



# 高柏科技有限公司

## T-GLOBAL TECHNOLOGY CO., LTD

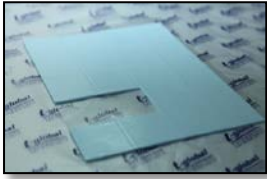


**t-global**  
TECHNOLOGY  
www.tglobal.com.tw

No. 33, Ln. 50, Daren Rd., Taoyuan City, Taoyuan County 330, Taiwan

TEL: +886-3-361-8899 FAX: +886-3-366-5666 www.tglobal.com.tw service@tglobal.com.tw

### TG Series Thermal Pads

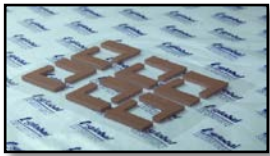


**Features :** Electrical insulation  
Good thermal conductivity  
Soft, and high compressibility  
Natural tack  
Low hardness  
Low oil bleed- long term stability

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	TG2030	TG4040	TG4040LC	TG4040F	TG6050	TGX	Method
Color	Visual	White	Blue	Blue	Blue	Red	Gray	Visual
Thickness	mm	0.5~5.0	0.5~5.0	0.2~5.0	0.5~5.0	0.5~5.0	0.5~2.0	ASTM D374
Thermal Conductivity	W / mK	2	4	3.5	4	6	12	ASTM D5470
Flame Rating	-	V-0	V-0	V-0	V-0	V-0	V-0	UL 94
Breakdown Voltage	KV / mm	16	15	>4	15	13	12	ASTM D149
Weight Loss	%	<1	<1	>0.4	<1	<1	<1	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	2.4	2.8	2.6	2.8	3.2	3.4	ASTM D792
Working Temperature	°C	-45~+200	-45~+200	-55~+200	-45~+200	-45~+200	-45~+200	-
Volume Resistance	Ohm-cm	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>11</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>11</sup>	ASTM D257
Elongation	%	300	100	100	100	50	-	ASTM D412
Tensile Strength	Kgf / cm <sup>2</sup>	1	1	60	1	0.5	-	ASTM D412
Standard Shape	-	Sheet ones						-
Hardness	Shore 00	30	40	45	40	60	60	ASTM D2240

### H48 Series Thermal Pads



**Features :** Great thermal conductivity  
Soft, and high compressibility  
Easy to assemble  
Natural tack  
Electrical insulation

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	H48-2	H48-2K	H48-6	H48-6A	H48-6G	H48-6S	Method
Color	Visual	Dark Red	Dark Red	Dark Gray	Henna	Gray	Dark Red	Visual
Thickness	mm	0.1~20	0.1/0.2/0.3	0.3~20	0.3~20	0.3~5.0	0.23	ASTM D374
Thermal Conductivity	W / mK	2.2	2.2	3.2	4	6	1.8	ASTM D5470
Flame Rating	-	V-0	V-0	V-0	V-0	V-0	V-0	UL 94
Breakdown Voltage	KV / mm	>5	1.2/2.5/3.5	>2	>5	>13	>7	ASTM D149
Weight Loss	%	<1	<0.5	<1	<1	<1	<1	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	2.43	2.4	2.42	2.48	3.09	1.95	ASTM D792
Working Temperature	°C	-40~+200	-45~+200	-40~+200	-40~+200	-40~+200	-40~+200	-
Volume Resistance	Ohm-cm	>10 <sup>11</sup>	>10 <sup>11</sup>	>10 <sup>11</sup>	>10 <sup>11</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>	ASTM D257
Elongation	%	282	50	130	120	60	0.2	ASTM D412
Tensile Strength	Kgf / cm <sup>2</sup>	7	0.002	8	8	6	66.5	ASTM D412
Standard Shape	-	Sheet ones						-
Hardness	Shore A	25	40	30	35	35	16	ASTM D2240

### L37 Series Thermal Pads



**Features :** Great thermal conductivity  
Soft, and high compressibility  
Easy to assemble  
Natural tack  
Electrical insulation

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	L37-3	L37-3F	L37-3S	L37-3L	L37-5	L37-5S	Method
Color	Visual	Yellow	Yellow	Light Yellow	Yellow	Gray	Gray	Visual
Thickness	mm	0.3~20	0.25/0.3/0.45	0.3~20	0.5~10	0.3~20	0.5~5.0	ASTM D374
Thermal Conductivity	W / mK	1.7	1.4	1.95	1.5	1.6	1.8	ASTM D5470
Flame Rating	-	V-0	V-0	V-0	V-0	V-0	V-0	UL 94
Breakdown Voltage	KV / mm	>10	3/4/5	>13	15	>10	16	ASTM D149
Weight Loss	%	<1	<1	<1	<0.2	<1	<1	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	2.17	2	2.21	2.4	2.38	2.4	ASTM D792
Working Temperature	°C	-40~+200	-40~+200	-40~+200	-45~+200	-40~+200	-45~+200	-
Volume Resistance	Ohm-cm	>10 <sup>12</sup>	>10 <sup>13</sup>	>10 <sup>12</sup>	>10 <sup>11</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>	ASTM D257
Elongation	%	-	5	350	20	300	300	ASTM D412
Tensile Strength	Kgf / cm <sup>2</sup>	66.4	150	8	14	12	1	ASTM D412
Standard Shape	-	Sheet ones						-
Hardness	Shore A	6	80	6	15	25	Shore 00 25	ASTM D2240



# 高柏科技有限公司

## T-GLOBAL TECHNOLOGY CO., LTD



**t-global**  
TECHNOLOGY  
www.tglobal.com.tw

No. 33, Ln. 50, Daren Rd., Taoyuan City, Taoyuan County 330, Taiwan

TEL: +886-3-361-8899 FAX: +886-3-366-5666 www.tglobal.com.tw service@tglobal.com.tw

### Li Series Thermal Tapes

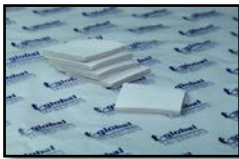


**Features :** Good adhesion  
High thermal conductivity  
Soft and compressibility  
Easy to assemble

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	Li98	Li98C	Li98CN	Li98P	Liv2	Li2000	Li2000A	Method
Color	-	White	White	White	White	White	White	White	Visual
Thickness	mm	0.15/0.25		0.18	0.125/0.14	0.15/0.25	0.15/0.25	0.2	ASTM D374
Reinforcement Carrier	-	Fiberglass		-	Polyimide	Fiberglass		-	-
Thermal Conductivity	W / mK	0.95	1.8	2	1.7	1.0	1.2	2	ASTM D5470
Density	g / cm <sup>3</sup>	1.85	1.8	1.8	1.3/1.2	1.85	-	-	ASTM D792
Breakdown Voltage (Vac)	KV	>2/>3	>2/3	>5	4/5	2/3	>2/>3	>3.5	ASTM D149
Breakdown Voltage (Vdc)	KV	>3/>4	>3/4	>6	5/6	3/4	>3/>4	>4.5	ASTM D149
Working Temperature	°C	-30~120			-30~120	-30~120	-45~170	-45~170	-
Short Time Use Temp. (30sec)	°C	200			250	180	288	260	-
Thermal Impedance @<1psi	°C in <sup>2</sup> / W	1/1.5	0.7/1.2	0.6	0.8/0.9	0.9/1.5	0.9/1.4	0.7	ASTM D5470
Thermal Impedance @<50psi	°C in <sup>2</sup> / W	0.9/1.3	0.5/0.9	0.3	0.6/0.7	0.65/1.1	0.73/0.9	0.45	ASTM D5470
Initial Tack	cm	10/8	14/2	15	15	11/10	10	>30	PSTC-6
Lap Shear Strength	N / cm <sup>2</sup>	61	55/50	55	63/62	60	74/76	35	ASTM D1002
Tensile Strength	psi	200/400	200/400	50	500/600	200/400	870	-	ASTM D412
Die Shear Strength @25°C	N / cm <sup>2</sup>	120	109/100	100	115	120	113/126	60	-
Die Shear Strength @80°C	N / cm <sup>2</sup>	69	68	55	66/64	69	80/85	50	-
Holding Power 1000g@25°C using 1 in <sup>2</sup>	min	>10000				>40000			PSTC-7
Holding Power 1000g@80°C using 1 in <sup>2</sup>	min	>10000				>40000			PSTC-7
180° Peeling Strength (Aluminum)	N / cm	>10/>12	>7/>8	>10	-	14/15	-	-	ASTM D3330

### PC Series Non-Silicone Thermal Pads



**Features :** Low contact thermal impedance  
Good thermal conductivity  
Silicone free  
Long term stability

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	PC93	PC94	Method
Color	-	Gray	Red	Visual
Thickness	mm	0.5~5.0	0.5~5.0	ASTM D374
Thermal Conductivity	W / mK	2	4	ASTM D5470
Flame Rating	-	V-0	V-0	UL94
Breakdown Voltage	KV / mm	10	10	ASTM D149
Weight Loss	%	<1	<1	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	2.1	2.5	ASTM D792
Working Temperature	°C	-30~125	-30~125	-
Volume Resistance	Ohm-cm	>10 <sup>12</sup>	10 <sup>10</sup>	ASTM D257
Elongation	%	350	100	ASTM D412
Tensile Strength	Kgf / mm <sup>2</sup>	1	2	ASTM D412
Standard Shape	-	Sheet ones	Sheet ones	-
Hardness	Shore 00	45	60	ASTM D2240

### Thermal Gel



**Features :** High thermal conductivity  
Long term stability

**Applications :** Electronic components: IC, CPU, MOS  
LED, M/B, P/S, Heat Sink,  
LCD-TV, Notebook, PC, Telecom Device,  
Wireless Hub,.....etc. DDR II Module,  
DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	A96AB	S720AB	S730	Method
Color	-	White/Black	White	Gray	Visual
Thermal Conductivity	W / mK	2.5	0.8	2.0	ASTM D5470
Breakdown Voltage	KV	>10	>6	>12	ASTM D149
Weight Loss	%	<1	<1	-	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	1.8	1.97	2.5	ASTM D792
Working Temperature	°C	-25~150	-40~180	-50~200	-
Viscosity	Cps	1800~2500	2000~3000	<50000	ASTM D2393
Standard Package	Pot	1KG	1KG	1KG	-
Hardness	Shore A	80	40~50	20	ASTM D2240



### GT Series Thermal Pads

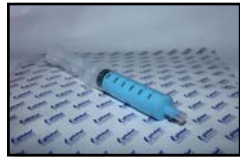


**Features :** Smooth surface & low contact resistance  
Great thermal performance at low pressure  
Usable over wide range of temp.  
Electrical insulation  
Complies with UL standards

**Applications :** Electronic components: IC, CPU, MOS LED, M/B, P/S, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub,.....etc. DDR II Module, DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	GT15	GT20	GT30S	Method
Color	Visual	Yellow	Green	Pink	Visual
Thickness	mm	0.35	0.35	0.35	-
Thermal Conductivity	W / mK	1.5	2.0	3.0	ASTM D5470
Flame Rating	-	V-0	V-0	V-0	UL 94
Breakdown Voltage	KV / mm	4	4	3	ASTM D149
Weight Loss	%	<0.2	<0.2	<0.2	ASTM E595
Specific Gravity	g / cm <sup>3</sup>	2.3	2.6	2.8	ASTM D792
Working Temperature	°C	-45~180	-45~180	-45~180	-
Volume Resistance	Ohm-cm	>10 <sup>11</sup>	>10 <sup>11</sup>	>10 <sup>11</sup>	ASTM D257
Elongation	%	60	60	30	ASTM D412
Tensile Strength	Kgf / cm <sup>2</sup>	200	200	100	ASTM D412
Standard Shape	-	Sheet ones			-
Hardness	Shore A	75	80	80	ASTM D2240

### Thermal Putty

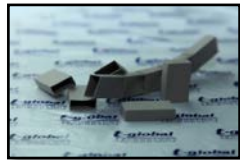


**Features :** High thermal conductivity  
Compressibility  
Low thermal resistance  
Great for North Bridge IC

**Applications :** Electronic components: IC, CPU, MOS LED, M/B, P/S, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub,.....etc. DDR II Module, DVD Applications, Hand-set Applications,.....etc.

Specification	Unit	TG-NSP25	TG4040 PUTTY	Method
Silicone	-	Silicone-free	Silicone-type	-
Color	-	Gray	Blue	Visual
Solid Content	%	100 (one-part)	100 (one-part)	-
Thermal Conductivity	W / mK	2.5	3.0	ASTM D5470
Viscosity 0.5rpm	Pa·s	5,000	3,000	Brookfield
Density	g / cm <sup>3</sup>	2.6	2.6	ASTM D792
Low MW Siloxane(D4-10)	ppm	0	50	GC/MS
TML	%	0.2	0.3	ASTM E595
CVCM	%	0.1	0.09	ASTM E595
Volume Resistivity	Ohm-cm	10 <sup>14</sup>	10 <sup>14</sup>	ASTM D257
Working Temperature	°C	-50~150	-50~180	-

### CP Series Thermal Cap



**Features :** Low thermal contact resistance  
Electrical insulation

**Applications :** Electronic components: IC, CPU, MOS LED, M/B, P/S, Heat Sink, LCD-TV, Notebook, PC, Telecom Device, Wireless Hub,.....etc. DDR II Module, DVD Applications, Hand-set Applications,.....etc.

**Standard sizes (mm) :**

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

Specification	Unit	CP22/CP23/CP33	Method
Material	-	Silicone	-
Color	-	Gray	Visual
Thickness	mm	0.3 / 0.45	-
Thermal Conductivity	W / mK	1.9	ASTM D5470
Breaking Voltage (Vac)	KV	4 / 6	ASTM D149
Breaking Voltage (Vdc)	KV	6 / 8	ASTM D149
Dielectric Constant	1000Hz	5.8	ASTM D150
Flame Rating	-	V-0	UL94
Density	g / cm <sup>3</sup>	2.55	ASTM D792
Working Temperature	°C	-45~180	-
TML	%	<0.2	ASTM E595
Hardness	Shore A	75	ASTM E595



### Ti900 Thermal Insulators



- Features** :
- Electrical insulation
  - Low thermal impedance
  - Easy to assemble
- Applications** :
- Electronic components: IC, CPU, MOS, LED, M/B, P/S, Heat Sink, LCD-TV, NB, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set Applications, ..... etc.

Specification	Unit	Ti900	Method
Thickness	mm	0.12	-
Base	-	RITF	ASTM D5470
Thermal Conductivity	W / mK	1.8	ASTM D374
ThermalResistance@10psi	K in <sup>2</sup> / W	0.50	ASTM D5470
ThermalResistance@30psi	K in <sup>2</sup> / W	0.42	ASTM D5470
ThermalResistance@50psi	K in <sup>2</sup> / W	0.35	ASTM D5470
ThermalResistance@100psi	K in <sup>2</sup> / W	0.29	ASTM D5470
ThermalResistance@200psi	K in <sup>2</sup> / W	0.28	ASTM D5470
ThermalResistance@400psi	K in <sup>2</sup> / W	0.27	ASTM D5470
Breaking Voltage (Vac)	KV	>6	ASTM D149
Volume Resistance	Ohm-cm	>10 <sup>12</sup>	ASTM D257
Working Temperature	°C	-50~180	-
Tensile Strength	psi	5000	ASTM D412
Elongation	%	40	ASTM D412
Flame Rating	-	V-0	UL94

### XL-25 Ceramic Heat Spreaders



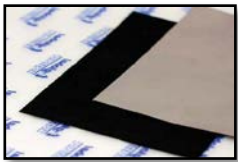
- Features** :
- Large contact area
  - Low weight
  - High voltage breakdown
  - High resistance
  - Easy to assemble
  - Good heat transferring
- Applications** :
- Electronic components: IC, CPU, MOS, LED, M/B, P/S, Heat Sink, LCD-TV, NB, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set Applications, ..... etc.

#### Size (mm)

- 10x10x2.0 (Flat)
- 15x15x2.0 (Flat)
- 15x15x2.5 (Flat)
- 20x15x2.0 (Flat)
- 20x20x2.0 (Flat)
- 20x20x2.5 (Flat)
- 38x38x11.5 (Fin)
- 30x30x2.0 (Flat)
- 30x30x2.5 (Flat)
- 40x40x2.0 (Flat)
- 40x40x2.5 (Flat)
- 40x40x3.0 (Dots)
- 25x25x5.0 (Fin)
- 50x50x3.0 (Dots)

Specification	Unit	XL-25	Method
Color	-	Gray/Green	Visual
Thermal Conductivity	W / mK	6.79	-
Breaking Voltage	V	>500	ASTM D149
Specific Gravity	g / cm <sup>3</sup>	1.89	CNS 619
Surface Resistance	Ohm	>10 <sup>9</sup>	ASTM D257
Flexural Strength	Kgf / cm <sup>2</sup>	47.5	CNS 12701
Porosity	%	30	CNS 619
Working Temperature	°C	<500	-
Linear Temperature Expansion Coefficient	10 <sup>-6</sup>	4.13	RT~300°C
Main Composition	-	SiC/Al <sub>2</sub> O <sub>3</sub> /SiO <sub>2</sub>	-
Hardness	Moh's	5~6	DIN En101-1992

### T68 Artificial Graphite Sheets

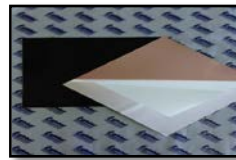


- Features** :
- Great thermal conductivity: 1600W/m.K
  - Electrical insulation
  - Ultra thin; low mass
  - Environmental friendly
  - Low contact resistance

- Applications** :
- Electronic components: IC, CPU, MOS, LED, M/B, P/S, Heat Sink, LCD-TV, NB, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set Applications, ..... etc.

Specification	Unit	T68	Method
Thickness	μm	25	Micrometer
Thermal Conductivity	XY axis	W / mK	1500-1700
	Z axis	W / mK	5
Thermal Diffusivity	cm <sup>2</sup> / S	8.92	AC calorimeter
Density	g / cm <sup>3</sup>	2.1	Archimedes law
Electrical Conductivity	S / cm	20000	JIS K7194
Curvature	-	Flexible	MIT
Heat Resistance	°C	400	AC calorimeter
Heat Capacity (SHC)	J / g-K	0.895	-

### PH3 Heat Spreaders



- Features** :
- Large temp. reduction
  - Long term stability
  - Easy to assemble

- Applications** :
- Electronic components: IC, CPU, MOS, LED, M/B, P/S, Heat Sink, LCD-TV, NB, PC, Telecom Device, Wireless Hub, DDR II Module, DVD Applications, Hand-set Applications, ..... etc.



Specification	Unit	PH3
Color	-	Black
Thickness	mm	0.06/0.11/0.21
Thermal Conductor	-	Copper
Metal Layer Thermal Conductivity	W / mK	400
Insulator	-	Polyester
Pressure-sensitive Adhesive	-	Acrylic PSA
Breakdown Voltage	KV	>2/>2/>3
Continuous Working Temperature	°C	-30~120