

t-global 高柏 TECHNOLOGY 科技

快速送樣服務 | 高品質 | 客製化服務 | 高導熱效能

17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，提供客戶靈活彈性與即時的服務

全方位解熱方案 Total Thermal Solution



熱模擬

Thermal Simulation

- 免費熱模擬
Free thermal simulation
- 設計優化
Improvement plan for product design
- 方案諮詢
Thermal solution consultation
- 客製化原型
Customized prototype

⚙️ | flotherm xt



導熱介面材料

Thermal Interface Materials

- 導熱矽膠片
Thermal Pad
- 導熱膠帶
Thermal Tape
- 導熱膏
Thermal Grease
- 導熱膠泥
Thermal Putty
- 導熱封膠
Potting Compound
- 石墨片
Graphite
- 複合材
Thermal Composite Material
- 相變化材
Phase Change Material



散熱片

Heat Sink



致冷晶片

TEC



均溫板

Vapor Chamber



熱導管

Heat Pipe



風扇

Fan



電磁波吸收材

EMI

- ▶ No MOQ
- ▶ High quality
- ▶ Competitive pricing
- ▶ Rapid sample building
- ▶ Very short L/T
- ▶ High thermal conductivity
- ▶ Excellent reliability
- ▶ A track record of satisfied customers

目錄 CONTENTS

關於高柏 About T-Global

T-グローバルについて

公司介紹 Introductions

会社紹介

環保政策 Environments

環境への取り組み

研究開發 Research & Developments

研究開発

測試儀器 Test Equipments

試験装置

產品應用 Applications

応用範囲

系列產品 Products

製品一覧

導熱介面材料 Thermal Interface Materials

熱インターフェース材料

陶瓷散熱片(XL-25) Ceramic Heat spreader

セラミック式ヒートスプレッダー(XL-25)

簡易型散熱鰭片 Heat Sink

ヒートシンク

參考資料 Reference Materials

参考資料

散熱方式 Heat transferring

放熱方式

散熱原理 Theorem

放熱の原理

研究開發 Research & Development

研究開発



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。

T-Global not only develops and researches the products by ourselves, but also cooperates with national research institution and universities in Taiwan. Thus T-Global can develop new products quickly. There is no best in T-Global. We keep on pursuing the better. T-Global goes forward the target.

今のプロセスの向上し、よく改善するはもちろん、新製品の研究開発を目指して続けています。弊社は数年以来の研究開発の経験を重ねるのみならず、台湾における有名な技術研究センターや教育研究所と協力して、優れた新製品を効率の良い開発していきます。

T68	超高導熱石墨片	Artificial Graphite Sheet	P02
T62	天然石墨	Natural Graphite Sheet	P03
TG-P100系列	石墨烯均溫片	Graphene	P04
TG-V800系列	相變化材料	Phase Change Material	P05
TG-A系列	超軟導熱矽膠片	Thermal Conductive Pad	P06-P13
TG-A玻纖系列	超軟導熱矽膠片	Thermal Conductive Pad	P14
PC系列	非矽型導熱材料	Non-silicone Thermal Conductive Pad	P15-P16
TG-T1000	導熱膠帶	Thermal Tape	P17
Li系列	導熱膠帶	Thermal Tape	P18-P20
TG-NSP25	非矽型導熱膠泥	Non-silicone Thermal Putty	P21
TG4040PUTTY	導熱膠泥	Thermal Putty	P22
TG6060PUTTY	導熱膠泥	Thermal Putty	P22
A96AB	導熱封膠	Epoxy Potting Compound	P23
S730/S720AB	導熱封膠	Silicone Potting Compound	P24-P25
TG-S系列	導熱膏	Thermal Grease	P26-P27
TG-N909	導熱膏	Thermal Grease	P28
S606系列	導熱膏	Thermal Grease	P29
GT系列	導熱矽膠	Thermal Conductive Pad	P30-31
Ti900	導熱複合材料	Thermal Conductive Insulators	P32
PH3	導熱複合材料	Heat Spreader	P33
CP series	導熱絕緣帽套	Thermal Cap	P34
FAM	軟性電波吸收材	Flexible Absorbent Material	P35-P37
Heat Pipe	熱導管	Heat Pipe	P38
Vapor Chamber	均溫板	Vapor Chamber	P39
TEC	致冷晶片	TEC	P40
XL-25	陶瓷散熱片	Ceramic Heat Spreader	P41
XL-25 系列	陶瓷導熱片	Ceramic Heat Spreader	P42
TG/L37/H48	導熱矽膠片	Thermal Conductive Pad	P43
Heat Sink	散熱片	Heat Sink	P44-47

公司介紹 Introductions

会社紹介

高柏科技專注於導熱介面材料之研發及銷售，並秉持著快速服務客戶及彈性生產的理念，以滿足客戶對導熱介面材料的各種需求。高柏科技累積多年的研發成果及銷售經驗，使得高柏科技的產品已得到全球兩千多家客戶的肯定並持續指定使用中。

高柏科技已取得ISO9001,ISO14001及IECQ認證，產品符合RoHS、REACH及UL規範。在未來自許成為客戶們於熱工程領域中的優良合作夥伴，並不斷的精進現有的研發技術，以成為業界的佼佼者為目標。

T-Global Technology Co., Ltd. dedicates to develop, manufacture and markets our own thermal interface materials. We keep providing rapid sample building, flexible production and excellent products to our customers. We have lot of experience to serve our customers in thermal engineering field.

T-Global has gotten ISO9001, ISO14001, and IECQ Certification, and RoHS, REACH, and UL Certification.

T-Global expects to be a good partner and supplier in thermal interface materials industry

「T-グローバルテクノロジー株式会社」は主に熱対策に関する製品を研究、生産、販売を行っております。弊社は常にお客様から様々なご要望にお応えしながら、迅速なサービスを提供しており、お客様によって、違う熱対策の需要を満足させます。長年にわたり蓄積する研究成果や販売経験などが弊社に支えられ、今国内外数多くの会社から信頼されており、製品も使われています。

なお、弊社はもうISO9001,ISO14001及びIECQに認証されており、製品もRoHS、REACH、ULなどの国際認証を取得しています。今後放熱対策における分野では、お客様に対する有力なサポーターになれば、そして研究技術を積んで、世界中お客様から業界の中に価値がある企業になれる目標を目指し、努力していきます。

測試儀器

Test Equipments



常溫保持力試驗機



硬度測量計



推拉力試驗機



D5470 導熱熱阻分析儀



黏度計



有害物質分析儀



冷熱衝擊試驗機



膠帶高溫保持力試驗機



高溫真空試驗機

環保政策 Environment Policy

環境への取り組み

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。

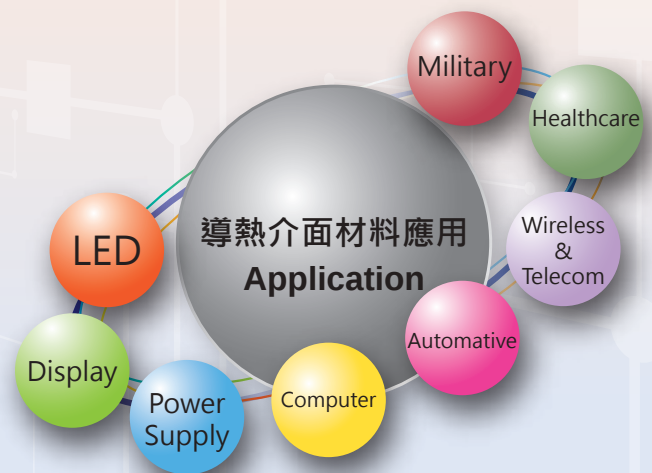
高柏科技在持續追求不斷成長之際，也以致力愛護大地的地球公民為自我期許，期許能為地球環保盡一份心力。

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.

「T-グローバルテクノロジー株式会社」は環境保護のため、製品と材料とも欧州連合が制定されたRoHS、REACHなどの標準に合わせることにしています。日常生活の中に、社員たちが生活にも事業活動にも、エネルギーを節約し、二酸化炭素の排出量をできるだけ減少することを呼びかけます。また社員及び関係者には一人一人が社会の中でも環境意識を高めるように努力していきます。

弊社は自己成長を努力しつつけるだけではなく、大切な地球環境保護も義務に向け、積極的に力込めて貢献を行っていき、地球の一員として地球環境を守る事を目指し、自分の責任として取り、一生懸命に努力していきます。



T68 人造石墨

Artificial Graphite Sheet



產品特性 Features

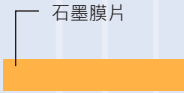
Ultra high thermal conductivity, electrical conductivity and EMI shielding effect 具有高效導熱性、導電性及EMI遮蔽效果
Flexible, and bendable 具可撓性、可彎曲
Ultra thin; Low mass; Environmental friendly 超薄; 重量輕; 無毒環保
Low thermal resistance 低熱阻

產品應用端 Applications

Mobile phone, Laptops, Set-top box, LED back light, PDP/LCD/OLED screens, Ultra bright LED, Digital camera, Digital video camera, NIC, Projector, Handheld device etc.

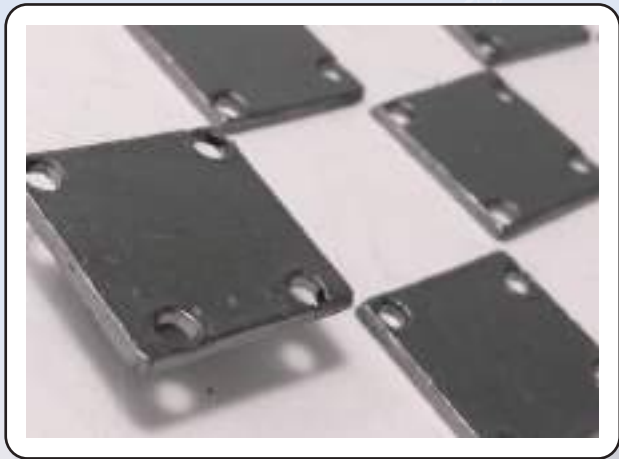
產品物性 Properties ◆ REACH Compliant 符合REACH規範 ◆ RoHS Compliant 符合RoHS規範 ◆ UL Compliant 符合UL規範

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

類型	T68	T68A	T68AP	T68APF
加工方式	不加工	底部貼合絕緣 雙面膠帶10um/30um	1. 上層貼合標準PET 膠帶10um/30um 2. 底部貼合絕緣雙面 膠帶10um/30um	1. 上層貼合標準PET 膠帶10um/30um 2. 底部貼合絕緣雙面 膠帶10um/30um 3. 有封邊
結構				
特徵	■發揮石墨之熱導性、 柔軟性 ■低熱電阻 ■最高可在400°C ■導電性	■單面具有絕緣黏合性 ■標準品、黏力強 ■保證黏貼在箱體、 底盤上的強黏力 ■耐電壓1KV	■產品表面、黏合面均 具有絕緣性 ■耐電壓 ■PET膠帶1KV ■雙面膠帶1KV	■產品表面、黏合面 均具有絕緣性 ■耐電壓 ■PET膠帶1KV ■雙面膠帶1KV
耐熱溫度	400°C	100°C	80~100°C	80~100°C
總厚度	25um	35um/55um	45um/85um	45um/85um

T62 天然石墨

Natural Graphite Sheet



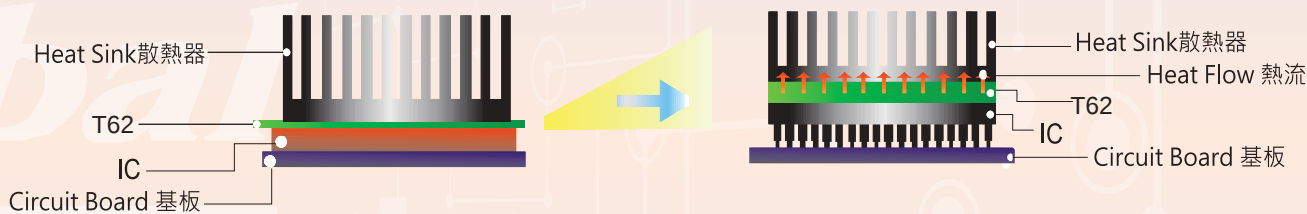
產品特性 Features

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

產品應用端 Applications

Mobile phone, Laptops, Set-top box, LED back light,
PDP/LCD/OLED screens, Ultra bright LED, Digital camera,
Digital video camera, NIC, Projector, Handheld device etc.

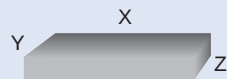
產品物性 Properties ◆ REACH Compliant 符合REACH規範 ◆ RoHS Compliant 符合RoHS規範



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

Need samples 樣品需求

Available to apply adhesive 可依需求背膠 Pre-cut for different shapes 可依需求沖型裁切
Other thickness is available, please contact sales specialist. 尚有其它厚度,請洽業務專員



T62 - 20 - 15 - 0.13 - 1A, 20
1 2 3 4

1. Choose the P/N
2. Fill into size: X, Y, Z
3. Apply the adhesive or not? 0=none, 1A= one side, 2A= two sides
4. Fill the quantity you need

TG-P10050/TG-P10090 石墨烯均溫片 Graphene



產品特性 Features

Ultra thin; Low mass 超薄; 重量輕

Available for unventilated design 適用於不通風環境

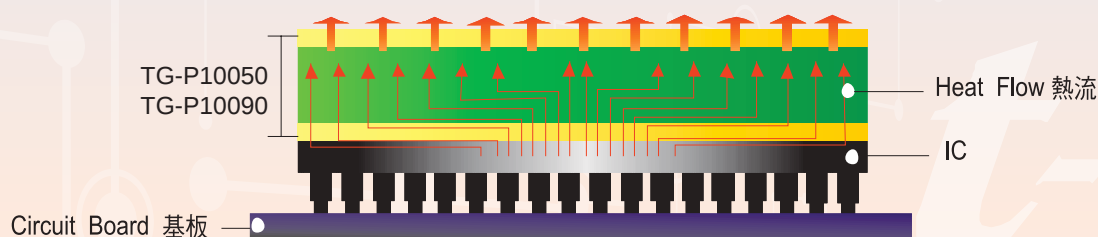
No dusting issue 無剝離及掉粉問題

產品應用端 Applications

Mobile phone, Laptops, Set-top box, LED back light, PDP/LCD/OLED screens, Ultra bright LED, Digital camera, Digital video camera, NIC, Projector, Handheld device etc.

產品物性 Properties

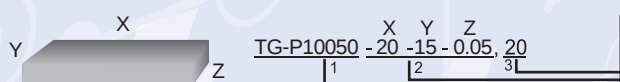
◆ RoHS Compliant 符合RoHS規範



Properties	TG-P10050	TG-P10090	Unit	Tolerance	Test Method
Thermal Conductivity (In-Plane/ XY axis) XY軸-熱傳導係數	1500~1800		W / mK		Comparative Test 對比測試
Thermal Conductivity(Through-Plane/ Z axis) Z軸-熱傳導係數	12		W / mK		ASTM D5470
Total thickness 材料總厚度	50	90	μm	-	Meter厚薄規
Copper Foil Thickness 銅箔厚度	35	75	μm	-	Meter厚薄規
Coating thickness 塗層厚度	15	15	μm	-	Meter厚薄規
Vertical Resistivity X軸-電阻	2.57		Ohm-Inch ²	-	QJ1523-1988
Parallel Resistivity Z軸-電阻	0.66		Ohm-Inch ²	-	QJ1523-1988
Cross-Cut Tape Test 百格測試	4B		-	-	ASTM D3359B
Pencil Hardness Test 鉛筆硬度測試	2H		-	-	ASTM D3363
Solvent Resistance (Alcohol) 耐溶劑測試(酒精)	Pass(5 times)		-	-	ASTM D5402
Rubber Abrasive Test橡皮耐磨測試	Pass(150 times)		-	-	ASTM D7835
High Temperature & Humidity Test高溫高濕測試	Pass(500hrs)		(85°C/85%RH)	-	IEC-60068-2-78
Thermal Shock Test 熱衝擊測試	Pass(500cycles)		(-20~80°C)	-	IEC-60068-2-14
Temperature Range of Utility 適用溫度範圍	-20~120		°C	-	ISO 16750-4

Need samples? 樣品需求?

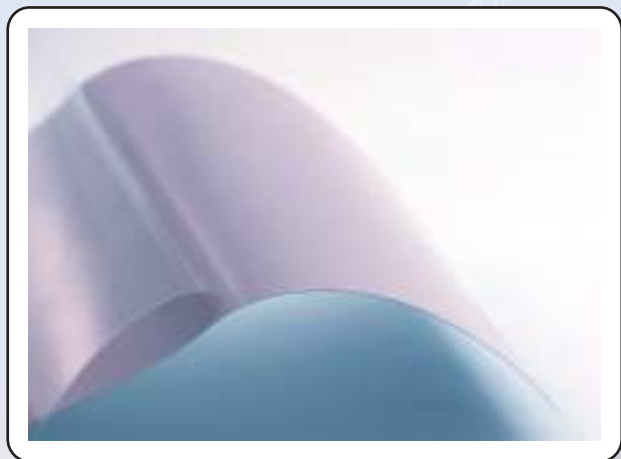
Pre-cut for different shapes 可依需求沖型裁切



1. Choose the P/N
2. Fill into size: X,Y,Z
3. Fill the quantity you need

TG-V833/TG-V838 相變化材料

Thermal Phase Change Materials



產品特性 Features

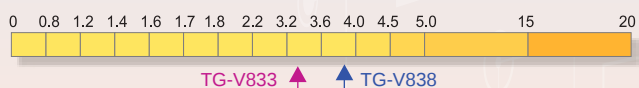
With the good flow ability over phase change temperature, surface irregularities can be well filled藉由材料熱溶後的良好流動性，完整填充表面不平整縫隙
Low thermal impedance 低熱阻

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED, Mother Board, Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

◆ REACH Compliant 符合REACH規範 ◆ RoHS Compliant 符合RoHS規範



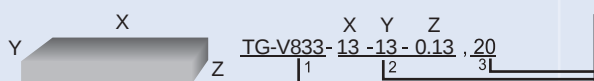
TG-V833 Thermal Conductivity 導熱係數:3.3 W/m.K
TG-V838 Thermal Conductivity 導熱係數:3.8 W/m.K

Testing sample thickness: 0.13mm

Properties	TG-V833	TG-V838	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	3.3	3.8	W / mK	±10%	ASTM D5470
Thickness厚度	0.13/0.2/0.3	0.13/0.2/0.3	mm	-	ASTM D374
	0.005/0.008/0.0118	0.005/0.008/0.0118	inch	-	ASTM D374
Color 顏色	Gray灰	Gray灰	-	-	Visual目視
Phase Transition Temperature軟化溫度	50	50	°C	-	-
Breakdown voltage(Vac)擊穿電壓	1	1	KV	-	ASTM D149
Density密度	3.4	2.5	g / cm ³	±0.3	ASTM D792
Working Temperature工作溫度	-40~125	-40~125	°C	-	-
Volume Resistance體積阻抗	3.0x10 ¹¹	3.0x10 ¹⁰	Ohm-m	-	ASTM D257
Thermal Impedance@50psi熱阻抗	0.0143	0.013	°C-cm ² /W	-	Modified ASTM D5470
Dielectric Constant介電常數	13.3	13.3	@1KHz	-	ASTM D412

Need samples? 樣品需求?

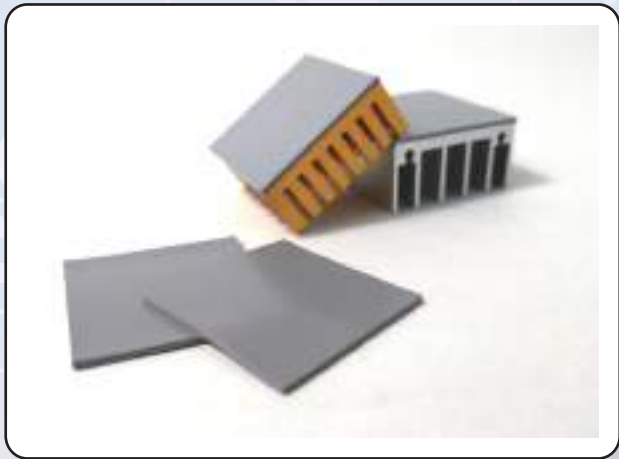
Pre-cut for different shapes 可依需求沖型裁切



1. Choose the P/N
2. Fill into size: X,Y,Z
3. Fill the quantity you need

TG-A2200 超軟導熱矽膠

Ultra Soft Thermal Pad



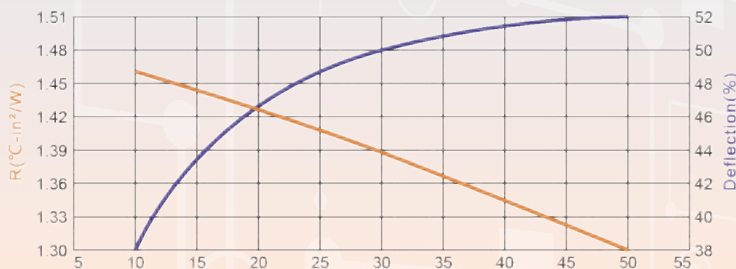
產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

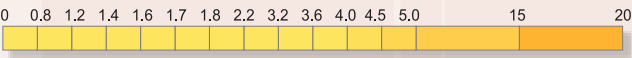


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.460	38
30	1.390	50
50	1.300	52

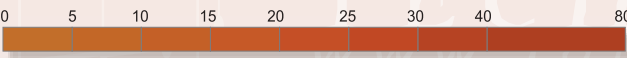
產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 2.2 W/mK



Hardness 軟硬度 : 15 (Shore 00)



Properties	TG-A2200	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	2.2	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
Color 顏色	Gray 灰	-	-	Visual目視
Flame Rating 耐燃等級	V-1	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	5	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	2.7	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-40~+180	°C	-	-
Volume Resistance 體積阻抗	3x10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	55	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	15	Shore 00	±5	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A3500 超軟導熱矽膠

Ultra Soft Thermal Pad



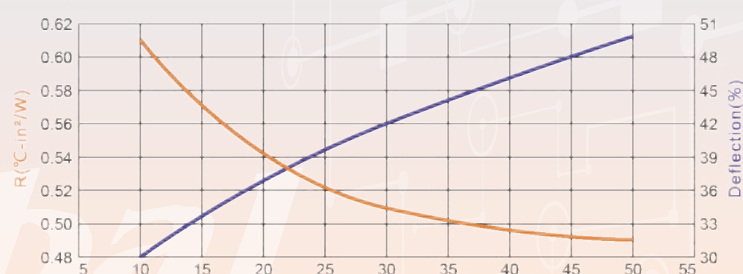
產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

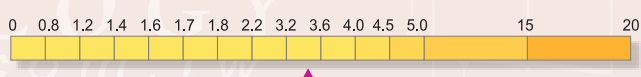
產品物性 Properties

● REACH Compliant 符合REACH規範

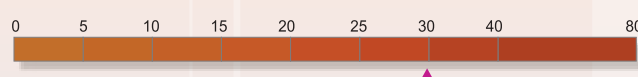
● RoHS Compliant 符合RoHS規範

● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 3.5 W/mK



Hardness 軟硬度 : 30 (Shore 00)



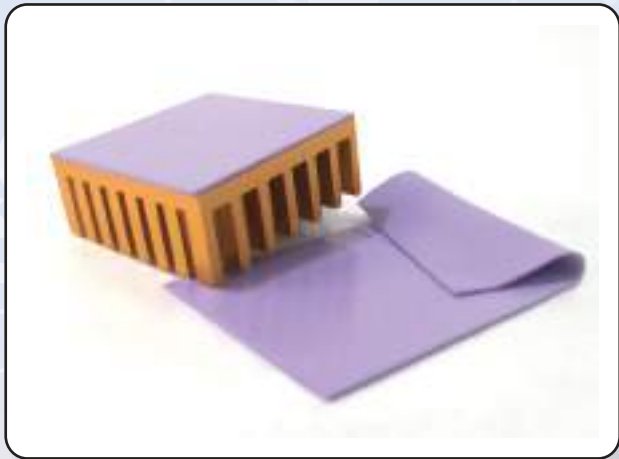
Properties	TG-A3500	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	3.5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
Color 顏色	Yellow 黃	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	6	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	2.3	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	8x10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	80	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	30	Shore 00	±15	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A4500 超軟導熱矽膠

Ultra Soft Thermal Pad



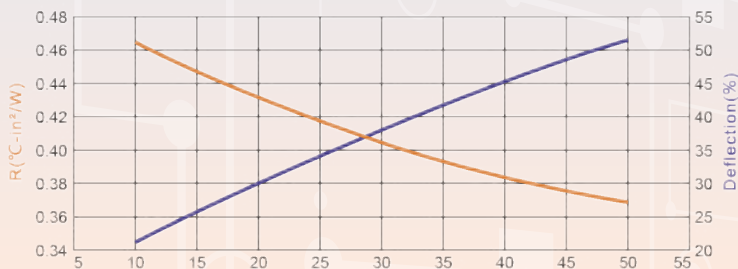
產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

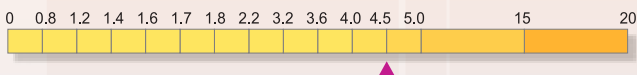


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.465	21
30	0.405	38
50	0.369	52

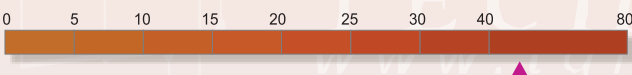
產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 4.5 W/mK



Hardness 軟硬度 : 50 (Shore 00)



Properties	TG-A4500	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	4.5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
Color 顏色	Purple 紫	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	6	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.1	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	1x10 ¹³	Ohm-m	-	ASTM D257
Elongation 延展率	50	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	50	Shore 00	±15	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A6200 超軟導熱矽膠

Ultra Soft Thermal Pad



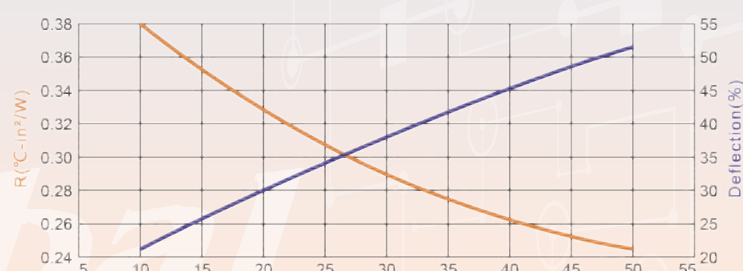
產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED, Mother Board, Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set applications etc.

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

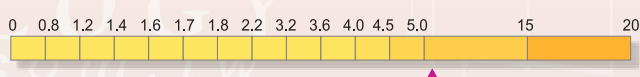


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.380	21
30	0.290	38
50	0.245	52

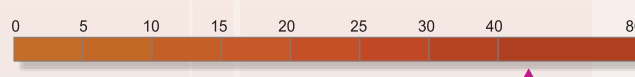
產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 6.2 W/mK



Hardness 軟硬度 : 50 (Shore 00)



Properties	TG-A6200	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	6.2	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
Color 顏色	Blue 藍	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	6	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.1	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	1x10 ¹³	Ohm-m	-	ASTM D257
Elongation 延展率	50	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	50	Shore 00	±15	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A1250 超軟導熱矽膠

Ultra Soft Thermal Pad



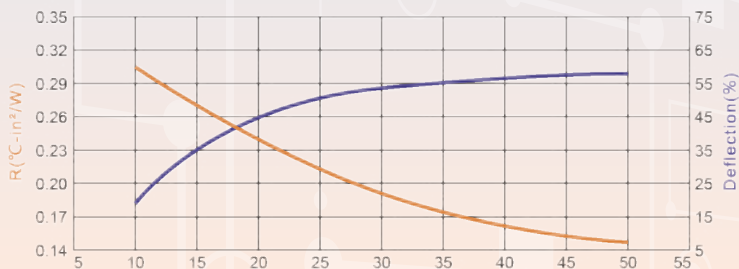
產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

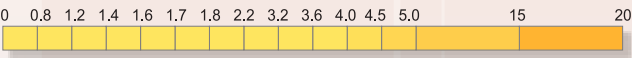
產品物性 Properties

● REACH Compliant 符合REACH規範

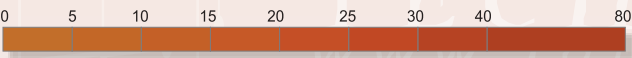
● RoHS Compliant 符合RoHS規範

● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 12.5 W/mK



Hardness 軟硬度 : 50 (Shore 00)



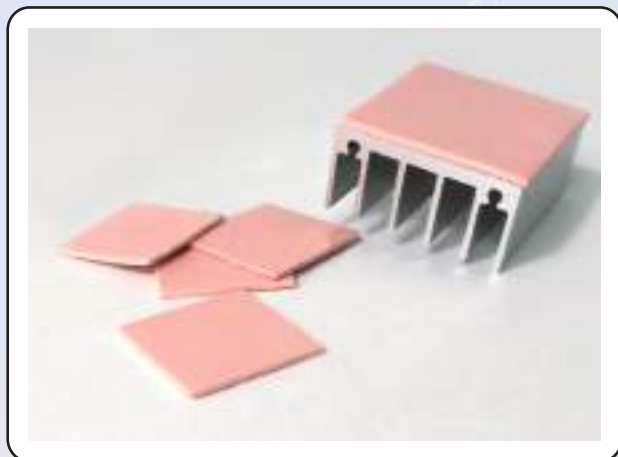
Properties	TG-A1250	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	12.5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~8.0	mm	-	ASTM D374
	0.0197~0.3149	inch	-	ASTM D374
Color 顏色	Green 綠	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	6.5	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.3	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	1x10 ¹³	Ohm-m	-	ASTM D257
Elongation 延展率	40	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	50	Shore 00	±8	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A1450 超軟導熱矽膠

Ultra Soft Thermal Pad



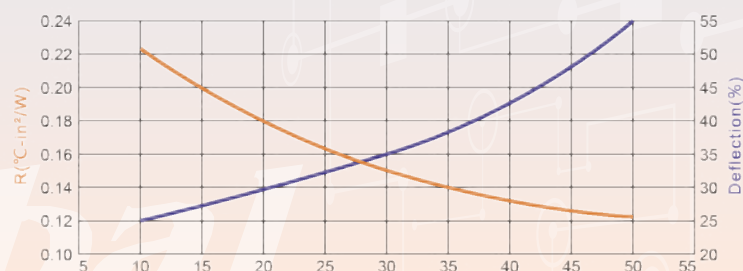
產品特性 Features

High thermal conductivity 高導熱特性
Low thermal resistance 低熱阻
Electrical insulation 絕緣性佳

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED, Mother Board, Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set applications etc.

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

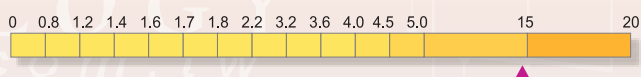
產品物性 Properties

● REACH Compliant 符合REACH規範

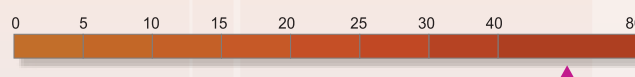
● RoHS Compliant 符合RoHS規範

● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 14.5 W/mK



Hardness 軟硬度 : 60 (Shore 00)



Properties	TG-A1450	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	14.5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
Color 顏色	Red 紅	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	4	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.6	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	7x10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	30	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	60	Shore 00	±5	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A1660 超軟導熱矽膠

Ultra Soft Thermal Pad



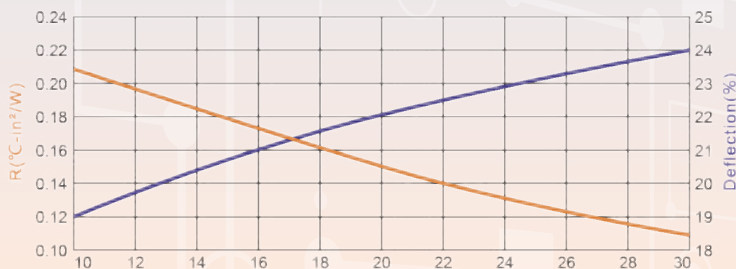
產品特性 Features

High thermal conductivity 高導熱特性
Low thermal resistance 低熱阻
Electrical insulation 絕緣性佳

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

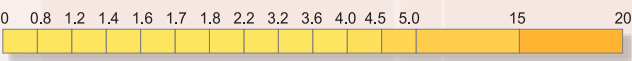


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.209	19
30	0.112	24

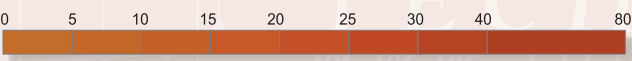
產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 16.6 W/mK



Hardness 軟硬度 : 65(Shore 00)



Properties	TG-A1660	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	16.6	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
Color 顏色	Dark Gray 深灰	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	5	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.6	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	5x10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	30	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	65	Shore 00	±5	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A1780 超軟導熱矽膠

Ultra Soft Thermal Pad



產品特性 Features

High thermal conductivity 高導熱特性
Low thermal resistance 低熱阻
Electrical insulation 絕緣性佳

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

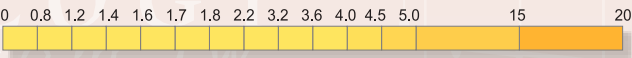
產品物性 Properties

● REACH Compliant 符合REACH規範

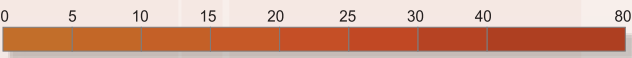
● RoHS Compliant 符合RoHS規範

● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 17.8 W/mK



Hardness 軟硬度 : 65(Shore 00)



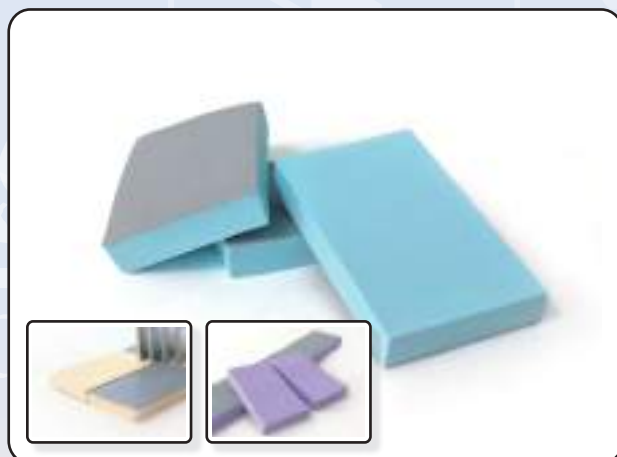
Properties	TG-A1780	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	17.8	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~2.0	mm	-	ASTM D374
	0.0197~0.0787	inch	-	ASTM D374
Color 顏色	Light Gray 淺灰	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	4	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	3.5	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	°C	-	-
Volume Resistance 體積阻抗	6x10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	20	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	65	Shore 00	±5	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

TG-A 玻纖系列導熱矽膠

Ultra Soft Thermal Pad (Fiberglass)



產品特性 Features

Very good thermal conductivity 良好的導熱特性
Fiberglass on one side 表面附著玻纖
Non deforming 不易變形
Electrical insulation 絕緣耐電壓高

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

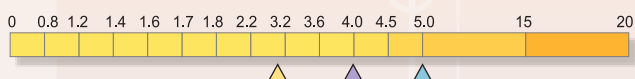
熱阻抗VS.壓力VS.變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

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

產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數: 3/4/5 W/mK



Hardness 軟硬度: 30/50/50(Shore 00)



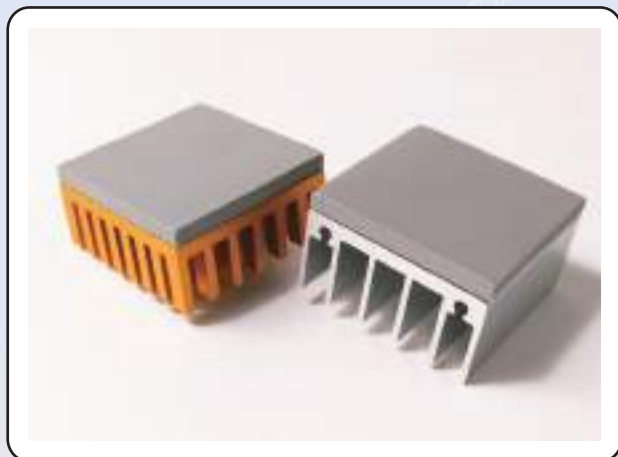
Properties	TG-A3500F	TG-A4500F	TG-A6200F	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	3	4	5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.5~8.0			mm	-	ASTM D374
	0.0197~0.315			inch	-	ASTM D374
Color 顏色	Yellow 黃	Purple 紫	Blue 藍	-	-	Visual目視
Reinforcement Carrier 補強材	Fiberglass mesh 玻纖			-	-	-
Flame Rating 耐燃等級	V-0			-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	>6			KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<1			%	-	ASTM E595
Density 密度	2.3	3.1	3.1	g / cm³	±10%	ASTM D792
Working Temperature 工作溫度	-50~+150	-50~+150	-50~+150	°C	-	-
Volume Resistance 體積阻抗	8x10 ¹²	1x10 ¹³	1x10 ¹³	Ohm-m	-	ASTM D257
Elongation 延展率	80	50	50	%	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀			-	-	-
Hardness 硬度	30	50	50	Shore 00	-	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

PC93非矽型導熱材料

Non-Silicone Thermal Pad



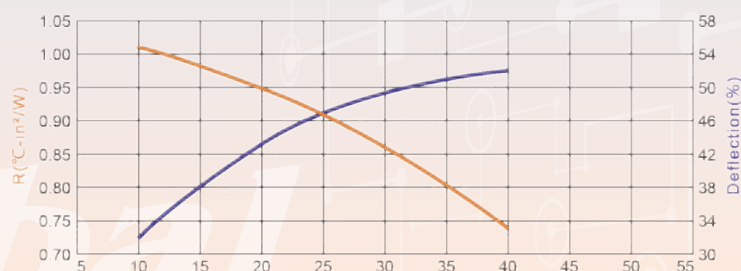
產品特性 Features

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

產品應用端 Applications

Applications that require no silicone 怕碰到矽油問題的產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

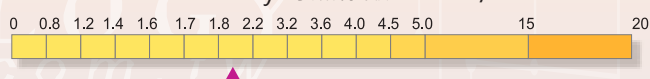


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.01	32
20	0.95	43
40	0.74	52

產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 2.1 W/mK



Hardness 軟硬度 : 55 (Shore 00)

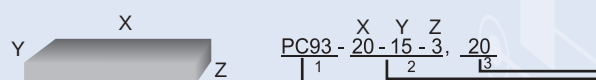


Testing sample thickness: 1.0mm

In "Thermal resistance V.S. Pressure V.S. Deflection" chart, PC93 provides low thermal impedance. The pressure gets higher, the thermal impedance gets lower, and deflection percentage gets higher. PC93 provides good compliance and softness.

Properties	PC93	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	2.1	W / mK	±10%	ASTM D5470
Thickness 厚度 (the thickness can be ordered) (可依客戶所需厚度生產)	0.5~5.0 0.0197~0.1969	mm inch	- -	ASTM D374 ASTM D374
Color 顏色	Gray灰	-	-	Visual目視
Flame Rating 耐燃等級	V-0	-	-	UL 94
Dielectric Breakdown Voltage 耐電壓	10.2	KV / mm	±1	ASTM D149
Weight Loss 重量損失	<1	%	-	ASTM E595
Density 密度	2.1	g / cm³	±0.2	ASTM D792
Working Temperature 工作溫度	-30~+125	°C	-	-
Volume Resistance 體積阻抗	>10 ¹⁰	Ohm-m	-	ASTM D257
Elongation 延展率	350	%	-	ASTM D412
Tensile Strength 抗拉強度	1	Kgf / cm²	-	ASTM D412
Standard Shape 標準形狀	Sheet ones單片狀	-	-	-
Hardness 硬度	55	Shore 00	±10	ASTM D2240

Need samples? 樣品需求? Pre-cut for different shapes 可依需求沖型裁切



1. Choose the P/N
2. Fill into size: X,Y,Z
3. Fill the quantity you need

PC94非矽型導熱材料

Non-Silicone Thermal Pad



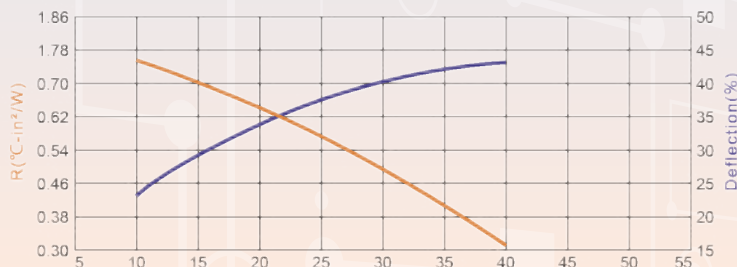
產品特性 Features

Non siloxane and oil-bleed 無低分子矽氧烷及矽油的揮發
Ultra soft and great elongation 材料柔軟且延展性好
Very low thermal impedance 低熱阻
Electrical insulation 電氣絕緣
Great thermal conductivity 良好導熱性

產品應用端 Applications

Best for hard disk 適用於硬碟
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

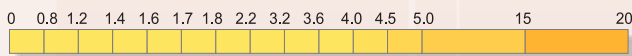


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	0.75	23
20	0.64	34
40	0.31	43

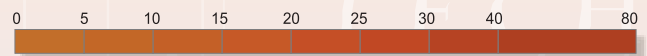
產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範 ● UL Compliant 符合UL規範

Thermal Conductivity 導熱係數 : 4.2W/mK



Hardness 軟硬度 : 50(Shore 00)

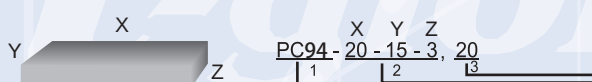


Testing sample thickness: 1.0mm

In "Thermal resistance V.S. Pressure V.S. Deflection" chart, PC94 provides low thermal impedance. The pressure gets higher, the thermal resistance gets lower, and deflection percentage gets higher. PC94 provides good compliance and softness.

Properties	PC94	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	4.2	W / mK	±10%	ASTM D5470
Thickness厚度 (the thickness can be ordered) (可依客戶所需厚度生產)	0.5~5.0 0.0197~0.1969	mm inch	- -	ASTM D374 ASTM D374
Color 顏色	Red紅	-	-	Visual目視
Flame Rating耐燃等級	V-0	-	-	UL94
Dielectric Breakdown Voltage耐電壓	10.2	KV / mm	-	ASTM D149
Weight Loss重量損失	<1	%	-	ASTM E595
Density密度	2.5	g / cm³	±0.2	ASTM D792
Working Temperature工作溫度	-30~+125	°C	-	-
Volume Resistance體積阻抗	>10 ¹⁰	Ohm-m	-	ASTM D257
Elongation延展率	100	%	-	ASTM D412
Tensile Strength抗拉強度	2	Kgf / cm²	-	ASTM D412
Standard Shape標準形狀	Sheet ones單片狀	-	-	-
Hardness硬度	50	Shore 00	±10	ASTM D2240

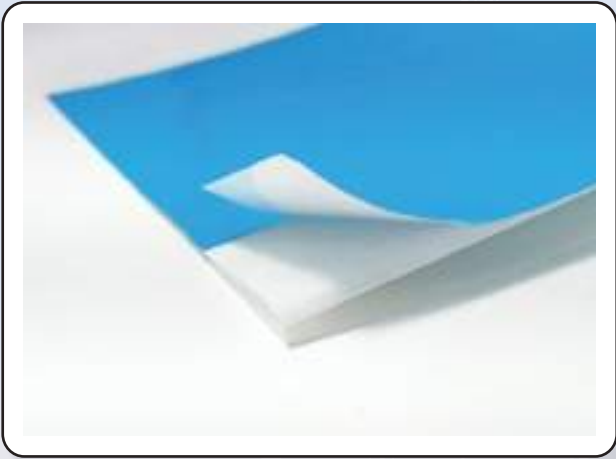
Need samples? 樣品需求? Pre-cut for different shapes 可依需求沖型裁切



1. Choose the P/N
2. Fill into size: X,Y,Z
3. Fill the quantity you need

TG-T1000 導熱膠帶

Thermal Tape



產品特性 Features

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

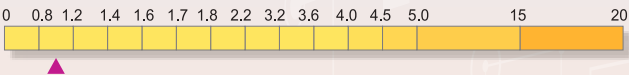
產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 1 W/mK



Properties	TG-T1000		Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1	1	W / mK	±10%	ASTM D5470
Thickness 厚度	0.15	0.25	mm	-	ASTM D374
Color 顏色	White 白		-	-	Visual目視
reinforcement Carrier補強材	Fiberglass mesh 玻纖		-	-	-
Continuous Working Temperature工作溫度	-30~120	-30~120	°C	-	-
Short time use temperature (30sec)短期耐溫	180	180	°C	-	-
Density密度	1.2	1.2	g / cm ³	-	ASTM D792
Initial Tack初期黏性	19	11	cm	-	PSTC-6
Holding Power 1000g@25°Cusing 1 in ² 保持力	>3000	>3000	min	-	PSTC-7
180° Peeling Strength (aluminum)剝離強度	>14	>16	N / in	-	ASTM D3330
Dielectric Breakdown Voltage (Vac)耐電壓	2	3	KV	±10%	ASTM D149
Thermal Impedance@10psi熱阻抗	0.93	1.26	°C-in ² / W	-	ASTM D5470
Thermal Impedance@30psi熱阻抗	0.76	1.06	°C-in ² / W	-	ASTM D5470
Thermal Impedance@50psi熱阻抗	0.61	1.05	°C-in ² / W	-	ASTM D5470

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

T-global guarantees a 6 month shelf life at maximum continuous storage temperature of 25 for maintenance of controlled adhesion to the liner. 建議保存於 25°C 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

Li98 導熱膠帶 Thermal Tape



產品特性 Features

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

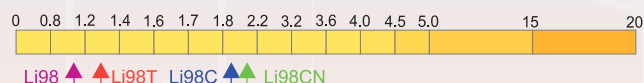
產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

REACH Compliant 符合REACH規範

RoHS Compliant 符合RoHS規範



Li98 Thermal Conductivity 導熱係數: 1.0 W/m.K
Li98T Thermal Conductivity 導熱係數: 1.3 W/m.K
Li98C Thermal Conductivity 導熱係數: 1.9 W/m.K
Li98CN Thermal Conductivity 導熱係數: 2.1 W/m.K

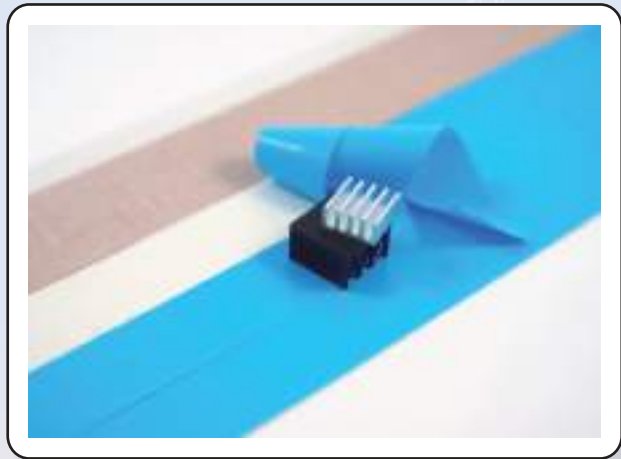
Properties	Li 98		Li 98T	Li 98C		Li 98CN	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1	1	1.3	1.9	1.9	2.1	W / mK	±10%	ASTM D5470
Thickness 厚度	0.15	0.25	0.11	0.15	0.25	0.18	mm	-	ASTM D374
Color 顏色	White白					-	-	-	Visual目視
reinforcement Carrier補強材	Fiberglass mesh		PET	Fiberglass mesh		-	-	-	-
Continuous Working Temperature工作溫度	-30~120	-30~120	-60~120	-30~120	-30~120	-30~120	°C	-	-
Short time use temperature (30sec)短期耐溫	200	200	200	200	200	200	°C	-	-
Density密度	1.85	1.85	1.6	1.8	1.8	1.8	g / cm ³	-	ASTM D792
Tensile strength抗拉強度	200	400	400	200	400	-	psi	-	ASTM D412
Glass Transition temperature玻璃轉化溫度	-30	-30	-	-27	-27	-30	°C	-	-
Initial Tack初期黏性	10	8	10	14	12	15	cm	-	PSTC-6
Lap Shear Strength剪切強度	61	61	60	55	50	55	N / cm ²	-	ASTM D1002
Die Shear Strength@25°C晶片抗切強度	120	120	105	109	100	100	N / cm ²	-	-
Die Shear Strength@80°C晶片抗切強度	69	69	60	68	68	55	N / cm ²	-	-
Holding Power 1000g@25°Cusing 1 in ² 保持力	>10000	>10000	>10000	>10000	>10000	>10000	min	-	PSTC-7
Holding Power 1000g@80°Cusing 1 in ² 保持力	>10000	>10000	>10000	>10000	>10000	>10000	min	-	PSTC-7
90° Peeling Strength (aluminum)剝離強度	>10	>12	>12	>6	>8	>8	N / in	-	ASTM D3330
Dielectric Breakdown Voltage (Vac)耐電壓	2	3.1	4.1	2	3.1	5.1	KV	±10%	ASTM D149
Dielectric Breakdown Voltage (Vdc)耐電壓	3.1	4.1	5.1	3.1	4.1	6.1	KV	±10%	ASTM D149
Thermal Impedance@10psi熱阻抗	0.93	1.26	0.63	0.64	0.89	0.73	°C-in ² / W	-	ASTM D5470
Thermal Impedance@30psi熱阻抗	0.76	1.05	0.60	0.60	0.85	0.68	°C-in ² / W	-	ASTM D5470
Thermal Impedance@50psi熱阻抗	0.61	1.06	0.59	0.53	0.87	0.66	°C-in ² / W	-	ASTM D5470

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

T-global guarantees a 6 month shelf life at maximum continuous storage temperature of 25 for maintenance of controlled adhesion to the liner. 建議保存於 25°C 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

Liv2 / Li98P 導熱膠帶

Thermal Tape



產品特性 Features

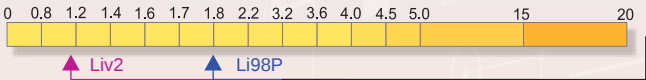
- High voltage resistance 耐電壓高
- Good adhesion 良好的黏著性 (Acrylic PSA)
- Great reliability 高可靠度
- Easy to assemble 加工容易
- Customization services for different industries 依需求客製化

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED, Mother Board, Power Supply, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範



Liv2 Thermal Conductivity 導熱係數: 1.1 W/m.K
Li98P Thermal Conductivity 導熱係數: 1.8 W/m.K

Properties	Liv2		Li98P		Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.1	1.1	1.8	1.8	W / mK	±0.17	ASTM D5470
Thickness 厚度	0.15	0.25	0.125	0.14	mm	-	ASTM D374
Color 顏色	White白				-	-	Visual目視
reinforcement Carrier補強材	Fiberglass Mesh		Polyimide		-	-	-
Continuous Working Temperature工作溫度	-30~120	-30~120	-30~120	-30~120	°C	-	-
Short time Use Temperature(30sec)短期耐溫	180	180	250	250	°C	-	-
Density密度	1.85	1.85	1.3	1.2	g / cm ³	-	ASTM D792
Tensile Strength抗拉強度	200	400	500	600	psi	-	ASTM D412
Glass Transition Temperature玻璃轉化溫度	-30	-30	-25	-25	°C	-	-
Initial Tack初期黏性	11	10	15	15	cm	-	PSTC-6
Lap Shear Strength剪切強度	60	60	63	62	N / cm ²	-	ASTM D1002
Die Shear Strength @25°C晶片抗切強度	120	120	115	115	N / cm ²	-	-
Die Shear Strength@80°C晶片抗切強度	69	69	66	64	N / cm ²	-	-
Holding Power 1000g@25°C using 1 in ² 保持力	>10000	>10000	>10000	>10000	min	-	PSTC-7
Holding Power 1000g@80°C using 1 in ² 保持力	>10000	>10000	>10000	>10000	min	-	PSTC-7
90° Peeling Strength (aluminim)剝離強度	15	16	>10	>10	N / in	-	ASTM D3330
Dielectric Breakdown Voltage (Vac)耐電壓	2.1	3.1	4.1	5.1	KV	±10%	ASTM D149
Dielectric Breakdown Voltage (Vdc)耐電壓	3.1	4.1	5.1	6.1	KV	±10%	ASTM D149
Thermal Impedance@10psi熱阻抗	0.76	1.26	0.78	0.87	°C-in ² / W	-	ASTM D5470
Thermal Impedance@30psi熱阻抗	0.70	1.12	0.75	0.81	°C-in ² / W	-	ASTM D5470
Thermal Impedance@50psi熱阻抗	0.63	1.07	0.73	0.79	°C-in ² / W	-	ASTM D5470
Flame Rating耐燃等級	V-0	V-0	V-0	V-0	-	-	UL94

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

T-global guarantees a 6 month shelf life at maximum continuous storage temperature of 25 for maintenance of controlled adhesion to the liner. 建議保存於 25°C 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

Li2000 導熱膠帶

Thermal Tape



產品特性 Features

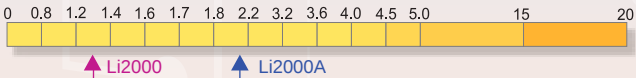
Silicone PSA 以矽膠為基底
Good adhesive 良好的黏著性
Long time use temperature of 170°C 長時間耐溫高達170°C
UL compliant 通過UL認證
Electrical insulation高電氣絕緣

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範



Li2000 Thermal Conductivity 導熱係數: 1.3 W/m.K
Li2000A Thermal Conductivity 導熱係數: 2.1 W/m.K

Properties	Li2000		Li2000A	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.3	1.3	2.1	W / mK	±0.12	ASTM D5470
Thickness 厚度	0.15	0.25	0.2	mm	-	ASTM D374
Color 顏色	White白		-	-	-	Visual目視
Reinforcement Carrier補強材	Fiberglass Mesh		-	-	-	-
Continuous Working Temperature工作溫度	-45~170	-45~170	-45~170	°C	-	-
Short time Use Temperature (30sec)短期耐溫	288	288	260	°C	-	-
Density密度	1.6	1.6	2.3	g / cm ³	-	ASTM D792
Initial Tack初期黏性	10	10	>30	cm	-	PSTC-6
Lap Shear Strength剪切強度	74	76	35	N / cm ²	-	D1002
Die Shear Strength @25°C 晶片抗切強度	113	126	60	N / cm ²	-	-
Die Shear Strength @80°C晶片抗切強度	80	85	50	N / cm ²	-	-
Die Shear Strength @150°C晶片抗切強度	30	35	40	N / cm ²	-	-
Holding Power 1000g@25°C using 1 in ² 保持力	>40000	>40000	>40000	min	-	PSTC-7
Holding Power 1000g@80°C using 1 in ² 保持力	>40000	>40000	>40000	min	-	PSTC-7
Holding Power 1000g@150°C using 1 in ² 保持力	>10000	>10000	>10000	min	-	PSTC-7
Tensile Strength抗拉強度	450	650	-	psi	-	ASTM D412
Dielectric Breakdown Voltage(Vac) 耐電壓	2	3.1	3.6	KV	±10%	ASTM D149
Dielectric Breakdown Voltage (Vdc)耐電壓	3.1	4.1	4.6	KV	±10%	ASTM D149
Volume Resistance體積阻抗	>10 ¹²	>10 ¹²	>10 ⁹	Ohm-m	-	ASTM D257
Thermal Impedance@ 10psi熱阻抗	0.68	1.13	0.69	°C- in ² / W	-	ASTM D5470
Thermal Impedance@ 30psi熱阻抗	0.66	1.10	0.53	°C-in ² / W	-	ASTM D5470
Thermal Impedance@ 50psi熱阻抗	0.61	1.04	0.49	°C-in ² / W	-	ASTM D5470
Flame Rating耐燃等級	V-0	V-0	V-0	-	-	UL 94

Need samples?樣品需求? Pre-cut for different shapes可依需求沖型裁切

T-global guarantees a 6 month shelf life at maximum continuous storage temperature of 25 for maintenance of controlled adhesion to the liner. 建議保存於 25°C 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

TG-NSP25 非矽型導熱膠泥

Non-silicone Thermal Putty



產品特性 Features

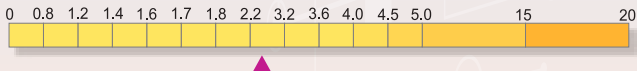
Silicone free thermal gel 無矽成分的導熱凝膠
Shapeable and compressible 可任意塑形與下壓
Low thermal resistance 擁有低熱阻
No fluidity 無液體流動現象之困擾
Best for north bridge IC 使用在IC北橋非常好的材料

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

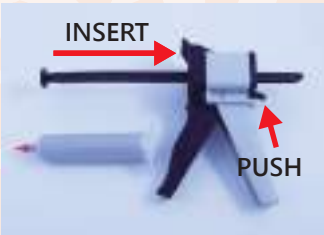
產品物性 Properties

● RoHS Compliant 符合RoHS規範



Thermal Conductivity 導熱係數 : 2.6 W/mK

膠槍組裝說明 Operation Manual-Gel Gun



STEP1-Push the latch and insert the stick



STEP 2-Put the tube in and twist



STEP3-Close the cover



STEP4-Take off the plug

Reliability可靠度

Thermal Impedance	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

Properties	TG-NSP25	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	2.6	W / mK	±0.25	ASTM D5470
Color 顏色	Gray灰	-	-	Visual目視
Solid Content固體含量	100	%	-	-
Viscosity 0.5rpm黏度	5000	Pa·s	-	Brookfield
Density密度	2.6	g / cm ³	-	ASTM D792
Low MW Siloxane (D3-10)低分子矽氧烷	0	ppm	-	GC/MS
Volume Resistivity體積電阻率	10 ¹⁴	Ohm-m	-	ASTM D257
Working Temp.工作溫度	-50~150	°C	-	-
Standard package標準包裝	78g/143g/1KG	Tube/Pot	-	-

Need samples?樣品需求?

TG-NSP25 - 50 gram

1 2

1. Choose the P/N
2. Fill the quantity you need

TG4040/TG6060 PUTTY 導熱膠泥

Thermal Putty



產品特性 Features

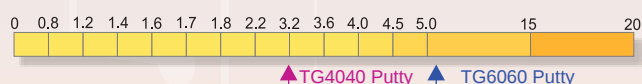
Silicone-type spacer with great long term reliability
長期可靠度優異的含矽型導熱膠
Lower thermal resistance than thermal pads
較導熱片低的接觸熱阻
Physical property between liquid and solid state
介於液態和固態的物理特性・擁有非常低的熱阻抗
Elimination of different gap between heat source
and the heat sink 對應產品內高低不平的熱源
Can be applied with dispenser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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED, Mother Board,
Power Supply, Heat Sink, LCD-TV, Notebook, PC,
Telecom Device, Wireless Hub etc.

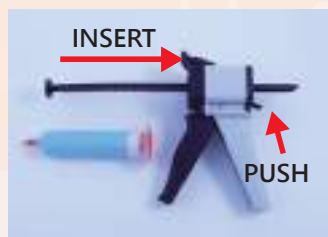
產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範

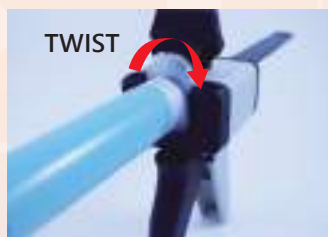


TG4040 Putty Thermal Conductivity 導熱係數 : 3.2 W/m.K
TG6060 Putty Thermal Conductivity 導熱係數 : 6.3 W/m.K

膠槍組裝說明 Operation Manual-Gel Gun



STEP1-Push the latch
and insert the stick



STEP 2-Put the tube in
and twist



STEP3-Close the cover



STEP4-Take off the plug

Reliability可靠度-Thermal Impedence 熱阻抗

	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

Properties	TG4040 Putty	TG6060 Putty	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	3.2	6.3	W / mK	±0.3	ASTM D5470
Color 顏色	Blue藍	Blue藍	-	-	Visual目視
Solid Content固體含量	100(one-part)	100(one-part)	%	-	-
Viscosity 0.5rpm黏度	3,000	2,500~3,000	Pa·s	-	Brookfield
Density密度	3	3.3	g / cm ³	-	ASTM D792
Volume Resistivity體積電阻率	10 ¹³	10 ¹³	Ohm·m	-	ASTM D257
Working Temp.工作溫度	-50~180	-50~180	°C	-	-
Standard package標準包裝	90g/165g/1KG	99g/181g/1KG	Tube / Pot	-	-

Need samples? 樣品需求?

TG4040 PUTTY - 50 gram

1

2

1. Choose the P/N
2. Fill the quantity you need

A96 AB 導熱封膠

Epoxy Potting Compound

產品特性 Features

Epoxy based material with high hardness for support
環氧樹脂材料・高硬度可用於支撐
Protect components from any effect after curing
固化後保護電子元件防止受外界環境影響
Can be applied with dispenser 可用點膠機灌注
Room temperature or heating curing 室溫或加熱熟化
A:B = 13:1

產品應用端 Applications

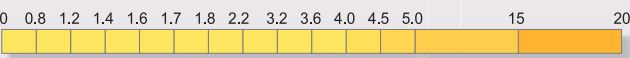
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

保存方式 Storage

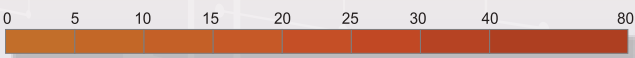
A96 AB has a shelf-life of twelve (12) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at or below 25°C.
A96 AB其在未開封之狀態・
在室溫25°C以下可保存12個月・

產品物性 Properties

Thermal Conductivity 導熱係數 : 2.6 W/mK



Hardness 軟硬度 : 68 (Shore A)



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

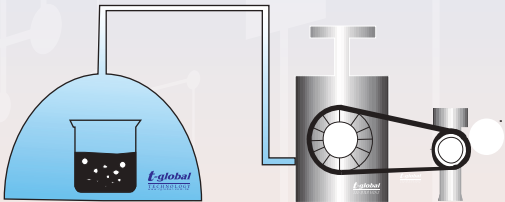
Need samples?樣品需求?

A96 AB - 30 gram
1 2
1. Choose the P/N
2. Fill the quantity you need

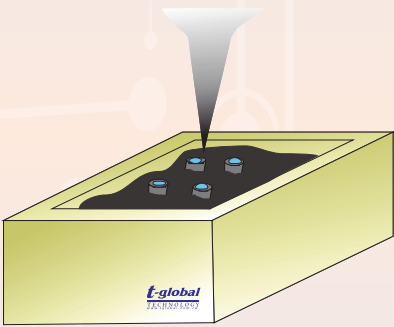
1. MIX 混合



2. Vacuum out air 抽真空

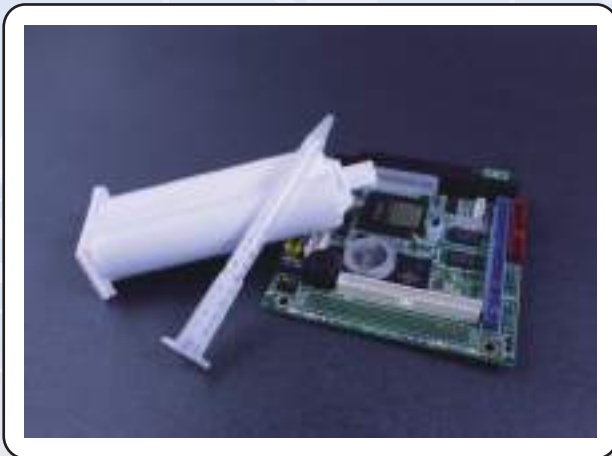


3. Pour A96AB 灌注



S730 導熱封膠

Silicone Potting Compound



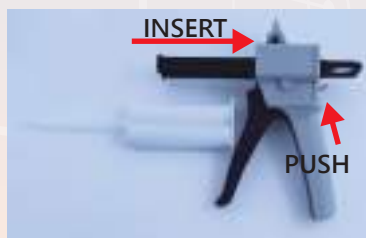
產品特性 Features

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

產品應用端 Applications

Automotive electronics, telecommunications
Computer and peripherals
Thermal conductive vibration dampening
Between any heat-generating semiconductor and a heat sink

膠槍組裝說明 Operation Manual-Gel Gun



STEP1-Push the latch and insert the stick



STEP 2-Put the tube in



STEP 3-Close the cover

保存方式 Storage

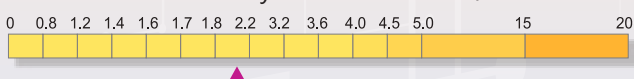
S730 has a shelf-life of twelve (12) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at or below 25°C.

S730其在未開封之狀態，在室溫25°C以下可保存12個月。

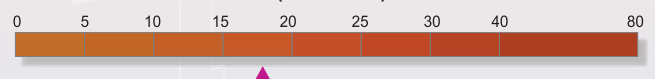
產品物性 Properties

◆ REACH Compliant 符合REACH規範 ◆ RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 2.1 W/mK



Hardness 軟硬度 : 17 (Shore A)



Properties	S730	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	2.1	W / mK	±0.2	ASTM D5470
Color 顏色	Gray灰	-	-	Visual目視
Dielectric Breakdown Voltage耐電壓	12.2	KV / mm	±1.2	ASTM D149
Volume Resistance體積阻抗	>10 ¹³	Ohm-m	-	ASTM D257
Density 密度	2.5	g / cm ³	±0.2	ASTM D792
Working Temperature工作溫度	-50~200	°C	-	-
Viscosity黏度	<50000	cps	-	ASTM D2393
Standard package標準包裝	100g/1KG	Tube / Pot	-	-
Hardness硬度	17	Shore A	±2	ASTM D2240
Curing Time 固化時間@25°C	300	Min	-	-
Curing Time 固化時間@60°C	30	Min	-	-
Curing Time 固化時間@100°C	5	Min	-	-

Need samples? 樣品需求?

S730 - 30 gram

1 2

1. Choose the P/N
2. Fill the quantity you need

S720 AB 導熱封膠

Silicone Potting Compound

產品特性 Features

Good thermal conductivity 良好的導熱效能
Room temperature 室溫熟化
A:B = 100:2
High stability 高穩定性
Water proof 防水氣/電子灌注封裝

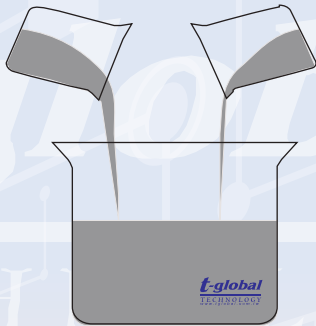
產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

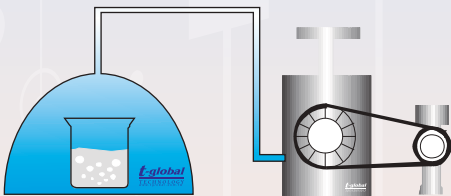
保存方式 Storage

S720 AB 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.
S720AB其在未開封之狀態・在室溫25°C以下可保存12個月・

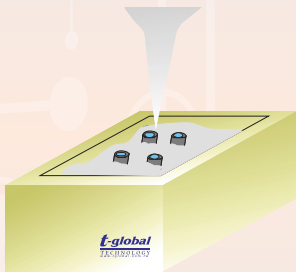
1. MIX 混合



2 Vacuum out air 抽真空



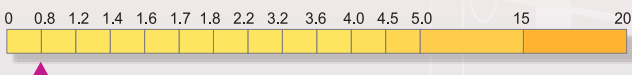
3. Pour S720 AB 灌注



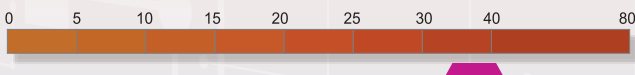
產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 0.8 W/mK



Hardness 軟硬度 : 34~43 (Shore A)



Properties	S720AB	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	0.8	W / mK	±0.08	ASTM D5470
Color 顏色	White白	-	-	Visual目視
Dielectric Breakdown Voltage耐電壓	6.1	KV / mm	±0.6	ASTM D149
Weight Loss重量損失	<1	%	-	ASTM E595
Density 密度	1.97	g / cm ³	±0.2	ASTM D792
Working Temperature工作溫度	-40~180	°C	-	-
Viscosity黏度	2000~3000	cps	-	ASTM D2393
Standard Package標準包裝	1KG	Pot	-	-
Hardness硬度	34~43	Shore A	±4~5	ASTM D2240
Curing Time 固化時間@25°C	35	Hrs	-	-

Need samples?樣品需求?

S720 AB - 30 gram

1 2

1. Choose the P/N
2. Fill the quantity you need

TG-S101 導熱膏 Thermal Grease



產品特性 Features

Low thermal impedance/thermal resistance 低熱阻抗/低熱阻
No overflow 不溢流
Silicone base, no Environmental pollution
有機矽基材無環境污染

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

保存方式 Storage

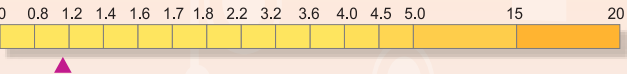
TG-S101 has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25°C.

TG-S101 在其未開封之狀態，於室溫25°C以下可保存18個月。

產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 1.1 W/mK



Properties	TG-S101	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.1	W / mK	±10%	ASTM D5470
Color 顏色	Gray 灰	-	-	Visual目視
Oil Dispersible油分離度	<0.4	wt%	-	24hrs at 150°C
Weight Loss重量損失	<1.0	wt%	-	ASTM E595
Density密度	2.96	g / cm ³	±10%	ASTM D792
Working Temperature工作溫度	-40~+200	°C	-	-
Standard package標準包裝	1KG	Pot	-	-
Volume Resistance體積阻抗	>10 ¹³	Ohm-m	-	ASTM D257

Need samples?樣品需求?

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°C~+15°C. Please finish it within six months.

- 1.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。
- 2.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。
- 3.開封後最適保存環境：恆溫冷藏，溫度範圍+5°C~+15°C。建議半年內使用完畢。

TG-S808 導熱膏 Thermal Grease



產品特性 Features

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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

保存方式 Storage

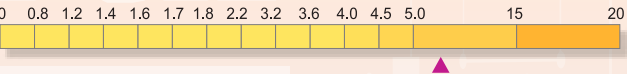
TG-S808 has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25°C.

TG-S808 在其未開封之狀態，於室溫25°C以下可保存18個月。

產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 8 W/mK



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

Need samples?樣品需求?

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°C~+15°C. Please finish it within six months.

- 1.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。
- 2.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。
- 3.開封後最適保存環境：恆溫冷藏，溫度範圍+5°C~+15°C。建議半年內使用完畢。

TG-N909 非矽型導熱膏

Non-Silicone Thermal Grease



產品特性 Features

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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

保存方式 Storage

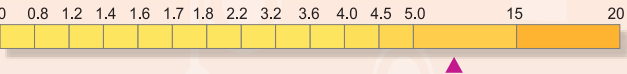
TG-N909 has a shelf-life of eighteen (18) months from the date of manufacture, as indicated by the lot number, when stored in the original, unopened contained at, or below 25°C.

TG-N909 在其未開封之狀態，於室溫25°C以下可保存18個月。

產品物性 Properties

● RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 9 W/mK



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

Need samples?樣品需求?

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°C~+15°C. Please finish it within six months.

- 1.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。
- 2.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。
- 3.開封後最適保存環境：恆溫冷藏，溫度範圍+5°C~+15°C。建議半年內使用完畢。

S606B/S606C 導熱膏 Thermal Grease



產品特性 Features

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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

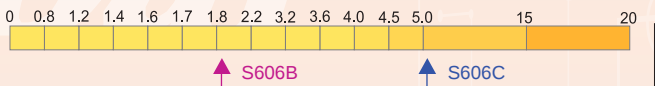
保存方式 Storage

S606 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.

S606 系列在其未開封之狀態，於室溫25°C以下可保存18個月。

產品物性 Properties

● REACH Compliant 符合REACH規範 ● RoHS Compliant 符合RoHS規範



S606B Thermal Conductivity 導熱係數:1.9 W/m.K
S606C Thermal Conductivity 導熱係數:5.3 W/m.K

Properties	S606B	S606C	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.9	5.3	W / mK	±10%	ASTM D5470
Color 顏色	White白	Gray灰	-	-	Visual目視
Oil Dispersible油分離度	<0.2	<0.05	%	-	24hrs at 150°C
Weight Loss重量損失	<0.5	<0.5	%	-	ASTM E595
Density密度	2.3	2.3	g / cm ³	±10%	ASTM D792
Working Temperature工作溫度	-40~+180	-40~+180	°C	-	-
Viscosity黏度	30	125	Pa·s	-	ASTM D2196
Standard package標準包裝	1KG	1KG	Pot	-	-
Volume Resistance體積阻抗	>10 ¹¹	>10 ¹²	Ohm-m	-	ASTM D257

Need samples?樣品需求?

GT10D 導熱矽膠 Thermal Pad



產品特性 Features

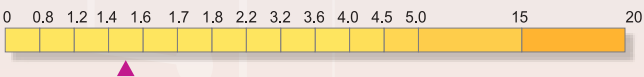
Smooth surface 光滑的表面
Low thermal resistance 低熱阻抗
High stability 良好的穩定性
Great reliability 高可信度

產品應用端 Applications

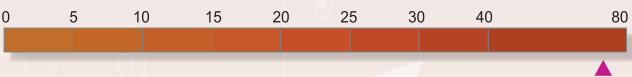
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties ◆ RoHS Compliant 符合RoHS規範

Thermal Conductivity 導熱係數 : 1.5 W/mK



Hardness 軟硬度 : 75 (Shore A)



Properties	GT10D	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.5	W / mK	±10%	ASTM D5470
Thickness 厚度	0.25	mm	-	ASTM D374
	0.00984	inch	-	ASTM D374
Color 顏色	Pink 粉紅	-	-	Visual目視
Dielectric Breakdown Voltage 耐電壓	4	KV / mm	±10%	ASTM D149
Weight Loss 重量損失	<0.2	%	-	ASTM E595
Density 密度	2	g / cm ³	±10%	ASTM D792
Working Temperature 工作溫度	-45~+180	°C	-	-
Volume Resistance 體積阻抗	>10 ¹²	Ohm-m	-	ASTM D257
Elongation 延展率	50	%	-	ASTM D412
Tensile Strength 抗拉強度	>150	Kgf/cm ²	-	-
Hardness 硬度	75	Shore A	±7	ASTM D2240

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切

Roll type is available可製成捲料

GT Series 導熱矽膠 Thermal Pad



產品特性 Features

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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

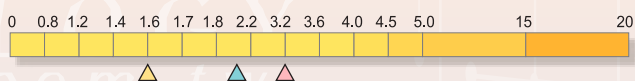
熱阻抗VS.壓力VS.變形量示意圖 Thermal Resistance VS. Pressure VS. Deflection

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

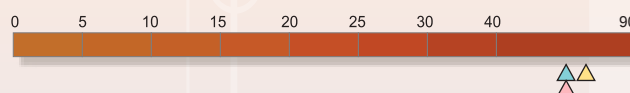
產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範

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

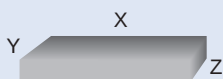


Hardness 軟硬度: 75/70/70(Shore A)

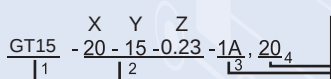


Properties	GT15	GT20	GT30	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.6	2.1	3.2	W / mK	±10%	ASTM D5470
Thickness 厚度	0.23	0.3	0.35	mm	-	ASTM D374
Color 顏色	Yellow黃	Green綠	Pink粉紅	-	-	Visual目視
Reinforcement Carrier 補強材	Fiberglass mesh 玻璃纖維			-	-	-
Flame Rating 耐燃等級	V-0	V-0	V-0	-	-	UL 94
Dielectric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

Need samples? 樣品需求?



Pre-cut for different shapes 可依需求沖型裁切



1. Choose the P/N
2. Fill into size: X,Y,Z
3. Apply the adhesive or not? 0=none, 1A= one side, 2A= two sides
4. Fill the quantity you need

Ti900 導熱複合材料

Thermal Insulator



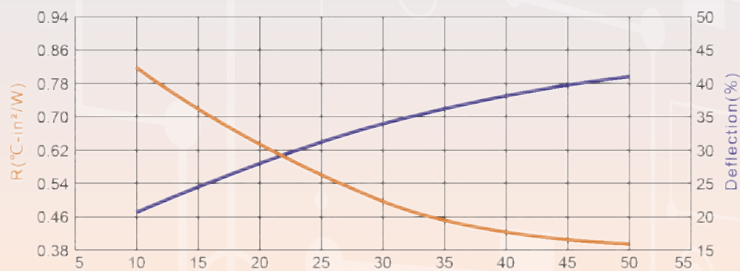
產品特性 Features

Insulation strength 電氣絕緣
Low thermal resistance 0.402 (K-in²/W) @ 50psi 低熱阻
Easy to assemble 容易施工

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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



Pressure(psi)	R(°C-in ² /W)	Deflection(%)
10	0.82	21
30	0.49	34
50	0.39	41

產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範 UL Compliant 符合UL規範

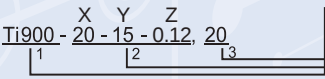
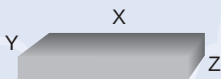
Testing sample thickness: 0.12mm

In "Thermal resistance V.S. Pressure V.S Deflection" chart, Ti900 provides low thermal impedance. The pressure gets higher, the thermal impedance gets lower, and deflection percentage stays approximately the same.

Properties	Ti900	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	1.9	W / mK	±10%	ASTM D5470
Thickness厚度	0.12	mm	-	ASTM D374
Color 顏色	Gray灰	-	-	Visual目視
Base基材	Polyimide	-	-	-
Insulation Strength Vac 耐電壓	6.1	KV	-	ASTM D149
Volume resistance 體積阻抗	>10 ¹²	Ohm-m	-	ASTM D257
Working temperature 工作溫度	-50~180	°C	-	-
Tensile Strength 抗拉強度	5000	psi	-	ASTM D412
Elongation 延展率	40	%	-	ASTM D412
Flame rating 耐燃等級	V-0	-	-	UL 94
Standard Shape標準形狀	Sheet ones單片狀	-	-	-

Need samples?樣品需求?

Pre-cut for different shapes可依需求沖型裁切



1. Choose the P/N
2. Fill into size:X,Y,Z
3. Fill the quantity you need

PH3導熱複合材

Heat Spreader



產品特性 Features

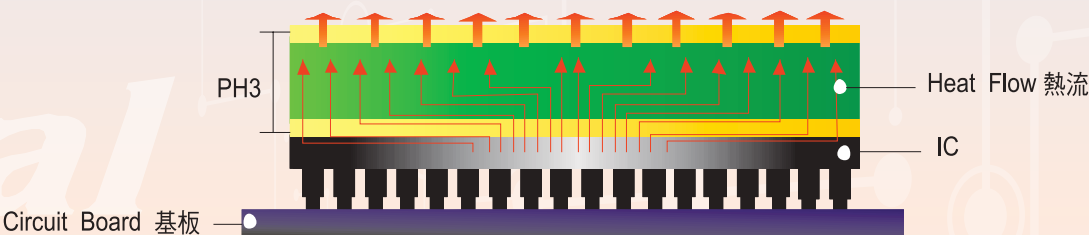
Excellent thermal radiation 優良熱輻射
Thin&bendable 超薄且具可彎曲性
Available for unventilated design 適用於不通風環境
No dusting issue 無剝離及掉粉問題

產品應用端 Applications

Mobile phone, Laptops, Set-top box, LED back light,
PDP/LCD/OLED screens, Ultra bright LED, Digital camera,
Digital video camera, NIC, Projector, Handheld device etc.

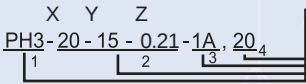
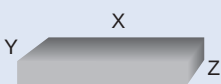
產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範



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

Need samples? 樣品需求? Available to apply adhesive 可依需求背膠



1. Choose the P/N
2. Fill into size: X, Y, Z
3. Apply the adhesive or not? 0=none, 1A= one side, 2A= two sides
4. Fill the quantity you need

CP Series 導熱絕緣帽套 Thermal Cap



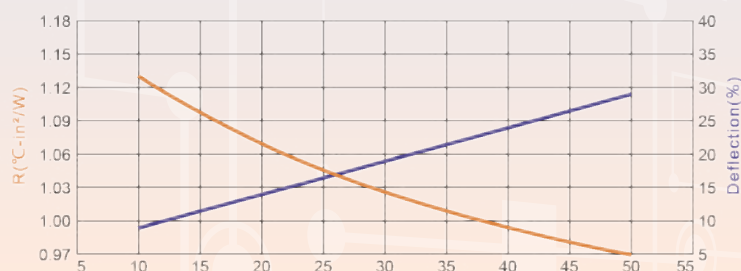
產品特性 Features

Low thermal contact resistance 低熱阻抗
Electrically isolating 高絕緣性
Decrease the weight of the product 降低產品重量
Easy to assemble 簡易安裝組件
Thermal conduction and buffer effect 熱傳導與緩衝效果

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

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

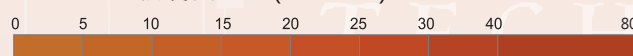


Pressure(psi)	R(°C-in²/W)	Deflection(%)
10	1.13	9
20	1.07	14
50	0.97	29

選擇尺寸 Standard Sizes (mm)

1. CP22 TO-220: 11.4 x 16 x 5.8
2. CP23 TO-220: 11.4 x 21.5 x 5.8
3. CP33 TO-247: 17.5 x 28.5 x 5.8

Hardness 軟硬度 : 65 (Shore A)



Testing sample thickness: 0.45mm

In "Thermal resistance VS. Pressure VS. Deflection" chart, CP Series provides low thermal impedance. The pressure gets higher, the thermal impedance gets lower. CP Series provides good compliance and softness.

Properties	CP22/CP23/CP33	Unit	Tolerance	Test Method
Thermal Conductivity 導熱係數	2	W / mK	±10%	ASTM D5470
Thickness厚度	0.3/0.45	mm	-	ASTM D374
Color 顏色	Gray灰	-	-	Visual目視
Material 材料	Silicone	-	-	-
Working Temperature 工作溫度	-45~180	°C	-	-
Density 密度	2.55	g / cm³	-	ASTM D792
Breakdown Voltage AC 耐電壓值	4.1/6.1	KV	±0.4/±0.6	ASTM D149
Breakdown Voltage DC 耐電壓值	6.1/8.1	KV	±0.6/±0.8	ASTM D149
Dielectric Constant 介電係數	5.8	1000Hz	-	ASTM D150
Thermal Impedance @10psi熱阻抗	1.13	°Cin² / W	-	ASTM D5470
Thermal Impedance @20psi熱阻抗	1.07	°Cin² / W	-	ASTM D5470
Thermal Impedance @50psi熱阻抗	0.97	°Cin² / W	-	ASTM D5470
Hardness 硬度	65	Shore A	±7	ASTM D2240

TG-FAM Series 防電磁波吸收材

Flexible Absorbent Material



產品特性 Features

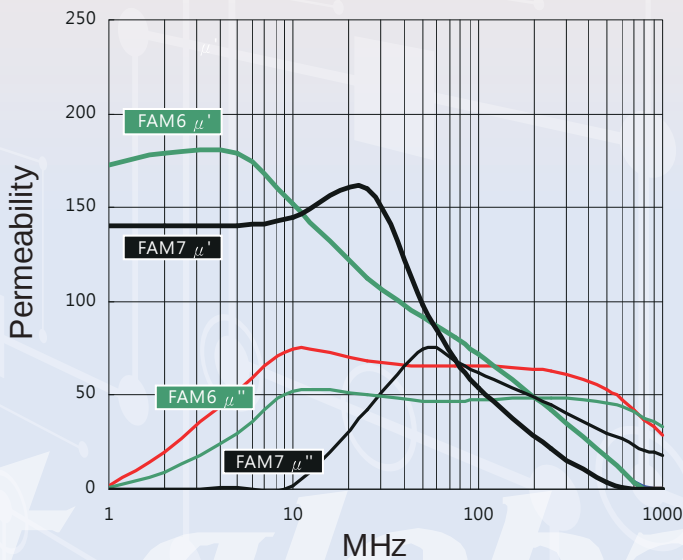
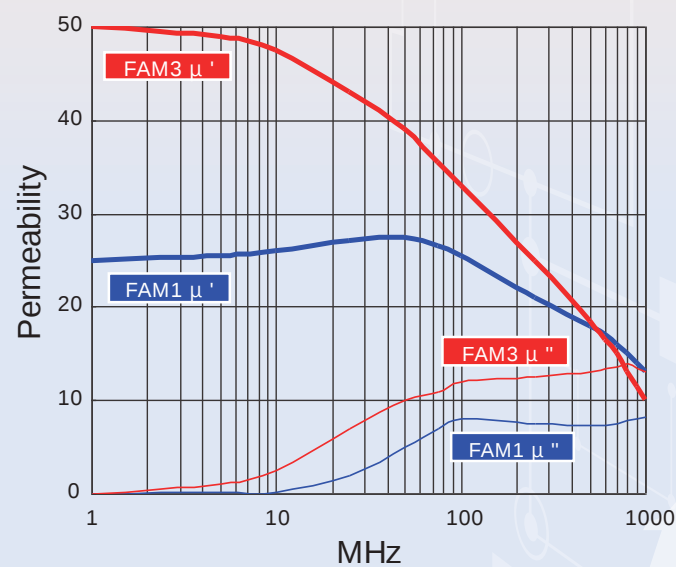
Provide effective EMI suppression in a wide frequency range (10MHz to 18GHz) 有效抑制電磁波干擾・頻寬從10MHz到18GHz
Ultra thin and extremely flexible, can be freely arranged in space 超薄且容易彎曲・方便至於不同位置
Non-conductive adhesive backing (UL Recognized) available 可配合UL等級的不導電雙面膠使用
Effective in preventing resonance and suppressing coupling 有效預防共振及抑制耦合現象
High surface resistance (10^6 - 10^9 ohms) 高表面阻抗值(10^6 - 10^9 ohms)
Easy and fast to process 使用方便快速
Can be cut any shape easily 方便裁切各種尺寸

產品物性 Properties

RoHS Compliant 符合RoHS規範

Physical Properties	單位	TG-FAM1	TG-FAM3	TG-FAM6	TG-FAM7
Frequency 適用頻率	G Hz	0.001-18.0	0.001-18.0	0.001-9.0	0.001-3.0
Thickness 厚度	mm	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
Maximum Size 最大尺寸	mm	400 x 400		210 x 297 (A4 size)	
Material 材料	-	Magnetic Particles+Rubber 磁性粉+橡膠			Sintering iron- core 燒結鐵心
Magnetic Inductivity導磁率(μ' @1MHz)	-	25	50	170	140
Halogen 鹵素	-	Halogen contained含鹵		Halogen free無鹵	Halogen free無鹵
Working Temperature 工作溫度	°C	-40~+85	-40~+85	-40~+155	-30~+120
Density 密度	g/cm ³	3.6	4.8	4.4	3.8
Surface Resistance 表面阻抗	ohm	10^6	10^6	10^5	10^9
Structure 結構		可貼一面/兩面或不貼雙面膠 			可一面貼PET一面貼雙面膠或兩面都貼雙面膠 

導磁率 ($\mu = \mu' - j\mu''$)



FAM 防電磁波吸收材 Flexible Absorbent Material

用途 Applications

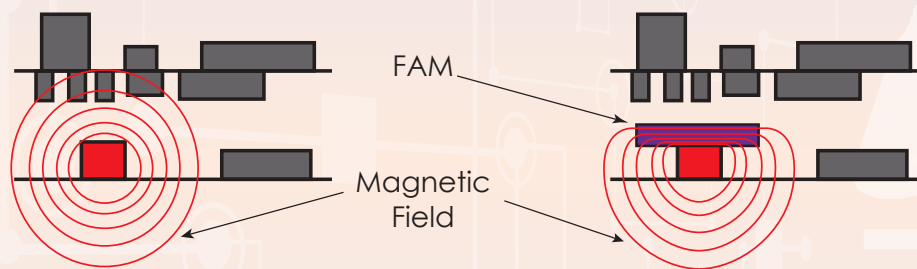
- Notebooks, PCs, workstations筆記型電腦,個人電腦,工作站
- LNBS for satellite systems衛星低雜訊降頻器
- Mobile communications equipment行動通訊設備
- Base Stations for mobile phones and PHS行動電話基地台 / PHS基地台
- Peripheral devices for computers電腦週邊設備
- Wireless equipment無線設備
- Mobile Phones, PHS行動電話 / PHS
- High speed clocks高速時脈
- RFID (Radio Frequency Identification) systems RFID (無線射頻辨識)系統
- NFC (Near field communication) NFC(近場通訊)
- Wireless Charger無線充電器

應用 Applications for RFID

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.

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

Magnetic Shielding



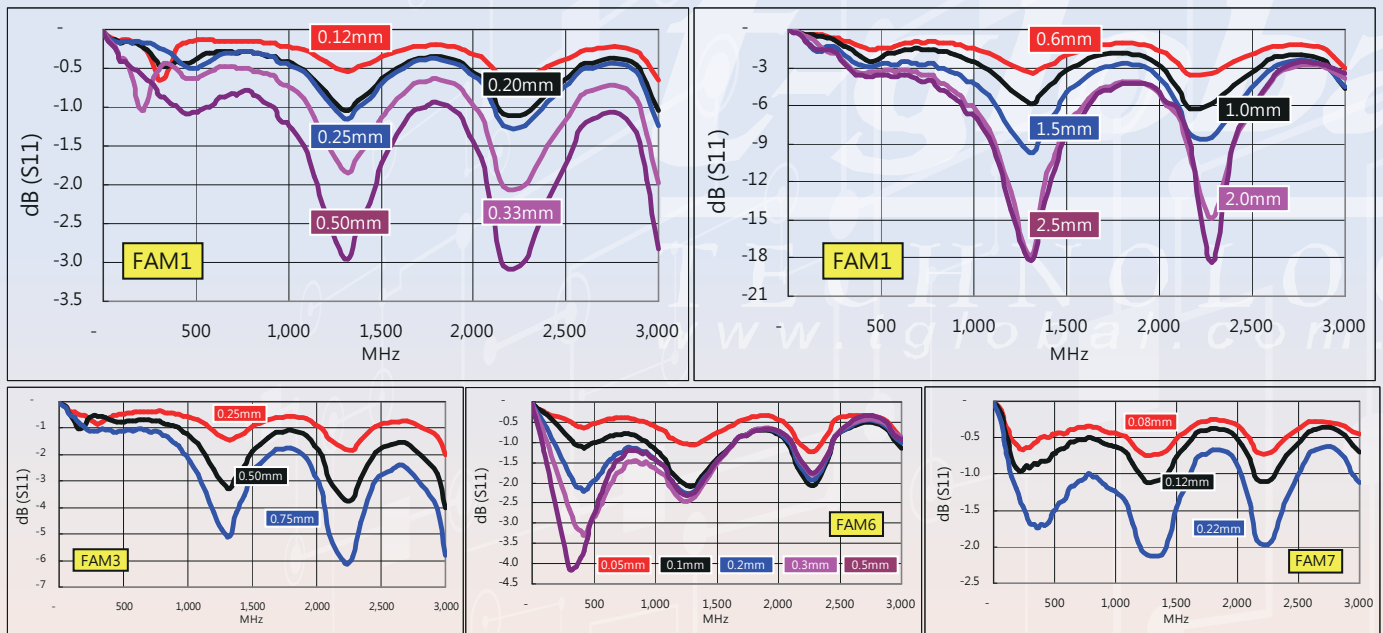
FAM can change the magnetic flux path to avoid the magnetic flux affect others components.

Application for RFID NFC on metal

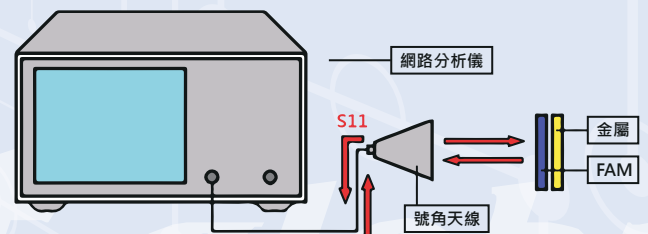
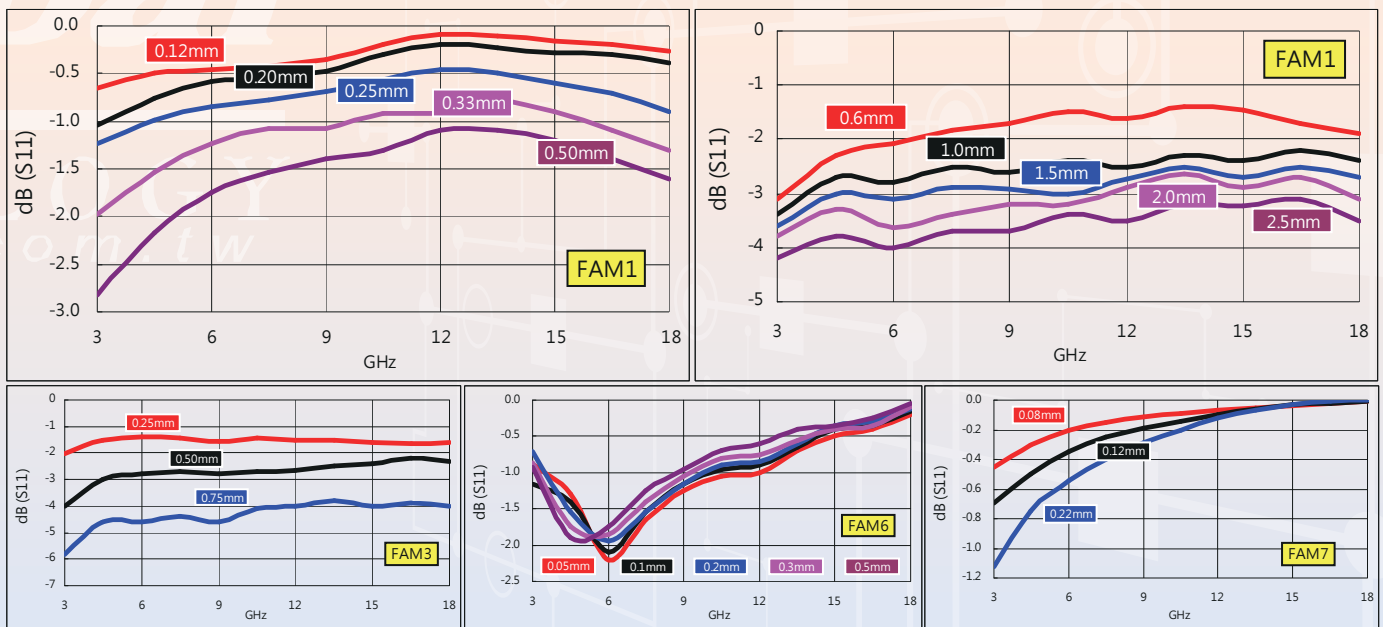


FAM 防電磁波吸收材 Flexible Absorbent Material

反射損失 (1MHz~3GHz)



反射損失 (3GHz ~ 18GHz)



熱導管 Heat Pipe



產品特性 Features

A conversion of the density of heat flow
熱流密度變換功能

Fast heat balancing 快速均溫性

Passive components 被動元件

Light weighted 重量輕

產品應用端 Applications

Can be applied to small general purpose electronic products
to large scale aerospace industry products

小至一般電子產品・大至航太產業皆適用

Electronic components: IC, CPU, MOS, LED,

Mother Board, Power Supply, Heat Sink, LCD-TV,

Notebook, PC, Telecom Device, Wireless Hub,

DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

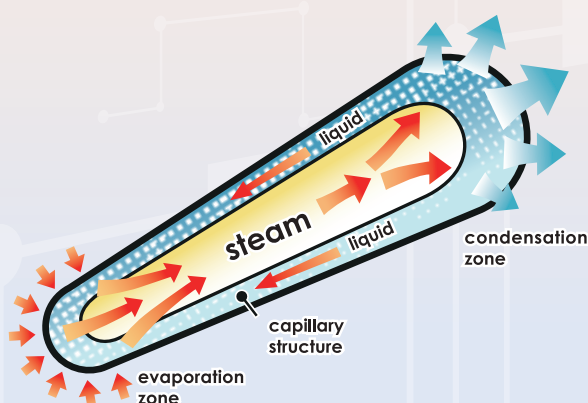
Recommended specifications

- Diameter: 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
- 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

Diameter(mm)	Thickness(mm)	Width(mm)
Ø4	2	5.7
	2.5	5.6
	3	5.5
Ø5	2	6.9
	2.5	6.6
	3	6.3
	3.5	6.0
	4	5.7
Ø6	2	8.5
	2.5	8.2
	3	8.0
	3.5	7.7
	4	7.4
Ø8	2	11.7
	2.5	11.4
	3	11.2
	3.5	10.8
	4	10.6
	4.5	10.3
	5	10.0
	6	9.4

- Thickness Tolerance: +0.05/-0.10 mm
- Width Tolerance: +0.15/-0.20 mm
- The above table is a common specification,
please contact the product consultant for
other inquiries.

散熱機制 Mechanism



均溫板 Vapor Chamber



產品特性 Features

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

產品應用端 Applications

Best for high power applications 極適用於高效能產品
Electronic components: IC, CPU, MOS, LED,
Mother Board, Power Supply, Heat Sink, LCD-TV,
Notebook, PC, Telecom Device, Wireless Hub,
DDR II Module, DVD Applications, Hand-set applications etc.

產品物性 Properties

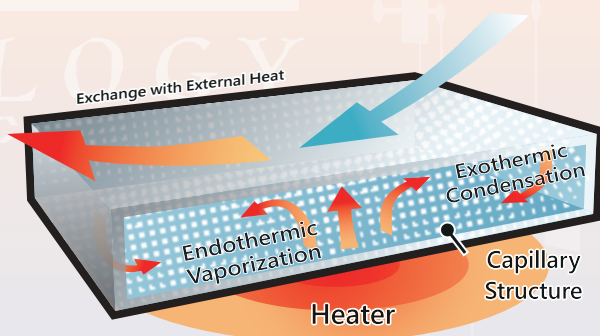
Recommended specifications

- Different industries will require different specifications. Please contact us directly for the most suitable specifications.
- 各產業別的需求規格不一，最適規格請直接與我們聯繫

Thickness(mm)	Tolerance(mm)	Size(mm)
2.0/3.0/4.0	±0.20	90x90
		100x100
		120x120
		160x160

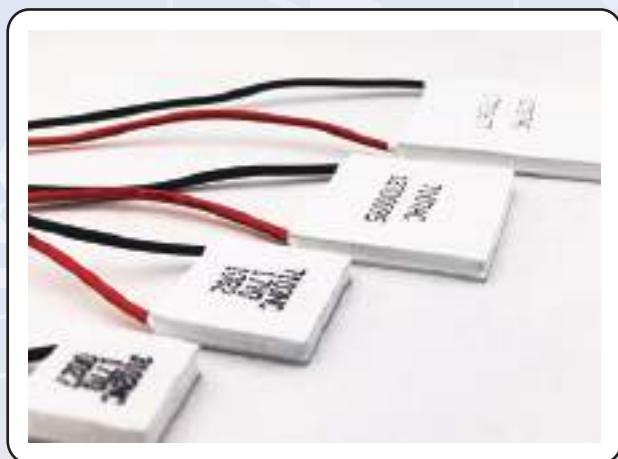
- Size tolerance: ±0.30mm
- The above table is a common specification, please contact the product consultant for other inquiries.

散熱機制 Mechanism



TEC 致冷晶片

Thermoelectric Cooling Chip



產品特性 Features

Small bulk, light weight 體積小、輕量化
Vibration-free, noise-free 無動件、低噪音
High reliability, high strength for rugged environments
可靠度高、適用於極端環境
Precise temperature control 精確控溫
Bespoke designs available 提供訂製設計

產品應用端 Applications

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)	I _{max} (A)	V _{max} (V)	Watt(W)	@ 27°C Q _{max} (W)	@50°C Q _{max} (W)	R(Ω)
15.0x15.0	3.1	6.0	3.8	22.8	13	14.3	0.45Ω±10%
	3.4	8.5	2.1	17.9	10.3	11.3	0.20Ω±10%
	3.6	3.9	3.8	14.8	8.6	9.5	0.85Ω±10%
	3.8	3.0	3.8	11.4	7.3	8	1.00Ω±10%
	3.9	6.0	2.1	12.6	7.4	8.2	0.30Ω±10%
	4.7	2.0	3.8	7.6	4.4	5	1.65Ω±10%
20.0x20.0	3.1	6.0	8.8	52.8	29.7	32.7	1.05Ω±10%
	3.4	8.5	3.8	32.3	18.8	20.8	0.35Ω±10%
	3.6	3.9	8.8	34.3	18.7	20.9	1.95Ω±10%
	3.8	3.0	8.8	26.4	16.6	18	2.20Ω±10%
	3.9	6.0	3.8	22.8	13.6	14.9	0.55Ω±10%
	4.7	2.0	8.8	17.6	10.2	11.2	3.70Ω±10%
30.0x30.0	3.15	6.0	15.7	94.2	53.1	59.1	1.90Ω±10%
	3.45	8.5	8.8	74.8	43.1	48	0.85Ω±10%
	3.65	3.9	15.7	61.2	35.2	39	3.50Ω±10%
	3.85	3.0	15.7	47.1	29.8	32.5	4.00Ω±10%
	3.95	6.0	8.8	52.8	31.1	34.2	1.25Ω±10%
	3.95	6.0	11.8	70.8	48	52.8	1.65Ω±10%
	4.75	2.0	15.7	31.4	18.2	19.5	6.70Ω±10%
40.0x40.0	3.45	8.5	15.7	133.5	77.1	85	1.50Ω±10%
	3.95	6.0	15.7	94.2	55.6	61	2.20Ω±10%

The above are our standard sizes.

For other special sizes, please contact our product consultants.

XL-25 陶瓷散熱片

Ceramic Heat Spreader



產品特性 Features

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

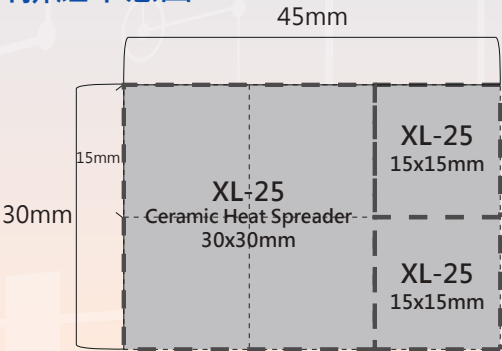
產品應用端 Applications

Electronic components: IC, CPU, MOS, LED, Mother Board,
Power Supply, Heat Sink, LCD-TV, Notebook, PC,
Telecom Device, Wireless Hub etc.

選擇尺寸 Standard Sizes (mm)

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

陶瓷散熱片拼組示意圖



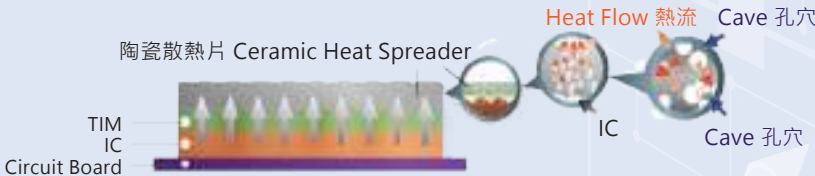
產品物性 Properties

REACH Compliant 符合REACH規範 RoHS Compliant 符合RoHS規範

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

陶瓷散熱片的散熱機制

Ceramic Heat Spreader Mechanism



$Q_t \propto S \times A$: 散熱效能與風速及接觸面積成正比。
 Q_t : The heat would be taken by air flow. 經由空氣接觸所帶走的熱能。
 S : Air flow (m/s) 風速。 A : Air contact area (m²) 接觸面積。
 A_{ca} : Air contact (m²) of ceramic heat sink 陶瓷散熱片的接觸面積。
 A_{al} : Air contact (m²) of aluminium heat sink 鋁質散熱片的接觸面積。

$$A_{ca} \approx 5 \times A_{al}$$

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 spreaders can provide more air-contact area. When A is bigger, Q_t would be bigger.

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。

XL-25 Series 陶瓷導熱片 Ceramic Heat Spreader



產品特性 Features

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

產品應用端 Applications

Electronic components: IC, CPU, MOS, LED, Mother Board,
Power Supply, Heat Sink, LCD-TV, Notebook, PC,
Telecom Device, Wireless Hub etc.

選擇尺寸 Standard Sizes (mm)

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

產品物性 Properties

Properties	XL-25W	XL-25D	Unit	Test Method
Thermal Conductivity 導熱係數	25	190~210	W / mK	-
Color 顏色	White白	Dark Gray暗灰	-	Visual目視
Dielectric Breakdown Voltage 耐電壓	15	18.45	kv/mm	ASTM D149
Bulk Density 體積密度	≥3.8	3.32	g / cm ³	CNS 619
Volume Resistance 體積電阻	10 ¹²	1.4x10 ¹³	Ω·cm	-
Flexural Strength 彎曲強度	4078.8	3416	kgf / cm ²	CNS 12701
Linear Temperature Expansion Coefficient 熱膨脹係數	6.6~8	2.805	10 ⁻⁶ /20~300°C	RT~300°C
Main Composition 主要成分	Al ₂ O ₃	AlN	-	-

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					-	-	UL94
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 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	V-0	V-0	V-0	V-0	V-0	-	UL94
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 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	V-0	V-0	V-0	V-0	-	UL94
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/cm³	ASTM D792
Working Temperature	-40~+200	-45~+200	-40~+200	-40~+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 / cm²	ASTM D412
Standard Shape	Sheet ones					-	-
Hardness	20	70	25	30	75	Shore A	ASTM D2240

Heat Sink ①

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。如有特殊需求，歡迎洽詢我司業務得到更多資訊。

• 規格皆為寬x長x高 • 此為既有模具公規



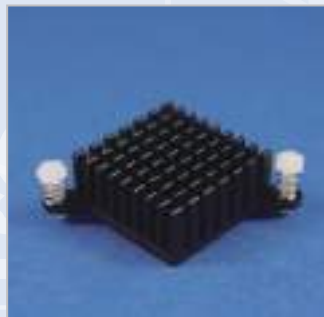
Heat Sink ②

• 規格皆為寬x長x高 • 此為既有模具公規

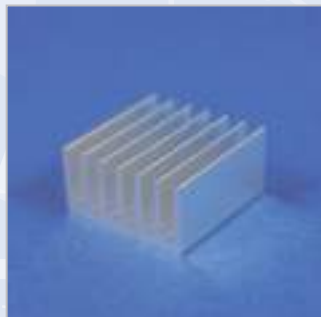


Heat Sink ③

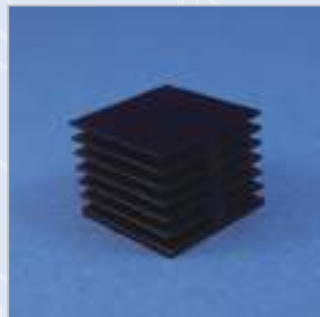
• 規格皆為寬x長x高 • 此為既有模具公規



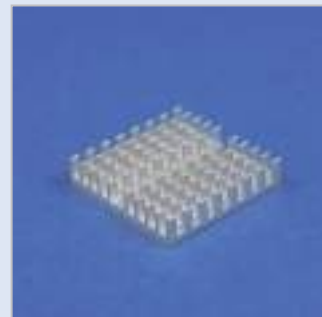
TGH-0280-06
28x28x12.7mm 12g
陽極黑色 AL6063



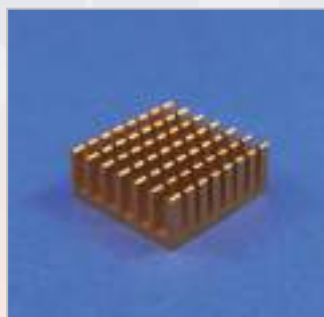
TGH-0280-07
28x28x15mm 16g
陽極本色 AL6063



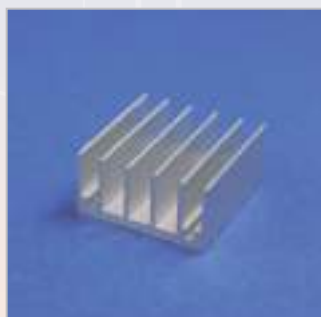
TGH-0280-08
28x28x22mm 20g
陽極黑色 AL6063



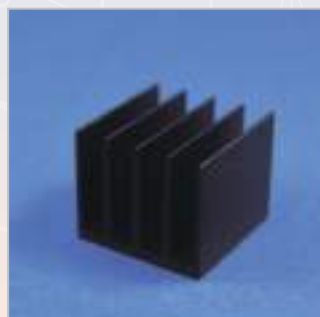
TGH-0300-01
30x30x6.6mm 6g
陽極本色 AL6063



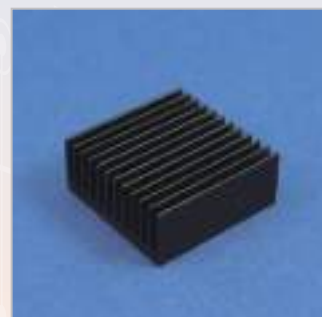
TGH-0300-03
30x30x12mm 12g
陽極金色 AL6063



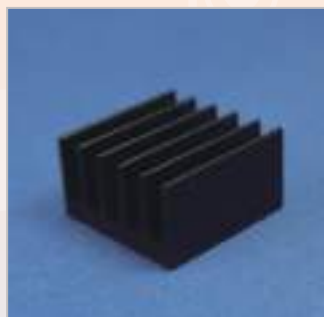
TGH-0300-04
30x30x15mm 13g
陽極本色 AL6063



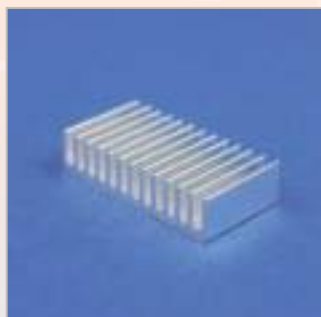
TGH-0325-01
32.5x32.5x27.5mm 21g
陽極黑色 AL6063



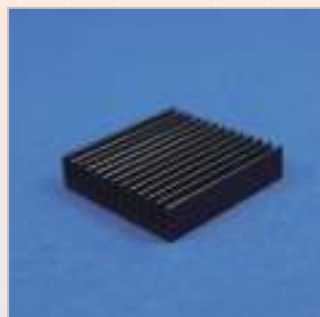
TGH-0350-03
35x35x15mm 24g
陽極黑色 AL6063



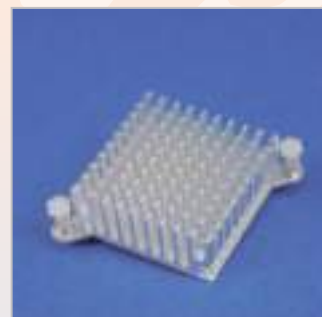
TGH-0350-04
35x35x20mm 30g
陽極黑色 AL6063



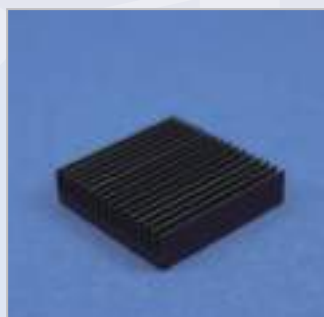
TGH-0380-01
38x20x9mm 10g
洗淨 AL6063



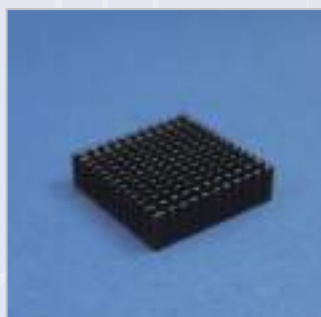
TGH-0380-03
38x38x9mm 19g
陽極黑色 AL6063



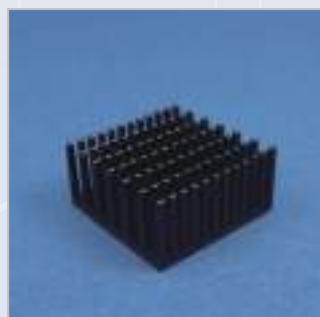
TGH-0380-05
38x38x15mm 19g
洗淨 AL6063



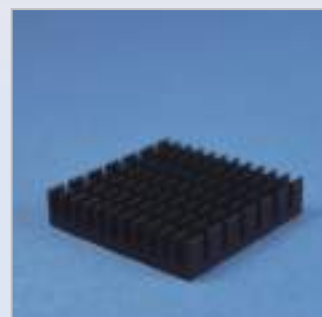
TGH-0400-01
40x40x10mm 24g
陽極黑色 AL6063



TGH-0400-03
40x40x11mm 17g
陽極黑色 AL6063



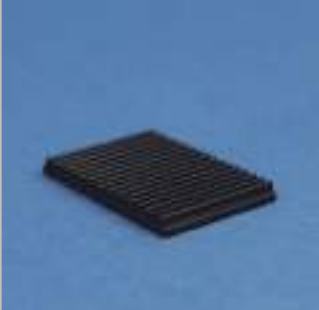
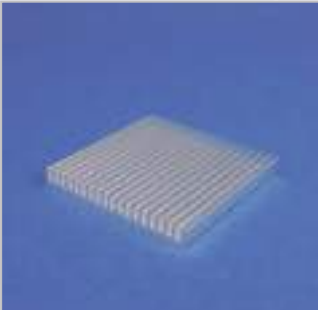
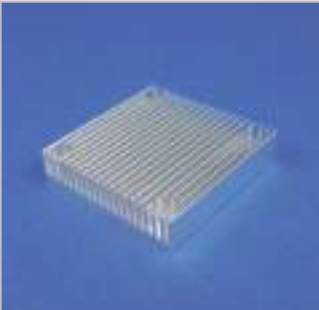
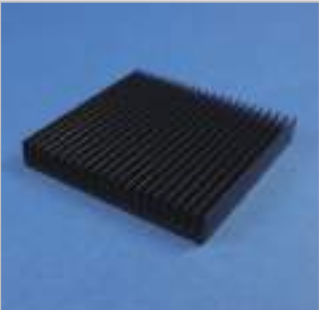
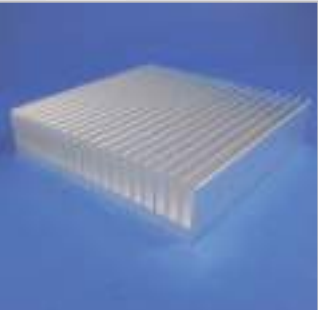
TGH-0400-04
40x40x20mm 26g
陽極黑色 AL6063



TGH-0450-01
45x45x10mm 27g
陽極黑色 AL6063

Heat Sink ④

- 規格皆為寬x長x高
- 此為既有模具公規

			
TGH-0500-01	TGH-0510-01	TGH-0510-02	TGH-0522-01
50x50x17mm	51x35x5mm	51x100x20mm	52.2x52.2x23mm
56g	17g	113g	74g
陽極本色	陽極黑色	陽極本色	陽極本色
AL6063	AL6063	AL6063	AL6063
			
TGH-0550-01	TGH-0610-01	TGH-0955-01	TGH-1535-01
55x55x6mm	61x61x13mm	95.5x95x14.3mm	153.5x150x34mm
32g	67g	134g	906g
陽極本色	陽極本色	陽極黑色	陽極本色
AL6063	AL6063	AL6063	AL6063

其他輔助材料 Relative Material

項目 Item	種類 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,請洽業務

參考資料 Reference Material

散熱方式 Heat Transferring

Heat Transferring 散熱方式

- A. Conduction 傳導
- B. Convection 對流
- C. Radiation 輻射



原理 Theorem

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.



沒有良好的導熱介質時，兩個連接面上其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，兩個連接面上其熱流通過的路徑方式。

Heat flows pass quickly, when it is with TIM.

Thermal conductivities of some materials at room temperature

Material	材質	Thermal Conductivity	Material	材質	Thermal Conductivity
Diamond	鑽石	2300	Water(l)	水	0.613
Silver	銀	429	Human Skin	人類皮膚	0.37
Copper	銅	401	Wood	木頭	0.17
Gold	金	317	Helium (g)	氦	0.152
Aluminum	鋁	237	Soft Rubber	軟質橡膠	0.13
Iron	鐵	80.2	Glass Fiber	玻璃纖維	0.043
Mercury	水銀/汞	8.54	Air (g)	空氣	0.026
Glass	玻璃	1.4	Urethane, rigid foam	氨基鉀酸酯	0.026
Brick	磚	0.72			

選擇適合的導熱介面材料

Select the proper thermal interface materials

導熱矽膠片 Thermal Pad		導熱膠泥 Thermal Putty	
型號 Type	導熱係數 Thermal Conductivity	型號 Type	導熱係數 Thermal Conductivity
GT10D	1.5 W/mK	TG-NSP25	2.50 W/mK
GT15	1.6 W/mK	TG4040 Putty	3.00 W/mK
GT20	2.1 W/mK	TG6060 Putty	6.00 W/mK
PC93	2.1 W/mK	相變化材料 Phase Change Material	
TG-A2200	2.2 W/mK	型號 Type	導熱係數 Thermal Conductivity
GT30	3.2 W/mK	TG-V833	3.3 W/mK
TG-A3500	3.5 W/mK	TG-V838	3.8 W/mK
PC94	4.2 W/mK	封裝膠 Potting Compound	
TG-A4500	4.5 W/mK	型號 Type	導熱係數 Thermal Conductivity
TG-A6200	6.2 W/mK	S720AB	0.80 W/mK
TG-A1250	12.5 W/mK	S730	2.00 W/mK
TG-A1450	14.5 W/mK	A96AB	2.50 W/mK
TG-A1660	16.6 W/mK	其他 Other materials	
TG-A1780	17.8 W/mK	型號 Type	導熱係數 Thermal Conductivity
導熱膠帶 Thermal Tape		Ti900	1.80 W/mK
型號 Type	導熱係數 Thermal Conductivity	CP series	1.90 W/mK
TG-T1000	1.00 W/mK	PH 3	金屬層:400 W/mK 塗布:1.2 W/mk
Li98T	1.30 W/mK	T62	xy:400~500 W/mK z:4~20 W/mK
Li2000	1.30 W/mK	T68	xy:1500 W/mk z:5 W/mk
Li98P	1.80 W/mK	TG-P100 series	xy:1500~1800 W/mk z:12 W/mk
Li98C	1.90 W/mK		
Li98CN	2.10 W/mK		
Li2000A	2.10 W/mK		
導熱膏 Thermal Grease			
型號 Type	導熱係數 Thermal Conductivity		
TG-S101	1.1 W/mK		
S6060B	1.9 W/mK		
S6060C	5.3 W/mK		
TG-S808	8.0 W/mK		
TG-N909	9.0 W/mK		

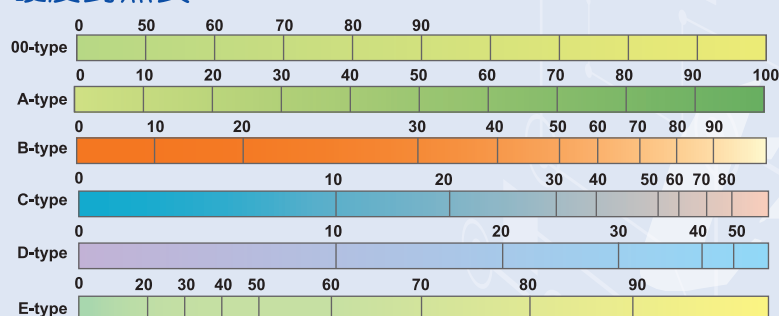
硬度 Shore00 0~55	
型號 Type	硬度 Hardness
TG-A2200	15
TG-A3500	30
TG-A4500	50
TG-A6200	50
TG-A1250	50
PC94	50
PC93	55

硬度 ShoreA 15~20	
型號 Type	硬度 Hardness
S730	17

硬度 Shore00 60~65	
型號 Type	硬度 Hardness
TG-A1450	60
TG-A1660	65
TG-A1780	65

硬度 ShoreA 25~90	
型號 Type	硬度 Hardness
S720AB	34~43
CP series	65
A96AB	68
GT series	70/75
GT10D	75

硬度對照表 Hardness Table





高柏科技股份有限公司(總公司)

T-Global Technology Co., Ltd(Head quarter)
33068 桃園市桃園區大仁路50巷33號
No.33, Ln.50, Daren Rd., Taoyuan Dist.,
Taoyuan City 33068, Taiwan

Tel:+886-3-3618899
免費服務電話:0800-211298
Fax:+886-3-3665666
Email:service@tglobal.com.tw

昆山聯柏電子東莞聯絡處

Unibror Technology Dongguan Liaison Office
(Dongguan, China)
東莞市常平鎮橫江廈星匯置地廣場2棟506室
Room 506, 2nd building, XingHui ZhiDI Square
HengJianXia., Changping Town,
Dongguan City 523586, Guan Dong, China
Tel:+86-769-83829728
Fax:+86-769-83829708
Email:dg3@tglobal.com.tw

昆山聯柏電子科技有限公司

Unibror Technology Co., Ltd
(Kunshan, China)
昆山市柏廬南路999號吉田廣場2號樓1102室
Room 1102, Buiding2, Yoshida Plaza,
No.999, Bolu South Rd., Kunshan City, 215300, China
Tel:+86-512-57925936
Fax:+86-512-57925926
Email:kunshan@tglobal.com.tw

高柏科技洛杉磯辦公室

T-Global Technology Los Angeles office (LA,USA)
13441 Gold Medal Ave, Chino, CA 91701
Tel:+1-626-888-3472
Email:usa@tglobal.com.tw

高柏歐洲分公司

T-Global Technology Europe Ltd.
Unit 1&2 Cosford Business Park, Central Park,
Lutterworth, Leicestershire, LE17 4QU
United Kingdom
Tel:+44(0)1455-553-510

