TG-NSP25 非矽型導熱膠泥
Non-silicone Thermal Putty

RoHS Compliant

產品特性 Features

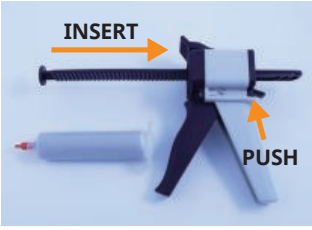
- 無矽成分的導熱凝膠
  Silicone free thermal gel
- 可任意塑形與下壓
  Shapeable and compressible
- 低熱阻
  Low thermal resistance
- 無液體流動現象之困擾
  No fluidity
- 使用在 IC 北橋非常好的材料
  Best for north bridge IC

產品應用端 Applications

使用在 IC 北橋非常好的材料 Best for north bridge IC

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

操作說明 Operation Manual



① Push the latch and insert the stick.

② Put the tube in and twist.

③ Close the cover.

④ Take off the plug.

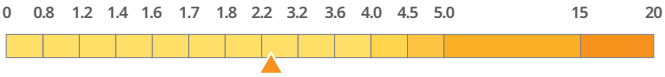
產品物性 Properties

可靠度 Reliability

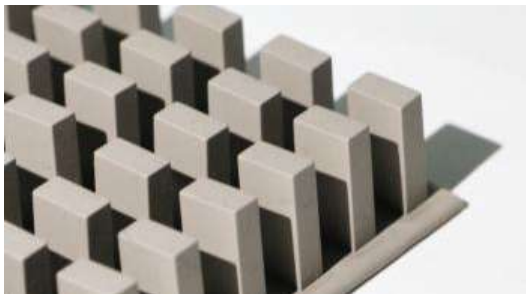
(熱阻抗 Thermal Impendence)

	TG-NSP25				
Time	Initial	200 Hr	400 Hr	700 Hr	1000 Hr
125° C Aging	0.050	0.051	0.050	0.051	0.052
85° C / 85% RH	0.050	0.049	0.049	0.049	0.050

導熱係數 Thermal Conductivity : 2.6 W/mK



Properties	TG-NSP25	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2.6	W/mK	±10%	ASTM D5470
顏色 Color	灰 Gray	-	-	目視 Visual
固體含量 Solid Content	100	%	-	-
黏度 Viscosity @0.5rpm	5000	Pa·s	-	Brookfield
密度 Density	2.6	g/cm^3	-	ASTM D792
低分子矽氧烷 Low MW Siloxane (D3-10)	0	ppm	-	GC/MS
體積電阻率 Volume Resistivity	10^{14}	Ohm-m	-	ASTM D257
工作溫度 Working Temperature	-50~+150	° C	-	-
標準規格 Standard Format	78g/143g/1kg	Tube/Pot	-	-



CP 系列導熱絕緣帽套
Thermal Insulation Rubber Cap

產品特性 Features

- 低熱阻抗與緩衝效果
  Low thermal contact resistance and buffer effect
- 高絕緣性
  Good electrical insulation
- 降低產品重量
  Decrease the weight of the product
- 簡易安裝組件
  Easy to assemble

產品應用端 Applications

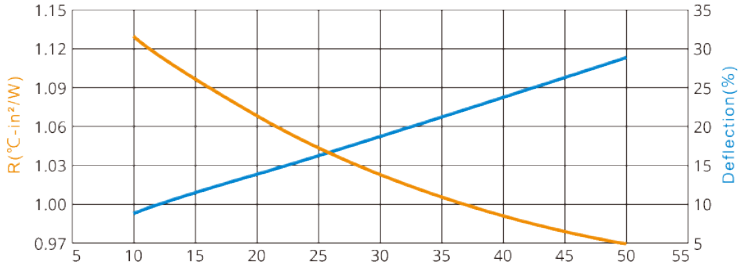
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

尺寸選擇 Standard Sizes (mm)

1. CP22 TO-220: 11.4x16x5.8
2. CP23 TO-220: 11.4x21.5x5.8
3. CP33 TO-247: 17.5x28.5x5.8

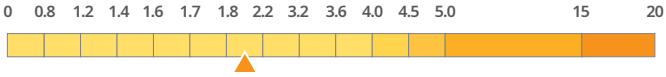
產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

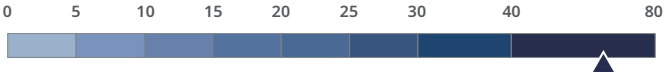


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.13	9
20	1.07	14
50	0.97	29

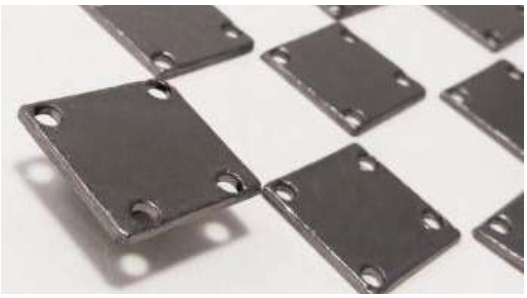
導熱係數 Thermal Conductivity : 2 W/mK



硬度 Hardness : 65 (Shore A)



Properties	CP22/CP23/CP33	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	2	W/mK	±10%	ASTM D5470
厚度 Thickness	0.3/0.45	mm	-	ASTM D374
顏色 Color	灰 Gray	-	-	目視 Visual
材料 Material	Silicone	-	-	-
工作溫度 Continuous Working Temperature	-45~+180	° C	-	-
密度 Density	2.55	g/cm³	-	ASTM D792
耐電壓 Dielectric Breakdown Voltage (AC)	4.1/6.1	KV	±10%	ASTM D149
耐電壓 Dielectric Breakdown Voltage (DC)	6.1/8.1	KV	±10%	ASTM D149
介電係數 Dielectric Constant	5.8	1000Hz	-	ASTM D150
熱阻抗 Thermal Impedance@10psi	1.13	° C-in² / W		ASTM D5470
熱阻抗 Thermal Impedance@20psi	1.07	° C-in² / W	-	ASTM D5470
熱阻抗 Thermal Impedance@50psi	0.97	° C-in² / W	-	ASTM D5470
硬度 Hardness	65	Shore A	±7	ASTM D2240



T62 天然石墨
Natural Graphite Sheet

REACH Compliant | RoHS Compliant

產品特性 Features

- 超高導熱效能
  Ultra high thermal conductivity
- 容易施工
  Easy to assemble
- 體積輕薄，減低安裝空間
  Low mass decreases space
- 降低電磁干擾
  EMI reduction

產品應用端 Applications

適用需平面均溫的產品 Suitable for products requiring flat temperature

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

產品物性 Properties

Properties	T62	T62-1	T62-2	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity (XY axis)	400			W/mK	-	AC calorimeter
導熱係數 Thermal Conductivity (Z axis)	20	15	5	W/mK	±10%	Laser flash
厚度 Thickness	0.13	0.16	0.2	mm	±0.03	Micrometer
	0.0051	0.0063	0.0079	inch	-	-
顏色 Color	黑 Black			-	-	目視 Visual
結構 Structure	Graphite	Graphite Adhesive	PET Graphite Adhesive	-	-	-
密度 Density	1.5	1.5~1.8		g/cm³	±0.05	ASTM D792
石墨含量 Graphite Contained	>98			%	-	-
工作溫度 Working Temperature	-30~+100			° C	-	-

可依需求沖型裁切 Pre-cut for different shapes　　可依需求背膠 Available to apply adhesive

尚有其它厚度，請洽產品顧問 Other thickness is available, please contact product consultant

T68 人造石墨
Natural Graphite Sheet

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

- 具有高效導熱性、導電性及 EMI 遮蔽效果
  Ultra high thermal conductivity, electrical conductivity and EMI
- 具可撓性，可彎曲
  Flexible, and bendable
- 超薄、重量輕、無毒環保
  Ultra thin, Low mass, Environmental friendly

產品應用端 Applications

適用需平面均溫的產品 Suitable for products requiring flat temperature

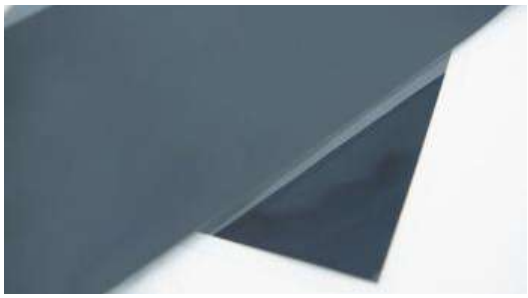
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

Properties	T68	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity (XY axis)	1500	W/mK	±100	AC calorimeter
導熱係數 Thermal Conductivity (Z axis)	5	W/mK	±10%	Laser flash
厚度 Thickness	25	μm	-	Micrometer
顏色 Color	黑 Black	-	-	目視 Visual
耐燃等級 Flame Rating	V-0	-	-	UL 94
熱擴散率 Thermal Diffusivity	8.5	cm^2/S	±0.5	AC calorimeter
密度 Density	2.1	g/cm^3	±0.1	Archimedes law
導電率 Electrical Conductivity	>13000	S/cm	-	JIS K7194
彎曲測試 Bending Test	10000	times	-	-
工作溫度 Working Temperature	-40~+400	° C	-	AC calorimeter
熱容量 Heat Capacity (SHC)	0.895	J/g-K		-

Properties	T68	T68A	T68AP	T68APF
加工方式 Processing	No processing	With insulating double-sided adhesive tapeunderneath (10μm/30μm)	1. Standard PET tape on thetop (10μm/30μm) 2. Insulating 2-sided adhesive tape on the bottom (10μm/30μm)	1. Standard PET tape on thetop (10μm/30μm) 2. Insulating 2-sided adhesive tape on the bottom (10μm/30μm) 3. Edge banding
結構 Structure	Graphite Sheet	Graphite Sheet 2-sided adhesive tape Release paper	PET Tape Graphite Sheet 2-sided adhesive tape Release paper	PET Tape Graphite Sheet 2-sided adhesive tape Release paper
特徵 Feature	· 發揮其熱傳導、柔軟性 Great thermal conductivity and softness of graphite · 低熱電阻 Low thermal resistance · 最高可在 400°C Can work under 400°C · 導電性 Electrically conductive	· 單面具有絕緣黏合性 Insulating and adhesiveon one side · 保證黏貼在箱體、底盤上的強黏力 Great adhesion, stickclosely to the case · 耐電壓 1KV Breakdown voltage: 1KV	· 產品表面、黏合面均具有絕緣性 All surfaces are electricallyisolating · PET 膠帶耐電壓 1KV PET Tape: 1KV · 雙面膠帶耐電壓 1KV 2-sided adhesive tape: 1KV	· 產品表面、黏合面均具有絕緣性 All surfaces are electricallyisolating · PET 膠帶耐電壓 1KV PET Tape: 1KV · 雙面膠帶耐電壓 1KV 2-sided adhesive tape: 1KV
耐熱溫度 Heat-resistant Temperature	400°C	100°C	80~100°C	80~100°C
總厚度 Total Thickness	25μm	35μm/55μm	45μm/85μm	45μm/85μm

可依需求沖型裁切 Pre-cut for different shapes　　可依需求背膠 Available to apply adhesive



TG-P100 系列石墨烯均溫片
Graphene

RoHS Compliant

產品特性 Features

- 超薄、重量輕
  Ultra thin, Low mass
- 適用於不通風環境
  Available for unventilated design
- 無剝離及掉粉問題
  No dusting issue

產品應用端 Applications

適用需平面均溫的產品 Suitable for products requiring flat temperature

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

Properties	TG-P10050	TG-P10090	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity (XY axis)	1500~1800		W/mK	-	AC calorimeter
導熱係數 Thermal Conductivity (Z axis)	12		W/mK	-	Laser flash
材料總厚度 Total Thickness	50	90	µm	-	厚薄規 Meter
銅箔厚度 Copper Foil Thickness	35	75	µm	-	厚薄規 Meter
塗層厚度 Coating Thickness	15	15	µm	-	厚薄規 Meter
電阻 Vertical Resistivity (XY axis)	2.57		KV/mm	-	QJ1523-1988
電阻 Parallel Resistivity (Z axis)	0.66		KV/mm	-	QJ1523-1988
百格測試 Cross-cut Tape Test	4B		-	-	ASTM D3359B
鉛筆硬度測試 Pencil Hardness Test	2H		-	-	ASTM D3363
耐溶劑測試 (酒精) Solvent Resistance (Alcohol)	Pass(5 times)		° C	-	ASTM D5402
橡皮耐磨測試 Rubber Abrasive Test	Pass(150 times)		Ohm-m	-	ASTM D7835
高溫高濕測試 High Temperature & Humidity Test @85° C/85%RH	Pass(500hrs)		-	-	IEC-60068-2-78
熱衝擊測試 Thermal Shock Test @-20~+80° C	Pass(500cycles)		-	-	IEC-60068-2-14
適用溫度範圍 Temperature Range of Utility	-20~+120		° C	-	ISO 16750-4

可依需求沖型裁切 Pre-cut for different shapes

TG-V 系列相變化材料
Thermal Phase Change Materials

REACH Compliant | RoHS Compliant

產品特性 Features

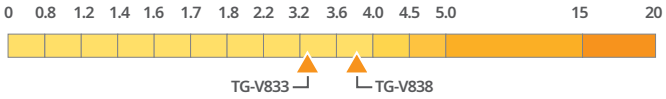
- 藉由材料熱溶後的良好流動性，
  完整填充表面不平整縫隙
  With the good flow ability over phase change temperature, surface irregularities can be well filled
- 低熱阻抗
  Low thermal impedance

產品應用端 Applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

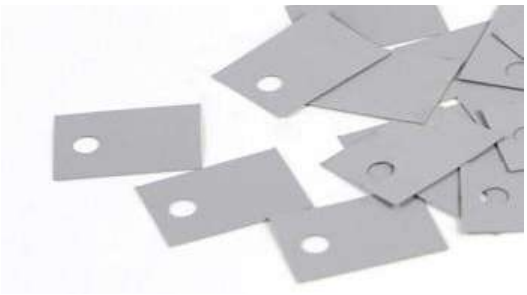
產品物性 Properties

導熱係數 Thermal Conductivity : 3.3(TG-V833) / 3.8(TG-V838) W/mK



Properties	TG-V833	TG-V838	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	3.3	3.8	W/mK	±10%	ASTM D5470
厚度 Thickness	0.13/0.2/0.3		mm	-	ASTM D374
	0.005/0.008/0.0118		inch	-	ASTM D374
顏色 Color	灰 Gray		-	-	目視 Visual
軟化溫度 Phase Transition Temperature	50		° C	-	-
擊穿電壓 Breakdown voltage(AC)	1		KV	-	ASTM D149
密度 Density	3.4	2.5	g/cm^3	±0.3	ASTM D792
工作溫度 Continuous Working Temperature	-40~+125		° C	-	-
體積阻抗 Volume Resistance	3×10^{11}	3×10^{10}	Ohm-m	-	ASTM D257
熱阻抗 Thermal Impedance@50psi	0.0143	0.013	° $C\text{-}cm^2/W$	-	Modified ASTM D5470
介電常數 Dielectric Constant @1KHz	13.3		-	-	ASTM D412

可依需求沖型裁切 Pre-cut for different shapes



Ti900 超薄導熱絕緣材料
Thermal Insulator

REACH Compliant | RoHS Compliant | UL Compliant

產品特性 Features

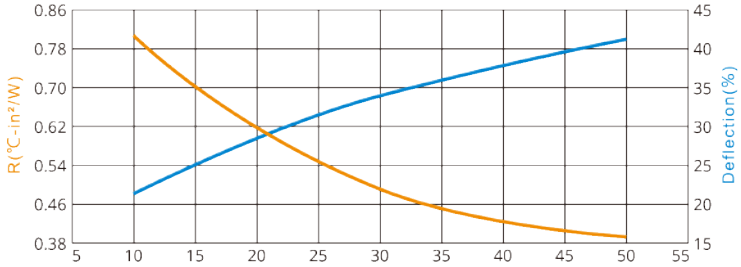
- 電氣絕緣
  Insulation strength
- 低熱阻
  Low thermal resistance
- 容易施工
  Easy to assemble

產品應用端 Applications

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

熱阻抗 VS. 壓力 VS. 變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection



Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.82	21
30	0.49	34
50	0.39	41

Properties	Ti900	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	1.9	W/mK	±10%	ASTM D5470
厚度 Thickness	0.12	mm	-	ASTM D374
顏色 Color	灰 Gray	-	-	目視 Visual
基材 Base	Polyimide	-	-	-
耐電壓 Dielectric Breakdown Voltage (AC)	6.1	KV	±10%	ASTM D149
體積阻抗 Volume Resistance	$>10^{12}$	Ohm-m	-	ASTM D257
工作溫度 Continuous Working Temperature	-50~+180	° C	-	-
抗拉強度 Tensile Strength	5000	psi	-	ASTM D412
延展率 Elongation	40	%	-	ASTM D412
耐燃等級 Flame Rating	V-0	-	-	UL94
標準規格 Standard Format	單片狀 Sheets one	-	-	-

可依需求沖型裁切 Pre-cut for different shapes

PH3 導熱複合材料
Heat Spreader

REACH Compliant | RoHS Compliant

產品特性 Features

- 優良熱輻射
  Excellent thermal radiation
- 超薄且具可彎曲性
  Thin&bendable
- 無剝離及掉粉問題
  No dusting issue

產品應用端 Applications

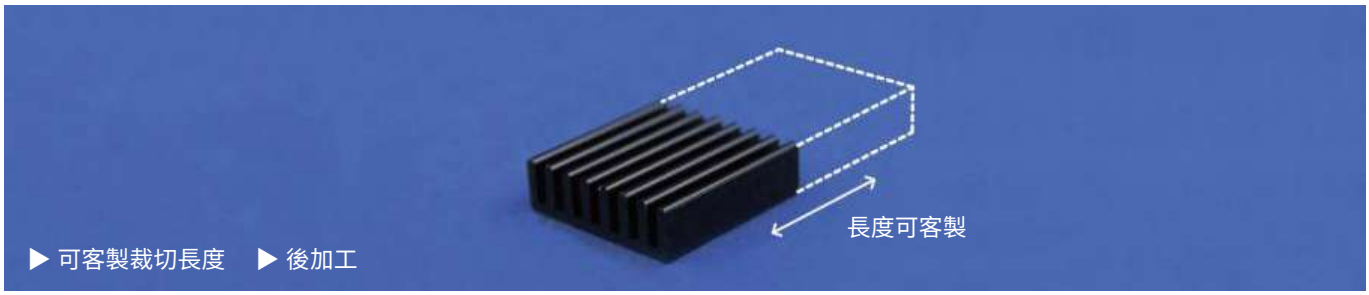
適用於不通風環境 Available for unventilated design

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

Properties	PH3			Unit	Tolerance	Test Method
金屬層導熱係數 Metal Layer Thermal Conductivity	400			W/mK	-	ASTM D5470
塗佈層導熱係數 Coating Layer Thermal Conductivity	1.3			W/mK	-	ASTM D5470
總厚度 Total Thickness	0.06	0.11	0.21	mm	±10%	ASTM D374
金屬層厚度 Metal Layer Thickness	0.012	0.05	0.1	mm	±10%	ASTM D374
塗佈層厚度 Coating Layer Thickness	0.048	0.06	0.11	mm	±10%	ASTM D374
顏色 Color	黑 Black			-	-	目視 Visual
結構 Structure	Matal Layer: Cu Foil Coating Layer: High Thermal Radiation Nano-carbon Tube			-	-	-
體積阻抗 Surface Resistance	10^{12}			Ohm-m	-	-
工作溫度 Continuous Working Temperature	-30~+120			° C	-	-
初期黏性 Initial Tack	18	15	11	cm	-	PSTC-6
剝離強度 30° Peeling Strength (aluminum)	8	10	12	N/in	-	ASTM D3330
擊穿電壓 Breakdown Voltage(AC)	2	2	3.1	KV	-	ASTM D149
擊穿電壓 Breakdown Voltage(DC)	3.1	3.1	4.1	KV	-	ASTM D149
耐燃等級 Flame Rating	V-2			-	-	UL94

可依需求背膠 Available to apply adhesive

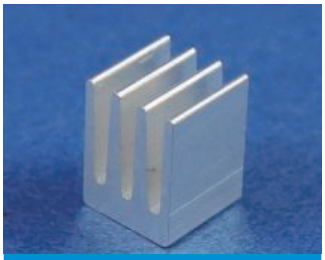


散熱片 (Heat Sink) 為導熱性佳、質輕、易加工之金屬 (多為鋁或銅)，可貼附於發熱元件表面，是目前作為電子散熱最普遍的產品之一。如何提高散熱片的熱傳導率與散熱面積，以提升整體機構散熱效率，更是目前相關產業所面臨的重要課題。散熱片製造方式分為沖壓、擠型、壓鑄、鍛造，這些成品可以做為散熱主要元件、機構件使用，有些則是肩負機構外殼及散熱之雙重任務。

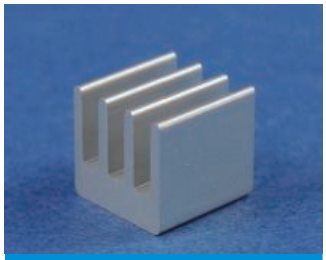
Heat sink (mainly made of aluminum or copper) is a kind of metal contain high thermal dissipation ability, light weight and easy to have machining. It is one of the popular heat dissipation products and can stick on the surface of heat source. How to increase the thermal conductivity and heat dissipation surface in order to increase the product’s heat dissipation efficiency is the hard issue of this industry. Stamping, extrusion, die casting and forging are the production way of heat sink. These products and be the main components of heat dissipation for various applications and their application shell.

▶ 規格皆為寬 × 長 × 高

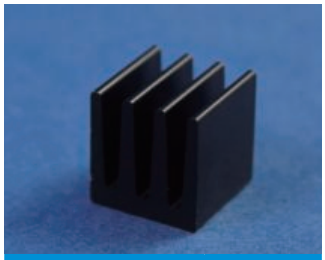
▶ 此為既有模具公規



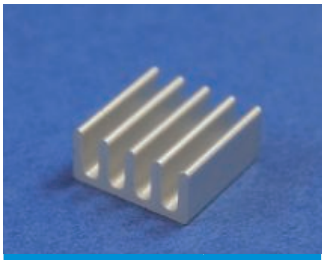
TGH-0075-01	
7.5×7.5×10mm	1g
洗淨	AL6063



TGH-0100-01	
10×10×9.5mm	1.5g
洗淨	AL6063

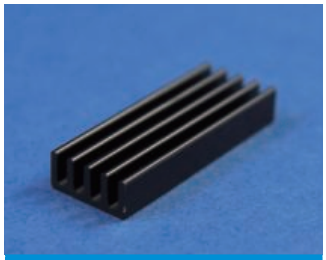


TGH-0124-01	
12.4×12.4×13mm	3g
陽極黑色	AL6063



TGH-0130-01	
13×13×6mm	2g
洗淨	AL6063

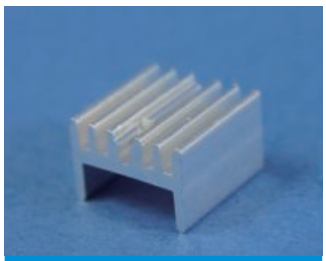
TGH-0130-02	
13×13×9mm	2g
陽極黑色	AL6063



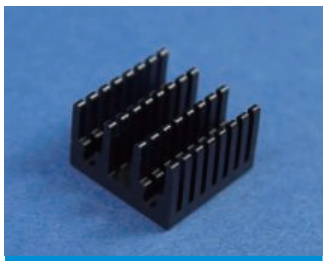
TGH-0130-03	
13×35×6mm	4g
陽極黑色	AL6063

TGH-0132-01	
13.2×19×9.7mm	1.5g
陽極黑色	AL1050

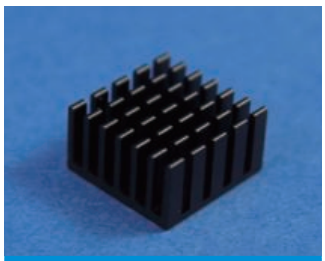
TGH-0137-02	
13.7×25.6×12mm	2g
陽極黑色	AL1050



TGH-0160-01	
16×16×11mm	3g
洗淨	AL6063



TGH-0164-01	
16.4×16×10mm	3g
陽極黑色	AL6063



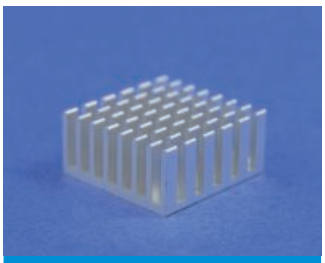
TGH-0170-01	
17×17×9.5mm	3g
陽極黑色	AL6063

TGH-0190-01	
19×19×5mm	3g
陽極黑色	AL6063

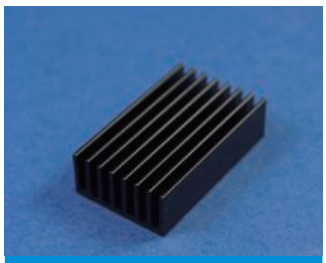
▶ 規格皆為寬 × 長 × 高

▶ 此為既有模具公規

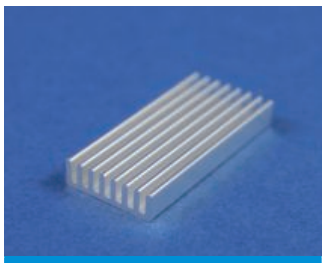
TGH-0200-02	
20×20×6mm	4g
陽極黑色	AL6063



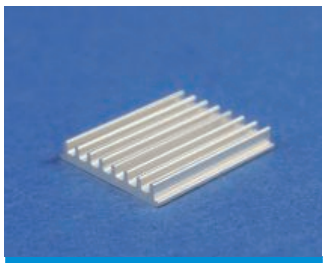
TGH-0200-03	
20×20×9.5mm	4g
陽極本色	AL6063



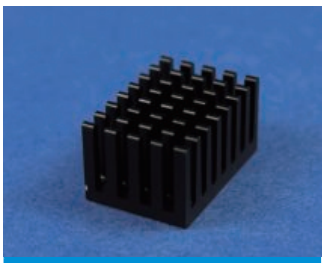
TGH-0200-05	
20×33×9.5mm	8g
陽極黑色	AL1050



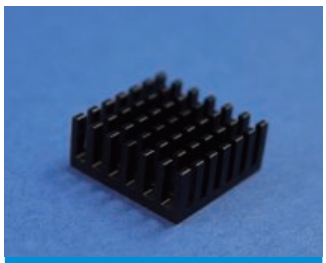
TGH-0200-06	
20×44×6mm	9g
洗淨	AL1050



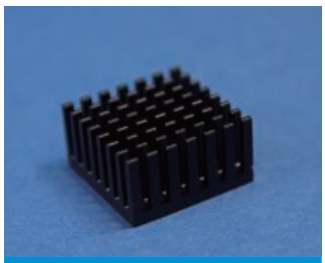
TGH-0210-01	
21×25×3.5mm	3g
陽極本色	AL6063



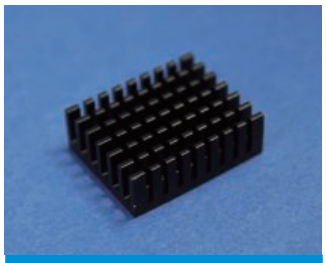
TGH-0220-02	
22×15×11.7mm	4g
陽極黑色	AL6063



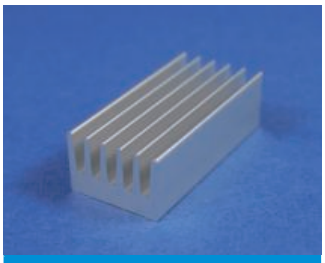
TGH-0220-03	
22×22×9mm	5g
陽極黑色	AL6063



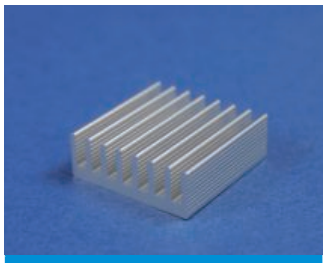
TGH-0220-04	
22×22×11.7mm	7g
陽極黑色	AL6063



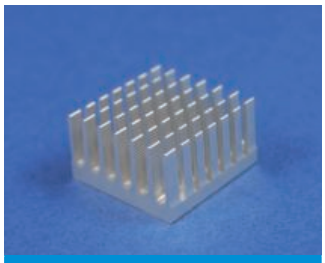
TGH-0220-06	
22×27×9mm	6g
陽極黑色	AL6063



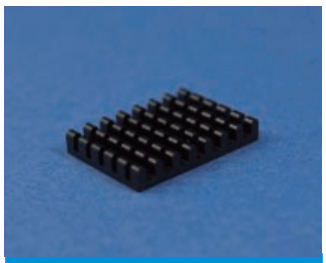
TGH-0220-07	
22×45×14.5mm	23g
陽極本色	AL6063



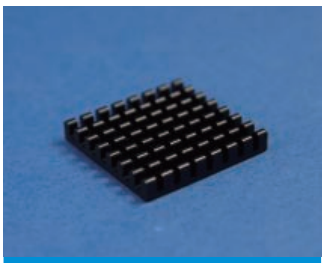
TGH-0250-01	
25×25×9mm	9g
陽極本色	AL6063



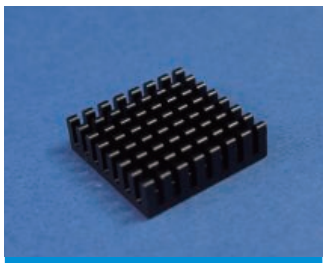
TGH-0260-02	
26×26×14.8mm	10g
陽極本色	AL6063



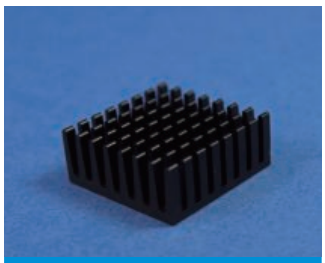
TGH-0280-01	
28×20×4.5mm	4g
陽極黑色	AL6063



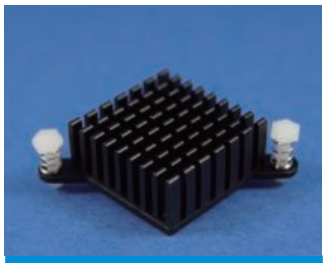
TGH-0280-02	
28×28×4.5mm	5g
陽極黑色	AL6063



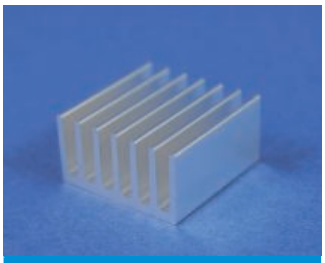
TGH-0280-04	
28×28×8mm	8g
陽極黑色	AL6063



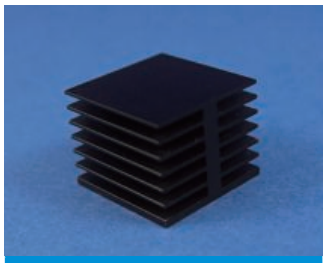
TGH-0280-05	
28×28×11.4mm	10g
陽極黑色	AL6063



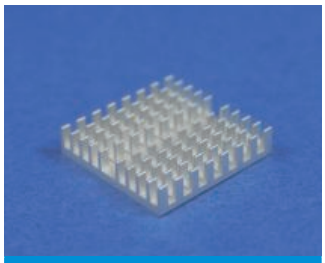
TGH-0280-06	
28×28×12.7mm	12g
陽極黑色	AL6063



TGH-0280-07	
28×28×15mm	16g
陽極本色	AL6063



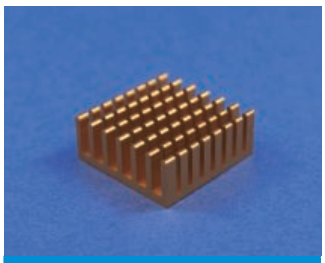
TGH-0280-08	
28×28×22mm	20g
陽極黑色	AL6063



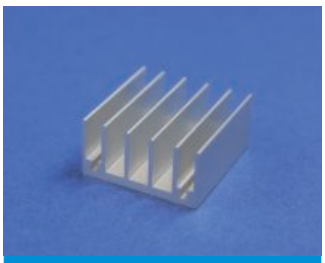
TGH-0300-01	
30×30×6.6mm	6g
陽極本色	AL6063

▶ 規格皆為寬 × 長 × 高

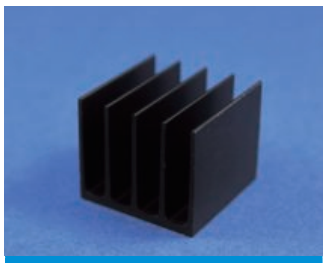
▶ 此為既有模具公規



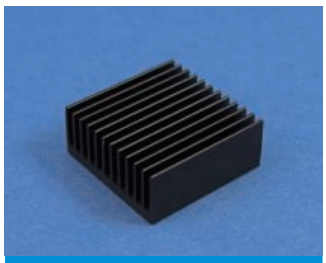
TGH-0300-03	
30×30×12mm	12g
陽極金色	AL6063



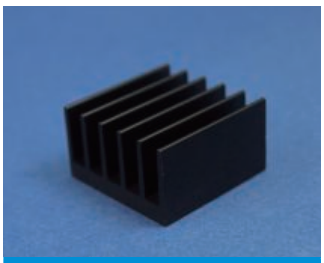
TGH-0300-04	
30×30×15mm	13g
陽極本色	AL6063



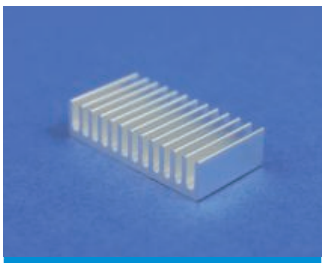
TGH-0325-01	
32.5×32.5×27.5mm	21g
陽極黑色	AL6063



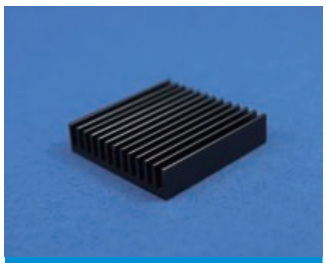
TGH-0350-03	
35×35×15mm	24g
陽極黑色	AL6063



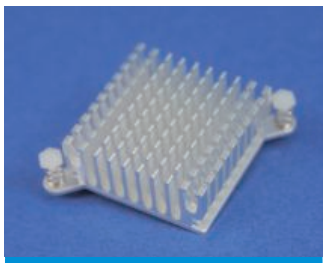
TGH-0350-04	
35×35×20mm	30g
陽極黑色	AL6063



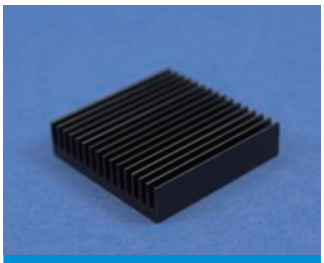
TGH-0380-01	
38×20×9mm	10g
洗淨	AL6063



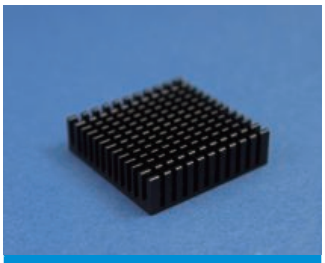
TGH-0380-03	
38×38×9mm	19g
陽極黑色	AL6063



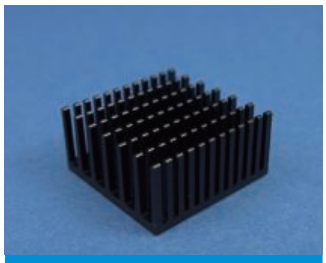
TGH-0380-05	
38×38×15mm	19g
洗淨	AL6063



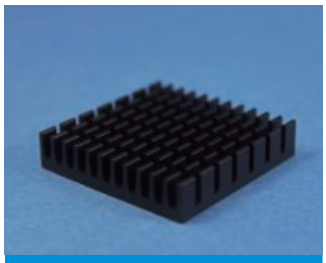
TGH-0400-01	
40×40×10mm	24g
陽極黑色	AL6063



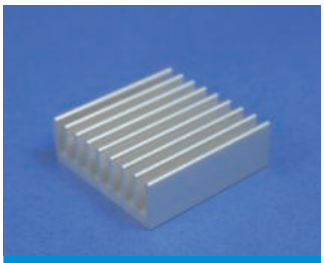
TGH-0400-03	
40×40×11mm	17g
陽極黑色	AL6063



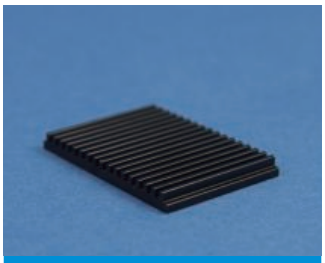
TGH-0400-04	
40×40×20mm	26g
陽極黑色	AL6063



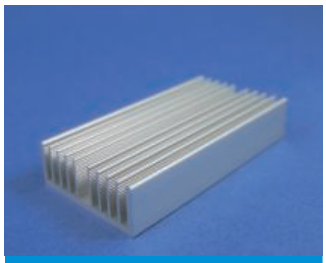
TGH-0450-01	
40×40×10mm	27g
陽極黑色	AL6063



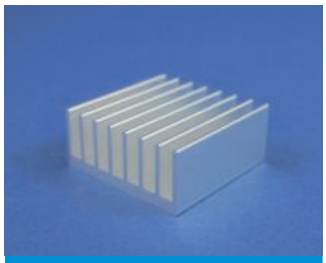
TGH-0500-01	
50×50×17mm	56g
陽極本色	AL6063



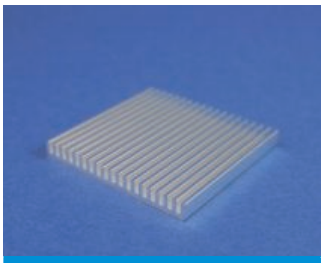
TGH-0510-01	
51×35×5mm	17g
陽極黑色	AL6063



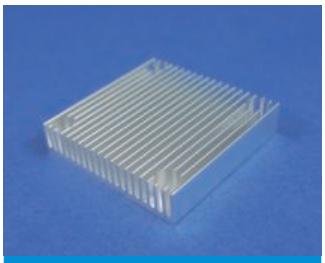
TGH-0510-02	
51×100×20mm	113g
陽極本色	AL6063



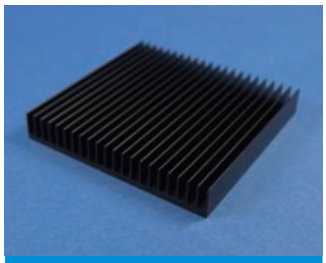
TGH-0522-01	
52.2×52.2×23mm	74g
陽極本色	AL6063



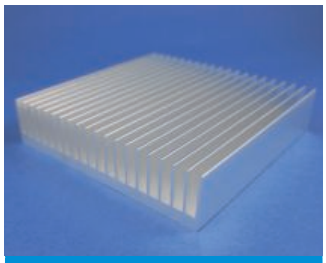
TGH-0550-01	
55×55×6mm	32g
陽極本色	AL6063



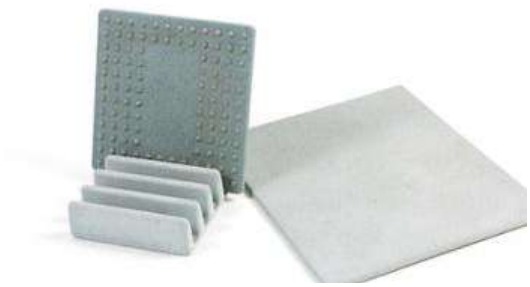
TGH-0610-01	
61×61×13mm	67g
陽極本色	AL6063



TGH-0955-01	
95.5×95×14.3mm	134g
陽極黑色	AL6063



TGH-1535-01	
153.5×150×34mm	906g
陽極本色	AL6063



XL-25 陶瓷散熱片
Ceramic Heat Spreader

REACH Compliant | RoHS Compliant

產品特性 Features

- 開放性多孔結構增加接觸空氣面積
  Open-porous structure increases air contact area
- 適用於有限的安裝空間
  Best for limited space
- 高耐電壓及高表面阻抗
  High breakdown voltage, high resistance
- 低熱膨脹係數
  Low thermal expansion coefficient
- 降低電磁干擾
  EMI reduction
- 冷熱衝擊性佳，可適應環境劇烈變動
  High reliability

產品應用端 Applications

可適應環境劇烈變動 Can adapt to dramatic environmental changes

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.

尺寸選擇 Standard Sizes (mm)

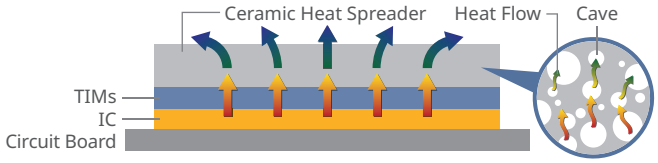
01. 10x10x2.0(平板 flat)
02. 15x15x2.5(平板 flat)
03. 15x15x5.0(鰭片 fin)
04. 20x15x2.0(平板 flat)
05. 20x20x2.0(平板 flat)
06. 20x20x2.5(平板 flat)
07. 22x22x2.5(平板 flat)
08. 30x30x2.0(平板 flat)
09. 30x30x2.5(平板 flat)
10. 30x30x5.0(鰭片 fin)
11. 35x35x10.0(鰭片 fin)
12. 40x40x2.5(平板 flat)
13. 40x40x3.0(凸點 embossed)
14. 40x40x5.0(鰭片 fin)
15. 40x40x10.0(鰭片 fin)
16. 50x50x3.0(凸點 embossed)
17. 50x50x5.0(鰭片 fin)
18. 50x50x10.0(鰭片 fin)

散熱機制 Mechanism

Aca ≒ 5 x Aal

同體積的陶瓷散熱片的空氣接觸面積約等於五個同體積鋁質散熱器的空氣接觸面積之總和。在一樣的風速下，陶瓷散熱片能提供更多的空氣接觸面積。當接觸面積越大，熱能被帶走的量越大。

The air-contact area of ceramic heat spreader is nearly 5 times of aluminum heat sink, when they have the same volume. In the same air flow, ceramic heat spreader can provide more air-contact area .When A is bigger, Qt would be bigger, Qt would be bigger.



Qt ∝ S x A: 散熱效能與風速及接觸面積成正比
Qt: 經由空氣接觸所帶走的熱能
S: 風速 Air flow (m/s)　　A: 接觸面積 Air contact area (m^2)
Aca: Air contact (m^2) of ceramic heat sink 陶瓷散熱片的接觸面積
Aal: Air contact (m^2) of aluminium heat sink 鋁散熱片的接觸面積

產品物性 Properties

Properties	XL-25	Unit	Tolerance	Test Method
導熱係數 Thermal Conductivity	10	W/mK	±0.67	-
顏色 Color	灰 Gray/ 綠 Green	-	-	目視 Visual
耐電壓 Dielectric Breakdown Voltage	500	Voltage	-	ASTM D149
體積密度 Bulk Density	1.89	g/cm^3	±0.18	CNS 619
彎曲強度 Flexural Strength	47.5	kgf/cm^2	-	CNS 12701
孔隙度 Porosity	25	%	-	CNS 619
吸水率 Water absorption	16	%	-	CNS 619
工作溫度 Working Temperature	<500	° C	-	-
熱膨脹係數 Linear Temperature Expansion Coefficient	4.13	10^{-6}	-	RT~300° C
主要成分 Main Composition	$SiC/Al_2O_3/SiO_2$	-	-	-
硬度 Hardness	5~6	Moh's	±0.6	DIN En101-1992

XL-25 系列陶瓷導熱片
Ceramic Heat Spreader

產品特性 Features

- 適用於有限的安裝空間
  Best for limited space
- 低熱膨脹係數
  Low thermal expansion coefficient
- 可靠的絕緣性能
  Reliable insulation performance
- 低熱膨脹係數
  Low thermal expansion coefficient
- 無毒、耐高溫
  Non-toxic, High temperature resistance
- 冷熱衝擊性佳，可適應環境劇烈變動
  High reliability

產品應用端 Applications

可適應環境劇烈變動 Can adapt to dramatic environmental changes

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

尺寸選擇 Standard Sizes (mm)

01. TO-220 20x14x0.635
02. TO-220 20x14x1.0
03. TO-220 12x18.5x1.0
04. TO-247 22x17x0.635
05. TO-247 22x17x1.0
06. TO-264 28x22x0.635
07. TO-264 28x22x1.0
08. TO-3P 25x20x0.635
09. TO-3P 25x20x1.0

產品物性 Properties

Properties	XL-25W	XL-25D	Unit	Test Method
導熱係數 Thermal Conductivity	25	190~210	W/mK	-
顏色 Color	白 White	暗灰 Dark Gray	-	目視 Visual
耐電壓 Dielectric Breakdown Voltage	15	18.45	KV/mm	ASTM D149
體積密度 Bulk Density	≧ 3.8	3.32	g/cm^3	CNS 619
體積電阻 Volume Resistance	10^{12}	1.4×10^{13}	Ohm-cm	-
彎曲強度 Flexural Strength	4078.8	3416	kgf/cm^2	CNS 12701
熱膨脹係數 Linear Temperature Expansion Coefficient	6.6~8	2.805	10^{-6}	RT~300° C
主要成分 Main Composition	Al_2O_3	AlN	-	-

熱導管
Heat Pipe

產品特性 Features

- 熱流密度變換功能
  A conversion of the density of heat flow
- 快速均溫性
  Fast heat balancing
- 被動元件
  Passive components
- 重量輕
  Light weighted

產品應用端 Applications

小至一般電子產品，大至航太產業皆適用
Can be applied to small general purpose electronic products to large scale aerospace industry products

電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

產品物性 Properties

Recommended Specifications

- 長度 : 100~350mm
- 打扁厚度 : 直徑的一半 e.x. Ø6 打扁 3mm 以上
- 折彎 R 角 : 大於 3 倍導管直徑 e.x. Ø6 折彎半徑大於 18mm
- 彎曲角度 : 大於 120 度

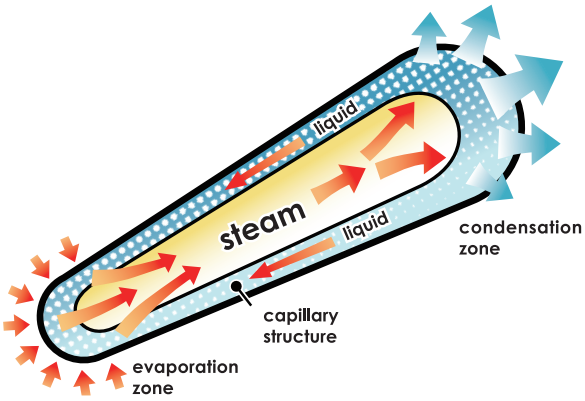
- Length: 100~350mm
- Flattening thickness: half of the diameter
  e.x. Ø6 flattened more than 3mm
- Bending angle R: more than 3 times of the diameter of the heat pipe
  e.x. Ø6 bending radius is greater than 18mm
- Bending angle : greater than 120 degrees

Diameter(mm)	Thickness(mm)	Width(mm)
Ø4	2	5.65
	2.5	5.55
	3	5.45
Ø5	2	6.91
	2.5	6.59
	3	6.32
	3.5	6.01
	4	5.68
Ø6	2	8.50
	2.5	8.18
	3	7.95
	3.5	7.65
	4	7.39
Ø8	2	11.65
	2.5	11.39
	3	11.15
	3.5	10.83
	4	10.60
	4.5	10.27
	5	10.01
	6	9.36

- Thickness Tolerance:+0.05/-0.10 mm
- Width Tolerance:+0.15/-0.20 mm

▶ Different industries will require different specifications, please contact us direcly for the most suitable specifications.

散熱機制 Mechanism



均溫板
Vapor Chamber

產品特性 Features

- 二維面傳導
  Horizontally conduction
- 被動元件
  Passive components
- 高穩定性
  High stability
- 較熱管高十倍性能
  Efficiency higher than heat pipe 10 times

產品應用端 Applications

極適用於高效能產品 Best for high power applications

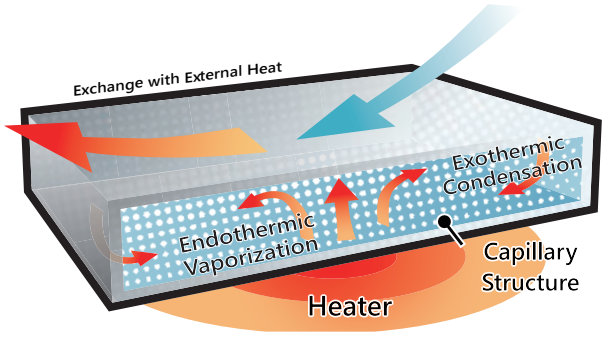
電子元件 Electronic components - Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board,Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR ll Module, etc.

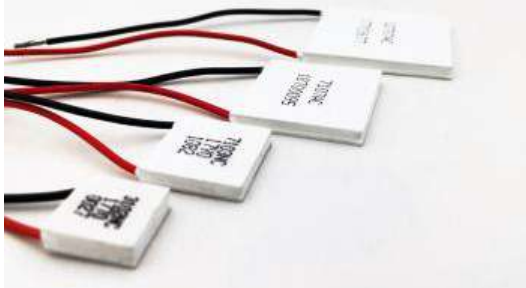
產品物性 Properties

Properties	VC001	VC002	VC003	Unit
尺寸 Size	56×56	106×70	106×70	mm
厚度 Thickness	3.0	3.0	3.0	mm
表面加工 Surface finishing	抗氧化 anti-oxidation			-
外加元件 Extra components	-	-	銅鰭片 Copper heat sink	-

▶ Different industries will require different specifications, please contact us direcly for the most suitable specifications.

散熱機制 Mechanism





致冷晶片
Thermoelectric Cooling Chip

產品特性 Features

- 體積小、輕量化
  Small bulk, light weight
- 無動件、低噪音
  Vibration-free, noise-free
- 精確控溫
  Precise temperature control
- 可靠度高
  High reliability

產品應用端 Applications

適用於極端環境 High strength for rugged environment

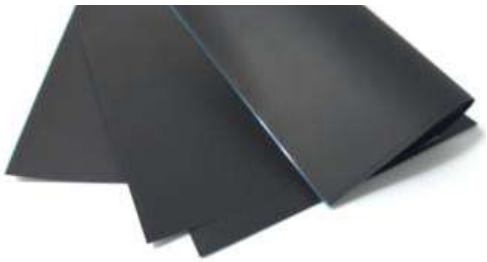
廣泛用於冰箱、飲水機、醫療 / 軍用儀器和實驗科學儀器等，需要溫度反覆變化的熱循環 (Thermal Cycle) 應用情境。此外，致冷晶片也已大量導入於半導體晶圓的製程溫度控制上。

It's widely used in medical equipment, freezer, drinking fountains, military petroleum instruments as these applications need thermal cycling control. Besides, it's also widely being applied to control the temperature during semiconductor IC manufacturing process.

產品物性 Properties

Size(mm)	Height(mm)	Imax(A)	Vmax(V)	Watt(W)	最大致冷量 @27° C Qmax(W)	最大致冷量 @50° C Qmax(W)	R(Ohm)
15×15	3.1	6.0	3.8	22.8	13	14.3	0.45±10%
	3.4	8.5	2.1	17.9	10.3	11.3	0.20±10%
	3.6	3.9	3.8	14.8	8.6	9.5	0.85±10%
	3.8	3.0	3.8	11.4	7.3	8	1.00±10%
	3.9	6.0	2.1	12.6	7.4	8.2	0.30±10%
	4.7	2.0	3.8	7.6	4.4	5	1.65±10%
20×20	3.1	6.0	8.8	52.8	29.7	32.7	1.05±10%
	3.4	8.5	3.8	32.3	18.8	20.8	0.35±10%
	3.6	3.9	8.8	34.3	18.7	20.9	1.95±10%
	3.8	3.0	8.8	26.4	16.6	18	2.20±10%
	3.9	6.0	3.8	22.8	13.6	14.9	0.55±10%
	4.7	2.0	8.8	17.6	10.2	11.2	3.70±10%
30×30	3.15	6.0	15.7	94.2	53.1	59.1	1.90±10%
	3.45	8.5	8.8	74.8	43.1	48	0.85±10%
	3.65	3.9	15.7	61.2	35.2	39	3.50±10%
	3.85	3.0	15.7	47.1	29.8	32.5	4.00±10%
	3.95	6.0	8.8	52.8	31.1	34.2	1.25±10%
	3.95	6.0	11.8	70.8	48	52.8	1.65±10%
	4.75	2.0	15.7	31.4	18.2	19.5	6.70±10%
40×40	3.45	8.5	15.7	133.5	77.1	85	1.50±10%
	3.95	6.0	15.7	94.2	55.6	61	2.20±10%

▶ The above are our standard sizes. For other special sizes, please contact our product consultants.



TG-FAM 電磁波吸收材料
Flexible Absorbent Material

RoHS Compliant

產品特性 Features

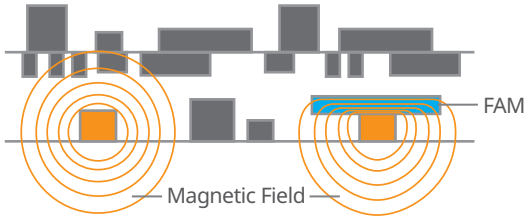
- 有效抑制電磁波干擾
  Effective EMI suppression in a wide frequency range
- 超薄且容易彎曲，方便至於不同位置
  Ultra thin and extremely flexible,
  can be freely arranged in space
- 可配合 UL 等級的不導電雙面膠使用
  Non-conductive adhesive backing (UL) available
- 有效預防共振及抑制耦合現象
  Effective in preventing resonance and suppressing coupling
- 高表面阻抗值
  High surface resistance
- 使用方便快速
  Easy and fast to process
- 方便裁切各種尺寸
  Can be cut any shape easily

產品應用端 Applications

電子元件 - 筆記型電腦、個人電腦、工作站、衛星低雜訊降頻器、行動通訊設備、行動電話基地台、基地台、電腦週邊設備、無線設備、行動電話、高速時脈、無線射頻辨識、近場通訊、無線充電器 ...
除 EMI 的應用外，FAM 可處理 RFID 標籤 / 讀寫機貼在金屬上時讀取不良的問題，最多可恢復原 80% 讀取距離，適用於 LF(125KHz) 及 HF(13.56MHz) 頻段，可省去 RFID 和金屬間的距離。

Electronic components - Notebooks, PCs, workstations, LNBs for satellite systems, Mobile communications equipment, Base Stations for mobile phones , PHS, Peripheral devices for computers, Wireless equipment, Mobile Phones, High speed clocks, RFID, NFC, Wireless Charger, tec.
Besides the application of EMI, FAM can be a solution for RFID on metal also. It suitable for LF(125KHz) and HF(13.56MHz) bands. It can deal with the malfunction problems when RFID Reader/Writer or RFID tag attached on metal (recover maximum 80% efficiency of the original distance). By this way can save more space from RFID to metal.

Magmetic Shielding

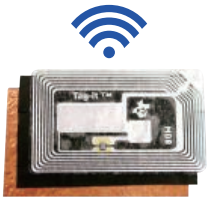


FAM can change the magnetic flux path to avoid the magnetic flux affect others components.

Application for RFID NFC on metal

RFID tag only
(100% original distance)

RFID tag + metal
(5% max original distance)

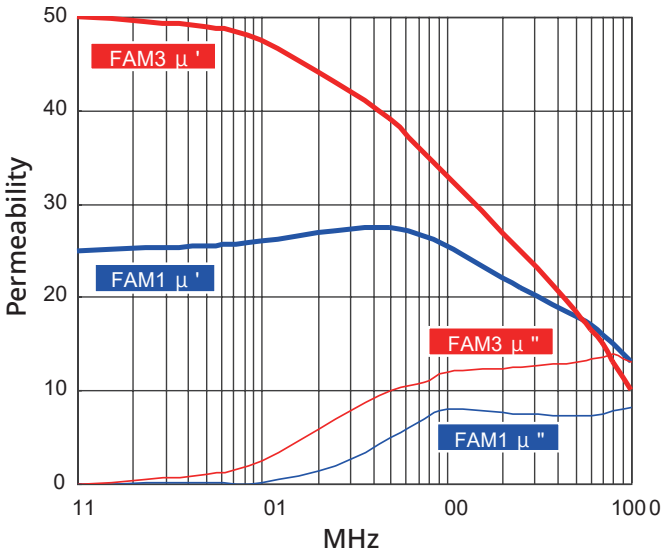


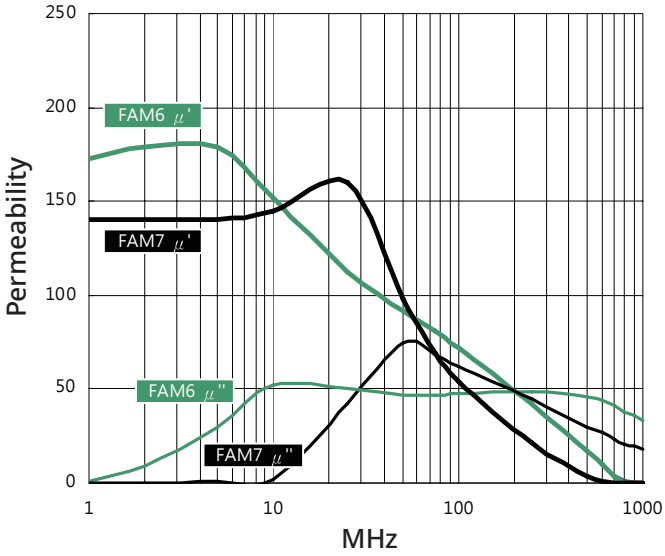
RFID tag + FAM + metal
(80% max original distance)

產品物性 Properties

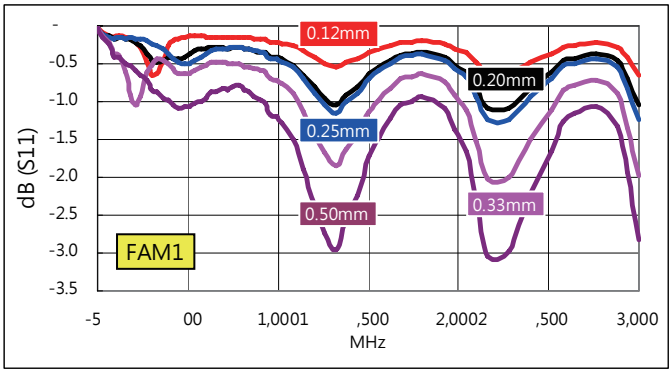
Physical Properties	TG-FAM1	TG-FAM3	TG-FAM6	TG-FAM7	Unit
適用頻率 Frequency	0.001~18.0	0.001~18.0	0.001~9.0	0.001~3.0	GHz
厚度 Thickness	0.12~2.50	0.25/0.50/0.75	0.05/0.1/0.2/0.3/0.5	0.08/0.12/0.22	mm
最大尺寸 Maximum Size	400×400		210×297 (A4 size)	130×130	mm
材料 Material	磁性粉 + 橡膠 Magnetic Particles+Rubber			燒結鐵心 Sintering iron-core	-
導磁率 Magnetic Inductivity (μ'@1MHz)	25	50	170	140	-
鹵素 Halogen	含鹵 Halogen contained		無鹵 Halogen free	無鹵 Halogen free	-
工作溫度 Working Temperature	-40~+85		-40~+155	-30~+120	° C
密度 Density	3.6	4.8	4.4	3.8	g/cm^3
表面阻抗 Surface Resistance	10^6	10^6	10^5	10^9	Ohm
結構 Structure	FAM 2-sided adhesive tape Release paper Allow non/one/two sides adhesive			PET Tape FAM 2-sided adhesive tape Release paper Allow one side PET / one side adhesive tape or two sides adhesive tape	-

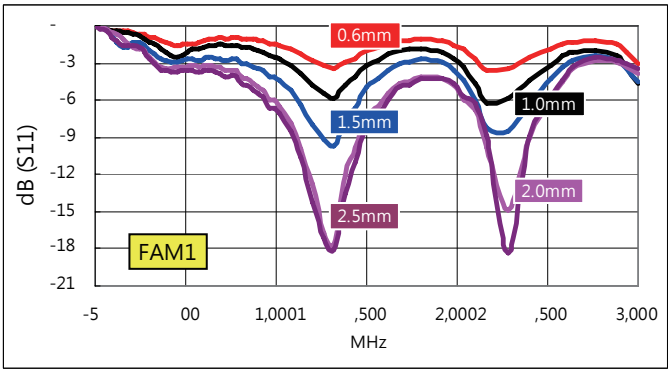
導磁率 (μ = μ' - j μ")

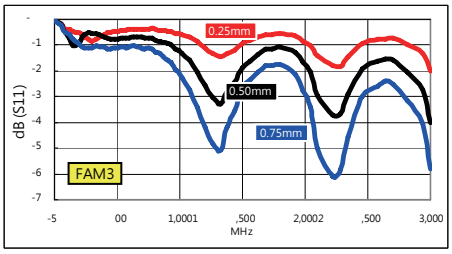


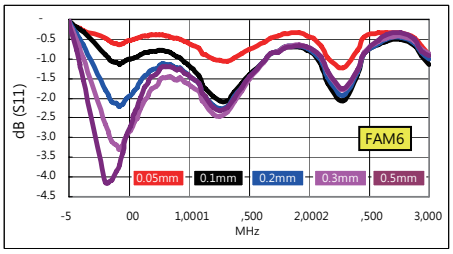


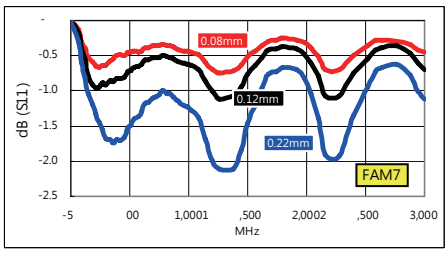
反射損失 (1MHz~3GHz)

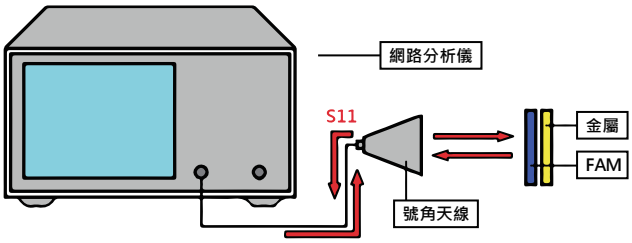




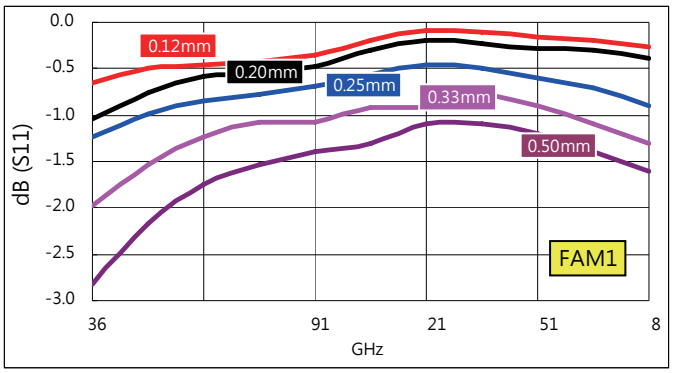


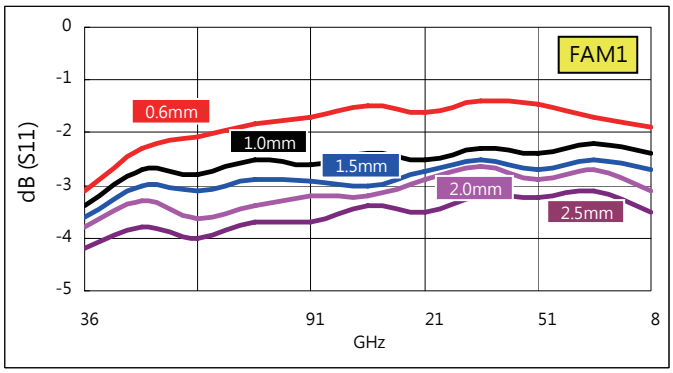


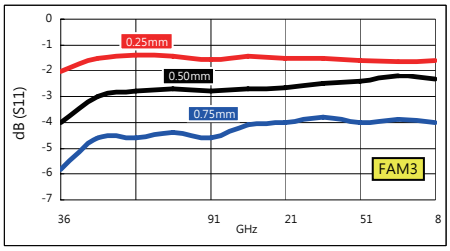


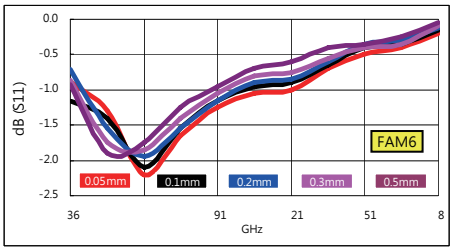


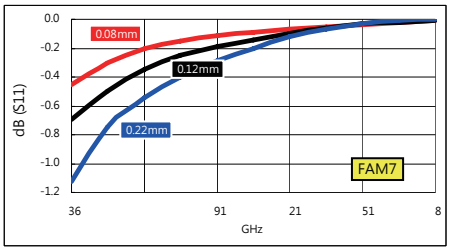
反射損失 (3MHz~18GHz)











其他輔助材料 Relative Material

項目 Item	類別 Type
工業用功能性膠帶 Adhesive tape	單 / 雙面膠帶、導電膠帶、遮蔽膠帶… (NOMEX、Kapton、3M、TESA、NITTO、DIC、TERAOKA、SONY、Hi-Bon、SEKISUI…)
發泡緩衝材 Foam	一般泡棉 /UL 泡棉 / 導電泡棉…
PET 離型 / 保護膜 PET Mylar film	黑 / 白 / 透明 Mylar、靜電膜…
鋁箔 Aluminum、銅箔 Copper、纖維板 (FR4) Fibreboard、鐵氟龍 TEFLON、尼龍 Nylon…	

▶詳細產品資訊請直接聯繫產品顧問。
For detailed product information, please contact the product consultant directly.

不同材料的導熱係數 Thermal Conductivities of Some Materials at Room Temperature

材質 Material	導熱係數 Thermal Conductivity
鑽石 Diamond	2300
銀 Silver	429
銅 Copper	401
金 Gold	317
鋁 Aluminum	237
鐵 Iron	80.2
水銀 / 汞 Mercury	8.54
玻璃 Glass	1.4
磚 Brick	0.72

材質 Material	導熱係數 Thermal Conductivity
水 Water	0.613
人類皮膚 Skin	0.37
木頭 Wood	0.17
氦 Helium (g)	0.152
軟質橡膠 Soft Rubber	0.13
玻璃纖維 Glass Fiber	0.043
空氣 Air (g)	0.026
氨基鉀酸酯 Urethane, rigid foam	0.026

TG Series Ultra Soft Thermal Pad

Properties	TG2030	TG4040	TG4040F	TG4040LC	TG6050	TGX	Unit	Test Method
Thermal Conductivity	2.1	4.2	3.7	3.7	6.3	12.6	W/mK	ASTM D5470
Thickness	0.5~5.0					0.5~2.0	mm	ASTM D374
Color	White	Blue	Blue	Blue	Red	Gray	-	Visual
Flame Rating	V-0						-	UL 94
Dielectric Breakdown Voltage	16.3	15.3	15.3	15.3	13.3	12.2	KV/mm	ASTM D149
Weight Loss	<1						%	ASTM E595
Density	2.4	2.8	2.8	2.6	3.2	3.4	g/cm^3	ASTM D792
Working Temperature	-45~+200						°C	-
Volume Resistance	$>10^{10}$						Ohm-m	ASTM D257
Elongation	300	100	100	100	50	-	%	ASTM D412
Tensile Strength	1	1	1	1	0.5	-	kgf/cm^2	ASTM D412
Standard Shape	Sheet ones						-	-
Hardness	25	35	30	30	50	55	Shore 00	ASTM D2240

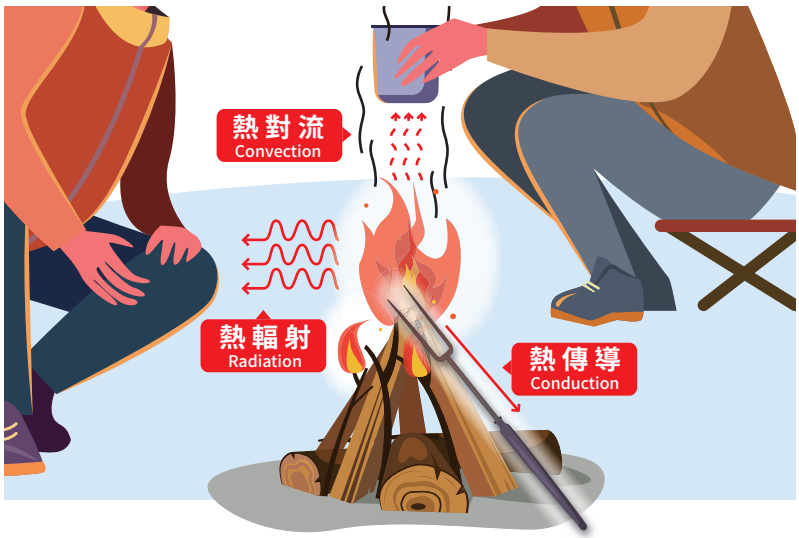
L37 Series Ultra Soft Thermal Pad

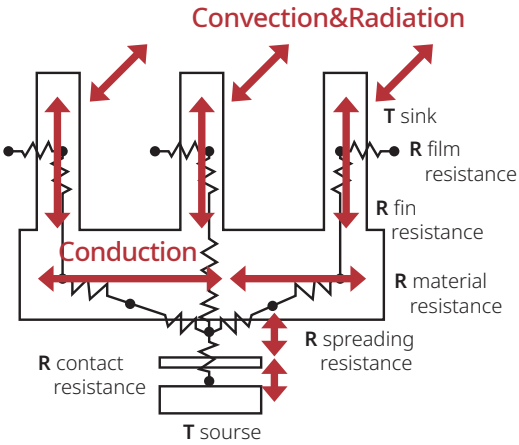
Properties	L37-3	L37-3F	L37-3S	L37-3L	L37-5	L37-5S	Unit	Test Method
Thermal Conductivity	1.8	1.5	2	1.6	1.7	1.9	W/mK	ASTM D5470
Thickness	0.3~20	0.25/0.3/0.45	0.3~20	0.5~10	0.3~20	0.5~5.0	mm	ASTM D374
Color	Yellow	Yellow	Yellow	Yellow	Gray	Gray	-	Visual
Flame Rating	V-0						-	UL 94
Dielectric Breakdown Voltage	10.2	3.1/4.1/5.1	13.3	15.3	10.2	16.3	KV/mm	ASTM D149
Weight Loss	<1	<1	<1	<0.2	<1	<1	%	ASTM E595
Density	2.17	2	2.21	2.4	2.38	2.4	g/cm^3	ASTM D792
Working Temperature	-40~+200	-40~+200	-40~+200	-45~+200	-40~+200	-45~+200	°C	-
Volume Resistance	$>10^{11}$	$>10^{11}$	$>10^{10}$	$>10^{11}$	$>10^{12}$	$>10^{10}$	Ohm-m	ASTM D257
Elongation	-	5	350	20	300	300	%	ASTM D412
Tensile Strength	66.4	150	8	-	12	1	kgf/cm^2	ASTM D412
Standard Shape	Sheet ones						-	-
Hardness	Shore 00 45	Shore A 75	Shore 00 45	Shore A 12.5	Shore A 20	Shore 00 20	Shore 00/A	ASTM D2240

H48 Series Ultra Soft Thermal Pad

Properties	H48-2	H48-2K	H48-6	H48-6G	H48-6S	Unit	Test Method
Thermal Conductivity	2.3	2.3	3.4	6.3	1.9	W/mK	ASTM D5470
Thickness	0.3~20	0.1/0.2/0.3	0.3~20	0.3~5.0	0.23	mm	ASTM D374
Color	Dark Red	Dark Red	Dark Gray	Gray	Dark Red	-	Visual
Flame Rating	V-0					-	UL 94
Dielectric Breakdown Voltage	5.1	1.3/2.6/3.6	2	13.3	7	KV/mm	ASTM D149
Weight Loss	<1	<0.5	<1	<1	<1	%	ASTM E595
Density	2.43	2.4	2.42	3.09	1.95	g/cm^3	ASTM D792
Working Temperature	-40~+200	-45~+200	-40~+200			°C	-
Volume Resistance	$>10^{12}$	$>10^{12}$	$>10^{11}$	$>10^{11}$	$>10^{12}$	Ohm-m	ASTM D257
Elongation	282	50	130	60	0.2	%	ASTM D412
Tensile Strength	7	-	8	6	66.5	kgf/cm^2	ASTM D412
Standard Shape	Sheet ones					-	-
Hardness	20	70	25	30	75	Shore A	ASTM D2240

熱傳遞原理 Heat Theorem



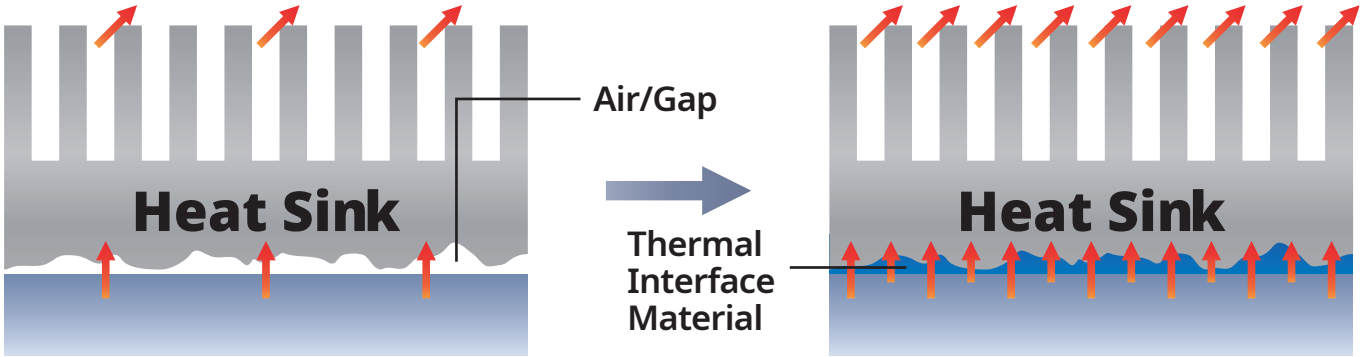


熱傳導
熱經由物質固體的接觸，由高溫往低溫傳熱的方式

熱對流
流體受熱上升、遇冷下降是對流的原理

熱輻射
不需任何物質當媒介，而直接由熱源傳播出去的方式為輻射

導熱介面材料對熱傳導的影響 Influence of Thermal Interface Material on Heat Conduction



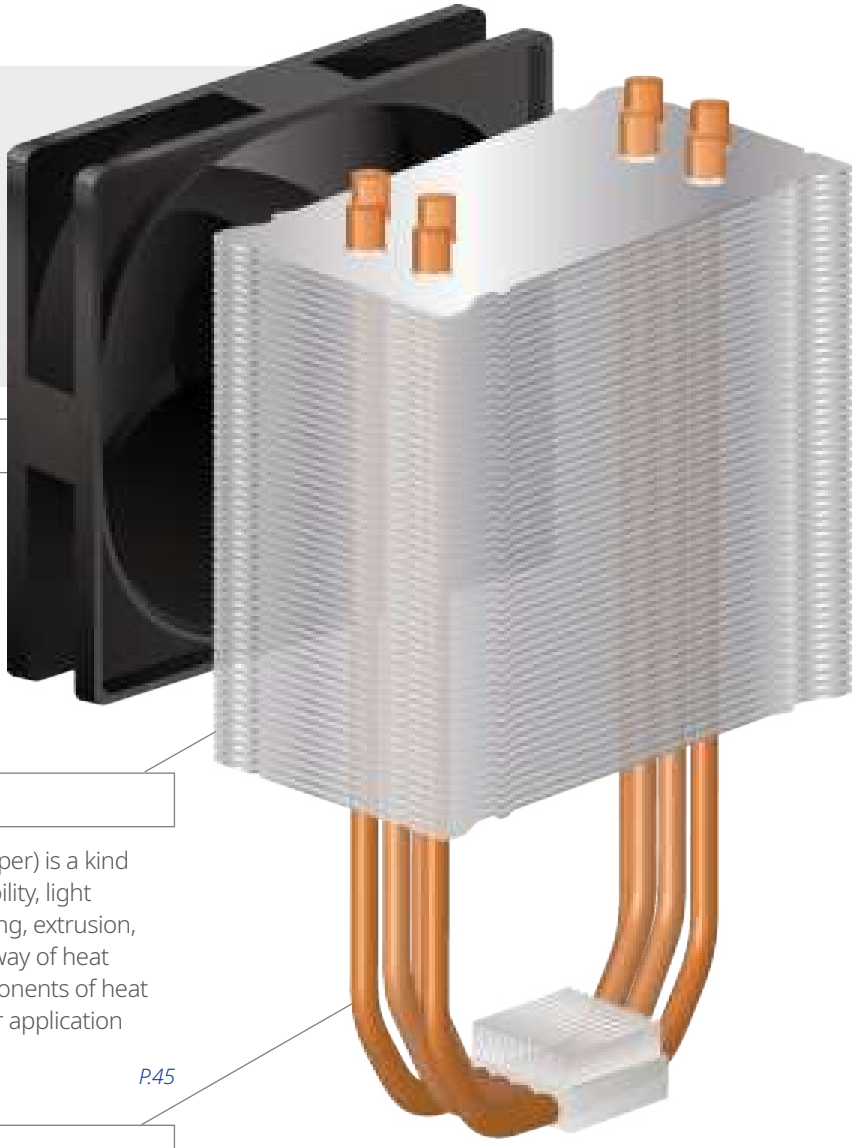
沒有良好的導熱介質時，兩個連接面熱流通過的路徑方式。
Heat flows pass through slowly, when it is without TIM.

具有良好的導熱介質時，兩個連接面熱流通過的路徑方式。
Heat flows pass quickly, when it is with TIM.

未使用導熱介質時，兩個連接面的熱流傳導較慢，導熱效能相對較差。
若使用導熱介質連接兩個連接面時，熱流傳導速度較快也較平均，散熱效能相對提升。
Without thermal interface materials, the heat flows pass through joint faces slowly, and the thermal performance is bad.
Using thermal interface materials to link two joint faces, the heat flows pass through easily, and the thermal performance is good.

散熱模組 Thermal Module

APPLICATION
Electric Vehicles, 5G, Autopilot System, Mobile Phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED, Mother Board, Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, etc.



Fan

By creating the air flow, cooling fan provides cool air to lower the temperature of the industrial equipment, also, helps the industrial electric or electronic projects to keep the high efficiency and its performance will not be lowered due to the heat generated.

Heat Sink

Heat sink (mainly made of aluminum or copper) is a kind of metal contain high thermal dissipation ability, light weight and easy to have machining. Stamping, extrusion, die casting and forging are the production way of heat sink. These products and be the main components of heat dissipation for various applications and their application shell.

P.45

Heat Pipe

It is a special material with fast heat-balancing characteristics. It utilizes the vapor phase and liquid two-phase change of the material, and the convection principle to achieve multiple times of heat transfer than the metal heat conduction.

P.50

Vapor Chamber

Vapor chamber's function and working theory is same as heat pipe. In order to achieve a cycle working system, it works through the evaporation and condensation of the working fluid in the platy cavity. Vapor chamber is a product that can conduct a small part of heat source to a large area evenly and rapidly.

P.51

Thermal Interface Material

By using a special process, we use the silicone as the base material, adding thermal conductive powder and flame retardant together to make the mixture to become thermal interface material. This is effective in lower the thermal resistance between the heat source and the heat sink.

P.12

T·Global Technology

選擇合適的導熱介面材料 Product Guide

導熱係數 Thermal Conductivity

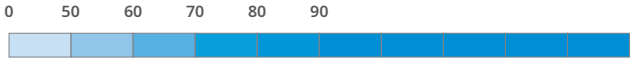
	型號 Type	導熱係數 Thermal Conductivity
導熱矽膠片 Thermal Pad	GT10D	1.5 W/mK
	GT15	1.6 W/mK
	TG-A20KF	1.8 W/mK
	TG-A20KX	2.0 W/mK
	GT20	2.1 W/mK
	TG-A2200	2.2 W/mK
	TG-A3500F	3.0 W/mK
	GT30	3.2 W/mK
	TG-A38KF	3.3 W/mK
	TG-A3500	3.5 W/mK
	TG-A38KX	3.8 W/mK
	TG-A4500F	4.0 W/mK
	TG-A4500	4.5 W/mK
	TG-A6200F	5.0 W/mK
	TG-A6200	6.2 W/mK
	TG-A1250	12.5 W/mK
	TG-A1450	14.5 W/mK
	TG-A1660	16.6 W/mK
	TG-A1780	17.8 W/mK
導熱膠帶 Thermal Tape	TG-T1000	1.00 W/mK
	Li98T	1.30 W/mK
	Li2000	1.30 W/mK
	Li98P	1.80 W/mK
	Li98C	1.90 W/mK
	Li98CN	2.10 W/mK
	Li2000A	2.10 W/mK
導熱膏 Thermal Grease	S6060B	1.9 W/mK
	S6060C	5.3 W/mK
	TG-S808	8.0 W/mK
導熱膠泥 Thermal Putty	TG4040 Putty	3.2 W/mK
	TG6060 Putty	6.3 W/mK
封裝膠 Potting Compound	S720AB	0.8 W/mK
	S730	2.1 W/mK
	A96AB	2.6 W/mK
非矽型導熱材料 Non-silicone Thermal materials	PC93	2.1 W/mK
	TG-NSP25	2.6 W/mK
	PC94	4.2 W/mK
	TG-N909	9.0 W/mK
其他 Other Materials	Ti900	1.9 W/mK
	CP Series	2.0 W/mK
	TG-V833	3.3 W/mK
	TG-V838	3.8 W/mK
	PH 3	金屬層 : 400 W/mK, 塗布 : 1.2 W/mK
	T62	xy : 400 W/mK, z : 5~20 W/mK
	T68	xy : 1500 W/mK, z : 5 W/mK
	TG-P100 Series	xy : 1500-1800 W/mK, z : 12 W/mK

硬度 Hardness

	型號 Type	硬度 Hardness
硬度 Shore00 0-55	TG-A2200	15
	TG-A3500(F)	30
	TG-A4500(F)	50
	TG-A6200(F)	50
	TG-A1250	50
	PC94	50
	PC93	55
	TG-A20KX(KF)	55
硬度 ShoreA 15-20	S730	17
硬度 Shore00 60-65	TG-A38KX(KF)	60
	TG-A1450	60
	TG-A1660	65
	TG-A1780	65
硬度 ShoreA 25-90	S720AB	34~43
	CP Series	65
	A96AB	68
	GT Series	70/75
	GT10D	75

硬度對照表 Hardness Table

00-type



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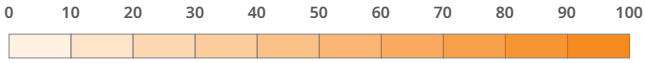
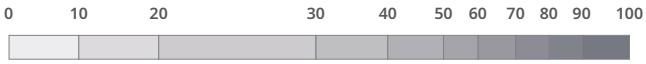
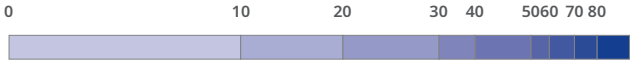


B-type

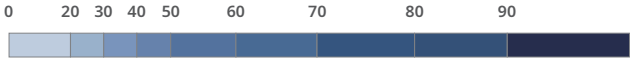


C-type



D-type

E-type



台灣總部 (Taiwan)

A 桃園市桃園區大仁路50巷33號　No.33, Ln.50, Daren Rd., Taoyuan Dist., Taoyuan City 330058, Taiwan
T +886-3-361-8899　**E** service@tglobal.com.tw　**W** www.tglobalcorp.com

昆山中國 (China)
T +86-512-5792-5936
E kunshan@tglobal.com.tw

東莞中國 (China)
T +86-769-8382-9728
E dg3@tglobal.com.tw

洛杉磯 美國 (USA)
T +1-626-888-3472
E usa@tglobal.com.tw

路德維斯 英國 (UK)
T +44-1455-553-510

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