

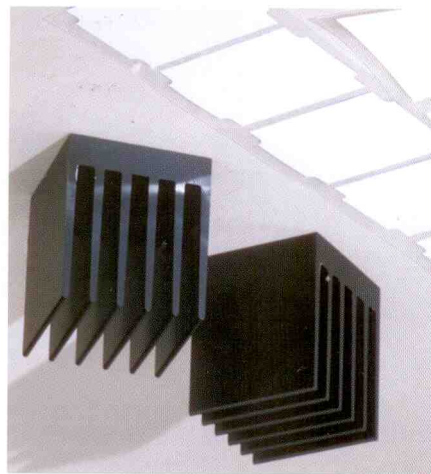
**Keratherm® - silicone free  
Standard films**

- Applications:**
- Medical applications
  - Laser equipment
  - Lighting systems
  - CD-Rom drives
  - Aero units
  - Space units

| Properties                           |                                 | Unit                 | U 23                  | U 80                  | U 90 |
|--------------------------------------|---------------------------------|----------------------|-----------------------|-----------------------|------|
| <b>Thermal properties</b>            |                                 |                      |                       |                       |      |
| Thermal resistance $R_{th}$          | K/W                             | 0.52                 | 0.20                  | 0.09                  |      |
| Thermal impedance $R_{th}$           | $^{\circ}\text{Cmm}^2/\text{W}$ | 208                  | 73                    | 32.9                  |      |
| Thermal conductivity $\lambda$       | W/mK                            | 1.2                  | 1.8                   | 6.0                   |      |
| <b>Electrical properties</b>         |                                 |                      |                       |                       |      |
| Breakdown voltage $U_{d,ac}$         | kV                              | 9.0                  | 4.0                   | 4.0                   |      |
| Volume resistivity                   | $\Omega\text{cm}$               | $4.9 \times 10^{11}$ | $1.44 \times 10^{14}$ | $2.0 \times 10^{11}$  |      |
| Dielectric loss factor $\tan \delta$ | 1                               | $8.0 \times 10^{-2}$ | $13.0 \times 10^{-3}$ | $13.7 \times 10^{-3}$ |      |
| Dielectric constant $\epsilon_r$     | 1                               | 1.7                  | 3.2                   | 3.10                  |      |
| <b>Mechanical properties</b>         |                                 |                      |                       |                       |      |
| Overall thickness (+/-10%)           | mm                              | 0.250                | 0.150                 | 0.200                 |      |
| Hardness                             | Shore A                         | 85                   | 85                    | 70                    |      |
| Tensile strength                     | N/mm <sup>2</sup>               | 5.0                  | 3.0                   | 2.5                   |      |
| Elongation                           | %                               | 250                  | 130                   | 150                   |      |
| <b>Physical properties</b>           |                                 |                      |                       |                       |      |
| Density                              | g/cm <sup>3</sup>               | 2.32                 | 2.90                  | 1.73                  |      |
| Application temperature              | $^{\circ}\text{C}$              | -40 to +90           | -40 to +125           | -40 to +125           |      |

Optional available with adhesive coating!

In case of concerns about using silicones, we offer you a ceramic-filled polyurethane film as an alternative material. Besides good thermal and outstanding electrical properties, these films are characterized by very good perforation strength. These good physical properties are matched with an excellent price-performance ratio.



Thickness U23: 0,125 mm; 0,250 mm; 0,3 mm; 0,4 mm; 0,5 mm  
 Thickness U80: 0,15 mm; 0,3 mm  
 Thickness U90: 0,1 mm; 0,2 mm