

20
YEARS
ANNIVERSARY

PRODUCT BROCHURE

—
**More Innovation
Less Heat**

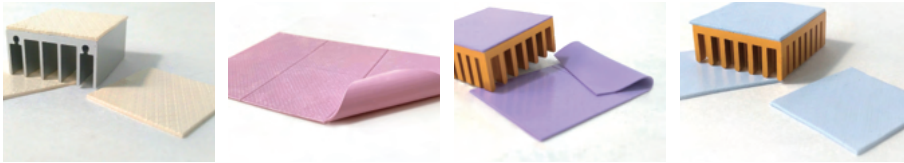
- 导热介面材料
Thermal Interface Materials
- 散热片
Heat Sink
- 热导管
Heat Pipe
- 均温板
Vapor Chamber
- 致冷晶片
TEC
- 电磁波吸收材料
FAM
- 风扇
Fan
- 热模拟分析服务
Thermal Simulation



TG-A series 导热矽胶片

Ultra Soft Thermal Pad

高导热特性，超软特性和压缩性好，绝缘性佳，具自黏性
High thermal conductivity. High compressibility and compliancy.
Electrical insulation. Natural tack.

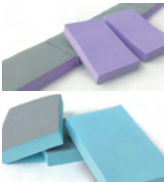


Properties	Unit	TG-A2200	TG-A3500	TG-A4500	TG-A6200	TG-A9000	TG-A1250	TG-A1450	TG-A1660	TG-A1780	TG-AH25	Test Method
Thermal Conductivity	W/mK	2.2	3.5	4.5	6.2	9.0	12.5	14.5	16.6	17.8	25	ASTM D5470
Thickness	mm	0.5~2.0	0.5~8.0	0.5~8.0	0.5~8.0	0.5~8.0	0.5~8.0	0.5~2.0	0.5~2.0	0.5~2.0	0.8~2.0	ASTM D374
Color	-	Gray	Yellow	Purple	Blue	Pink	Green	Pink	Dark Gray	Light Gray	Dark Gray	Colorimeter
Flame Rating	-	V-1	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	UL94
Dielectric Breakdown Voltage	KV/mm	≥13	≥13	≥10	≥10	≥8	≥10	≥8	≥7	≥8	≥1	ASTM D149
Weight Loss	%	< 1										ASTM E595
Density	g/cm³	2.7	2.3	3.1	3.1	3.2	3.3	3.6	3.6	3.5	3.3	ASTM D792
Operating Temperature	°C	-40~+180	-50~+180									-
Volume Resistivity	Ohm-m	3x10 ¹²	8x10 ¹²	1x10 ¹³	1x10 ¹³	1x10 ¹²	1x10 ¹³	7x10 ¹²	5x10 ¹²	6x10 ¹²	1×10 ⁸	ASTM D257
Elongation	%	55	80	50	50	40	40	30	20	20	10 (J5V-H1000)	ASTM D412
Standard Format	-	Sheet										-
Hardness (Silicone Side)	Shore OO	15	35	50	50	50	55	55	65	70	85	ASTM D2240

TG-A 玻纤系列导热矽胶片

Fiberglass Mesh Series Thermal Pad

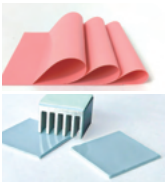
良好的导热特性，表面附着玻纤，不易变形，绝缘耐电压高
Very good thermal conductivity. Fiberglass on one side.
Non deforming. Electrical insulation.



超薄高性能导热矽胶片

Ultra Thin Thermal Pad

光滑的表面，可适用于恒温辐射范围之内，电气隔离与高耐电压
Smooth surface. Usable over a wide temperature range.
Electrical insulation and high breakdown voltage.



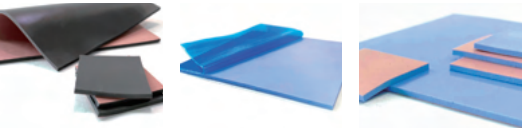
Properties	Unit	TG-A3500F	TG-A4500F	TG-A6200F	Test Method
Thermal Conductivity	W/mK	3	4	5	ASTM D5470
Thickness	mm	0.5~8.0			ASTM D374
Color	-	Yellow	Purple	Blue	Colorimeter
Reinforcement Carrier	-	Fiberglass Mesh			-
Flame Rating	-	V-0			UL94
Dielectric Breakdown Voltage	KV/mm	≥18	≥11	≥12	ASTM D149
Weight Loss	%	<1			ASTM E595
Density	g/cm³	2.3	3.1	3.1	ASTM D792
Operating Temperature	°C	-50~+180			-
Volume Resistivity	Ohm-m	8x10 ¹²	1x10 ¹³	1x10 ¹³	ASTM D257
Elongation	%	80	50	50	ASTM D412
Standard Format	-	Sheet			-
Hardness (Silicone Side)	Shore OO	35	50	50	ASTM2240

Properties	Unit	GT10D	TG-ALC	TG-A6200LC	TG-A1250LC	Test Method
Thermal Conductivity	W/mK	1.5	4.2	5	10	ASTM D5470
Thickness	mm	0.25	0.2/0.3	0.5~2.5	1.0~4.0	ASTM D374
Color	-	Pink	Green	Pad-Blue LC-Green	Pad-Green LC-Green	Colorimeter
Reinforcement Carrier	-	Fiberglass mesh	-	-	-	-
Flame Rating	-	-	V-0			UL94
Dielectric Breakdown Voltage	KV	≥6	≥4	≥6	≥6	ASTM D149
Weight Loss	%	<0.2	<1			ASTM E595
Density	g/cm³	2	2.9	3	3.3	ASTM D792
Operating Temperature	°C	-45~+180	-50~+180			-
Volume Resistivity	Ohm-m	>10 ¹²	1X10 ¹²	1X10 ¹⁰		ASTM D257
Elongation	%	50	10	50	40	ASTM D412
Tensile Strength	kgf/cm²	150	-	-	-	ASTM D412
Standard Format	-	Sheet				-
Hardness (Silicone Side)	Shore	A 75	A 60	OO 50	OO 60	ASTM D2240

TG-AK series 高性能导热矽胶片

High Performance Thermal Pad

导热良好，不易变形，施工性佳
Great thermal conductivity.
Difficult to be deformed.
Easy to assemble.



Properties	Unit	TG-20KX	TG-A38KX	TG-A20KF	TG-A38KF	Test Method
Thermal Conductivity	W/mK	2	3.8	1.8	3.3	ASTM D5470
Thickness	mm	0.3~10.0		0.5~10.0		ASTM D374
Color	-	Dark Gray	Blue	Dark Gray	Blue	Colorimeter
Reinforcement Carrier	-	-		Fiberglass Mesh		-
Flame Rating	-	V-0				UL94
Dielectric Breakdown Voltage	KV/mm	≥12	≥10	≥13	≥10	ASTM D149
Weight Loss	%	<1				ASTM E595
Density	g/cm³	2	3.1	2.1	3.1	ASTM D792
Operating Temperature	°C	-40~+180	-40~+200	-40~+180	-40~+200	-
Volume Resistivity	Ohm-m	3x10 ¹²				ASTM D257
Elongation (Silicone side)	%	160	110	160	110	ASTM D412
Standard Format	-	Sheet				-
Hardness (Silicone Side)	ShoreOO	55	60	55	60	ASTM2240

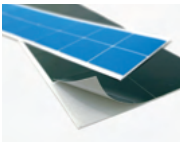
※ The thickness is less than 1.0mm, considering that it's too soft to pick up from the bottom paper, therefore, adjusting the hardness to 50~75 for production line.
※ Different tolerances according to the selected thickness.
※ Diecut for different shapes.

TG-T1000 Series 导热胶带

Thermal Tape

良好的黏着性，高可靠度，C/P值高，加工容易，依需求客制化

Good adhesion(Acrylic PSA). Great reliability. Cost effective with great performance. Easy to assemble. Customization services for different industries.



导热膏

Thermal Grease

流平性佳，不溢流，有效填补表面不平整处

Good leveling agent. No overflow. Effectively fill the gap of the interface.



导热胶泥

Thermal Putty

超低热阻，可任意塑型与下压

Low thermal resistance. Shapeable and compressible.



导热密封胶

Potting Compound

高稳定性，加热熟化

High stability. Heat curing.

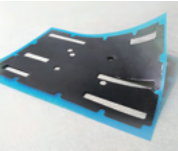


T68 人造石墨

Artificial Graphite Sheet

优秀的横向传导性，重量轻

High thermal conductivity. Low mass.

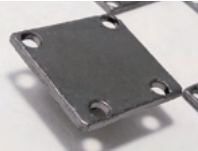


T62 天然石墨

Natural Graphite Sheet

体积小薄减低安装空间，降低电磁干扰

Low mass decreases space, EMI reduction



Properties	Unit	T68	Test Method
Thermal Conductivity (XY axis)	W/mK	1500	AC Calorimeter
Thermal Conductivity (Z axis)	W/mK	5	Laser Flash
Thickness	μm	25	Micrometer
Color	-	Black	Visual
Flame Rating	-	V-0	UL94
Thermal Diffusivity	cm²/s	8.5	AC Calorimeter
Density	g/cm³	2.1	Archimedes Law
Electrical Conductivity	S/cm	>13000	JIS K7194
Bending Test	times	10000	-
Operating Temperature	%	-40~+400	AC Calorimeter
Heat Capacity (SHC)	J/g-K	0.895	-

Properties	Unit	T62	T62-1	T62-2	Test Method
Thermal Conductivity (XY axis)	W/mK	400			AC Calorimeter
Thermal Conductivity (Z axis)	W/mK	20	15	5	Laser Flash
Thickness	mm	0.13	0.16	0.2	Micrometer
Color	-	Black			Visual
Structure	-	Graphite	Graphite +Adhesive	PET+Graphite +Adhesive	-
Density	g/cm³	1.5	1.5~1.8		ASTM D792
Graphite Contained	%	>98			-
Operating Temperature	°C	-30~+100			-

TG-P100 series 石墨烯均温片
Graphene

超薄，适用不通风环境，无剥离及掉粉问题
Ultra thin, Available for unventilated design,
No dusting issue

Table with 5 columns: Properties, Unit, TG-P10050, TG-P10090, Test Method. Rows include Thermal Conductivity (XY axis), Thermal Conductivity (Z axis), Total Thickness, Copper Foil Thickness, Coating Thickness, Vertical Resistivity, Parallel Resistivity, Cross-Cut Tape Test, Pencil Hardness Test, Solvent Resistance (Alcohol), Rubber Abrasive Test, High Temperature & Humidity Test, Thermal Shock Test@-20~+80°C, Temperature Range of Utility.

TG-V series 相变化材料
Phase Change Material

藉由材料热溶后良好的流动性，完整填充表面
With the good flow ability over phase change temperature,
surface irregularities can be well filled.

Table with 5 columns: Properties, Unit, TG-V833, TG-V838, Test Method. Rows include Thermal Conductivity, Thickness, Color, Phase Transition Temperature, Breakdown Voltage (AC), Density, Operating Temperature, Volume Resistivity, Thermal Impedance @10psi, Thermal Impedance @30psi, Thermal Impedance @50psi, Dielectric Constant @1KHz.

TG-FAM series 电磁波吸收材料
Flexible Absorbent Material

有效抑制电磁波干扰
Provide effective EMI suppression in a wide frequency range.

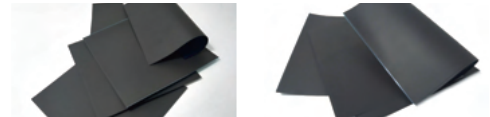


Table with 6 columns: Properties, Unit, TG-FAM1, TG-FAM3, TG-FAM6, TG-FAM7. Rows include Frequency, Thickness, Maximum Size, Material, Magnetic Inductivity (μ'@1MHz), Halogen, Operating Temperature, Density, Surface Resistivity.

CP series 导热绝缘帽套
Thermal Insulation Rubber Cap

低热阻抗，高绝缘性，简易安装组件
Low thermal contact resistance. Electrically isolating. Easy to assemble.

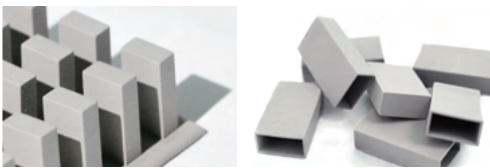


Table with 4 columns: Properties, Unit, CP22/CP23/CP33, Test Method. Rows include Thermal Conductivity, Thickness, Color, Operating Temperature, Density, Dielectric Breakdown Voltage (AC), Dielectric Breakdown Voltage (DC), Dielectric Constant, Thermal Impedance @10psi, Thermal Impedance @20psi, Thermal Impedance @50psi, Hardness.

3种线上试算器
快速评估导热散热材料

新上架!

封闭系统, 开放系统, 热导管

简单三步骤: 1. 输入散热机构数据, 2. 获取建议购买材料, 3. 改善设计节省成本

立即测试

XL-25 陶瓷散热片

Ceramic Heat Spreader

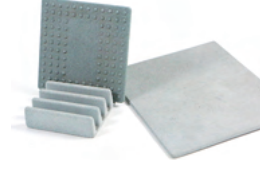


开放性多孔结构增加空气接触面积
Open-porous structure increases air contact area.

Properties	Unit	XL-25	Test Method
Thermal Conductivity	W/mK	10	-
Color	-	Gray/Green	Visual
Dielectric Breakdown Voltage	KV/mm	≥0.5	ASTM D149
Bulk Density	g/cm³	1.89	CNS 619
Flexural Strength	kgf/cm²	47.5	CNS 12701
Porosity	%	25	CNS 619
Water Absorption	%	16	CNS 619
Operating Temperature	°C	<500	-
Linear Thermal Expansion Coefficient	10 ⁻⁶	4.13	RT-300°C
Main Composition	-	SiC/Al ₂ O ₃ /SiO ₂	-
Hardness	Moh's	5-6	DIN En101-1992

XL-25 series 陶瓷散热片

Ceramic Heat Spreader



冷热冲击性佳，可适应环境剧烈变动，无毒，耐高温
High reliability. Non toxic. High temperature resistance.

Properties	Unit	XL-25W	XL-25D	Test Method
Thermal Conductivity	W/mK	25	190~210	-
Color	-	White	Dark Gray	Visual
Dielectric Breakdown Voltage	KV/mm	≥15	≥18.45	ASTM D149
Bulk Density	g/cm³	≥3.8	3.32	CNS 619
Volume Resistivity	Ohm-m	10 ¹²	1.4x10 ¹³	-
Flexural Strength	kgf/cm²	4078.8	3416	CNS 12701
Linear Thermal Expansion Coefficient	10 ⁻⁶	6.6~8	2.805	RT~300°C
Main Composition	-	Al ₂ O ₃	AlN	-

均温板
Vapor Chamber



二维面传导，被动元件，高稳定性，较热管高十倍性能
Horizontally conduction. Passive components. High stability.
Efficiency higher than heat pipe 10 times.

Properties	Unit	XVC-A001	XVC-A002	Tolerance
Size	mm	90x60	80x80	±0.3
Thickness	mm	0.4		±0.05
Thermal Resistance	°C/W	<0.02		-
Material	-	Copper Alloy		-
Surface Finishing	-	Anti-oxidation		-
Extra Components	-	-		-
Operation Power (Q _{max})	W	10		-

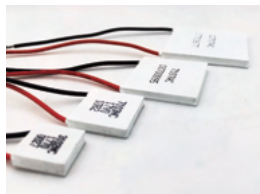
热导管 Heat Pipe



快速均温性，被动元件，重量轻
Fast heat-balancing.
Passive components. Light-weighted.

TEC 致冷晶片

Thermoelectric Cooling Chip

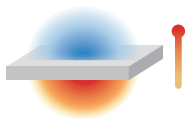


体积小、轻量化，无动作、低噪音，精确控温，适用于极端环境
Small bulk. Light weight. Vibration-free. Noise-free.
Precise temperature control. High strength for rugged environments.

Diameter(mm)	Thickness(mm)	Width(mm)
Ø4	2	5.65
	2.5	5.55
	3	5.45
Ø5	2	6.91
	2.5	6.59
	3	6.32
	3.5	6.01
	4	5.68
Ø6	2	8.50
	2.5	8.18
	3	7.95
	3.5	7.65
	4	7.39
Ø8	2	11.65
	2.5	11.39
	3	11.15
	3.5	10.83
	4	10.60
	4.5	10.27
	5	10.01
	6	9.36
• Thickness tolerance: +0.05/-0.10mm • Width tolerance: +0.15/-0.20mm		

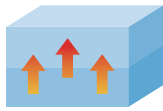
Size(mm)	Height(mm)	I _{max} (A)	V _{max} (V)	Watt(W)	@27° Q _{max} (W)	@50° Q _{max} (W)	R(Ω)
15×15	3.1	6.0	3.8	22.8	13	14.3	0.45Ω±10%
	3.4	8.5	2.1	17.9	10.3	11.3	0.20Ω±10%
	3.6	3.9	3.8	14.8	8.6	9.5	0.85Ω±10%
	3.8	3.0	3.8	11.4	7.3	8.0	1.00Ω±10%
	3.9	6.0	2.1	12.6	7.4	8.2	0.30Ω±10%
	4.7	2.0	3.8	7.6	4.4	5.0	1.65Ω±10%
20×20	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%
30×30	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%
40×40	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.							

你最适合什么高柏热工程产品呢？



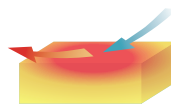
控制温度

精确的控制温度并实现致冷的目的



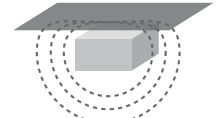
导热

减少热源与散热器接触面产生的接触热阻



散热

将热透过主动或被动的方式散至空气中



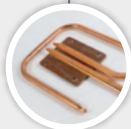
电磁波吸收

吸收特定频段之电磁波抑制电磁波干扰



致冷晶片

精确的控制温度并实现致冷的目的



热导管

将局部热源快速传导到另一端的高性能导热装置



均温板

将局部热源快速传导到大面积的高性能导热装置



导热介面材料

减少热源与散热器接触面之间产生的接触热阻



散热片

贴于发热元件表面是目前最普遍的散热产品之一



散热风扇

透过空气的流动从而对设备提供足够的冷空气



电磁波吸收材料

有效抑制电磁波干扰

直向导热(Z轴)

片状

高K值

导热矽胶片

有效减少热源表面与散热器接触面之间产生的接触热阻

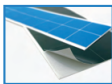


1.5-17.8 W/mk

高黏性

导热胶带

高热传导性、高黏性低热阻抗、耐电压高



高电器绝缘

低热阻

导热膏

填补表面不平整处且不溢流,有机矽基材无环境污染



膏状

高黏性

导热胶泥

介于液态和固态的物理特性拥有非常低的热阻抗



热成固化

导热密封胶

高硬度可用于支撑固化后保护机构防止受外界环境影响

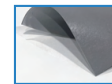


特殊型

快速降温

相变化材料

材料热溶后表面良好的流动性完整填充表面不平整缝隙



常用于温度变化较大的产品

绝缘

导热绝缘帽套

简易安装组件降低产品重量热传导与缓冲效果



横向导热(XY轴)

石墨材

体积轻薄

石墨片

具有高效导热性/导电性/可做EMI遮蔽效果

常用于手机散热

含铜箔

石墨烯

适用于不通风环境/无剥离及掉粉问题



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