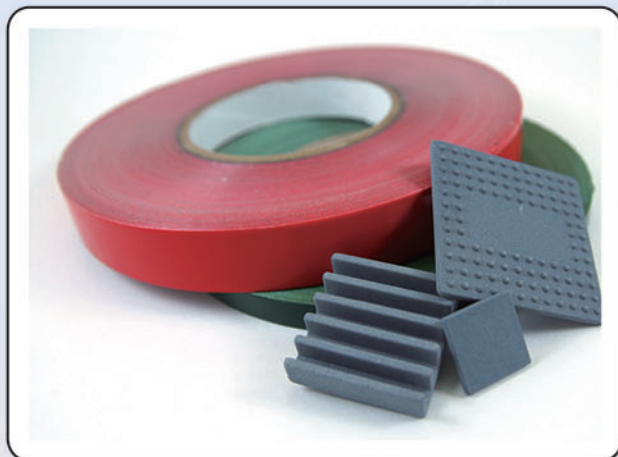


XL-25 陶瓷散熱片 Ceramic Heat Spreader



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

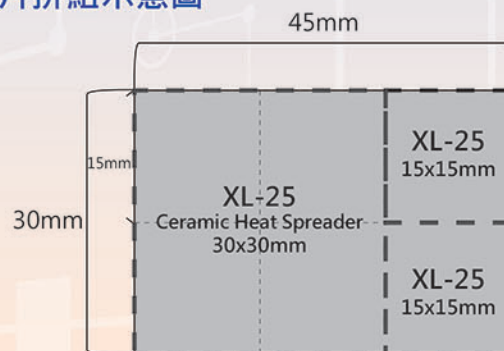
產品應用端 Applications

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(鰭片/fin) |
| 02. 15x15x2.5(平板/flat) | 11. 35x35x10.0(鰭片/fin) |
| 03. 15x15x5.0(鰭片/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(鰭片/fin) |
| 06. 20x20x2.5(平板/flat) | 15. 40x40x10.0(鰭片/fin) |
| 07. 22x22x2.5(平板/flat) | 16. 50x50x3.0(凸點/embossed) |
| 08. 30x30x2.0(平板/flat) | 17. 50x50x5.0(鰭片/fin) |
| 09. 30x30x2.5(平板/flat) | 18. 50x50x10.0(鰭片/fin) |

陶瓷散熱片拼組示意圖



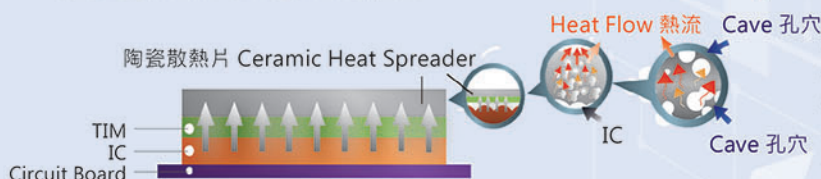
產品物性 Properties

● 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



$Qt \propto S \times A$: 散熱效能與風速及接觸面積成正比。
 Qt : 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。
 Aca : Air contact (m²) of ceramic heat sink 陶瓷散熱片的接觸面積。
 Aal : Air contact (m²) of aluminium heat sink 鋁質散熱片的接觸面積。

$$Aca \approx 5 \times Aal$$

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, Qt 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。