

# KL 90 & KL 91

## ceramic filled adhesive film

### Applications

Thermal connection of

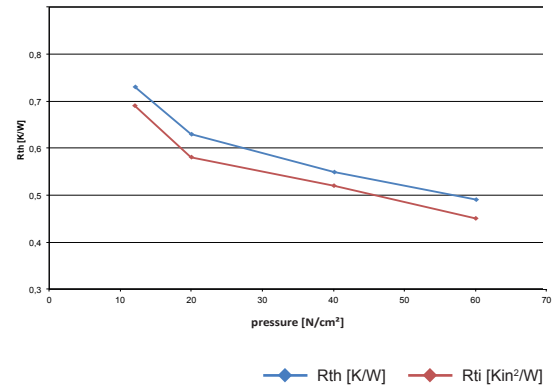
- ◆ MOSFETS
  - ◆ CPUs, LEDs
  - ◆ Flips Chips, DSPs
  - ◆ BGAs, PPGAs
- on heat sinks

### Representatives

- ◆ power supplies and inverter modules
- ◆ computers
- ◆ telecommunication electronics
- ◆ automotive electronic

Properties	Unit	KL 90	KL 91
Colour		black	black
Basic material		acrylate	acrylate
Reinforcement (fibre glass)		without	with
<b>Thermal Properties</b>			
Thermal resistance $R_{th}$	K/W	0.52	0.55
Thermal impedance $R_{ti}$	$^{\circ}\text{Cmm}^2/\text{W}$	208	220
	$\text{Kin}^2/\text{W}$	0.32	0.34
Thermal conductivity $\lambda$	W/mK	1.40	1.35
<b>Electrical Properties</b>			
Breakdown voltage $U_{d; ac}$	kV	6.0	6.0
Dielectric breakdown $E_{d; ac}$	kV/mm	20.0	20.0
Volume resistivity	$\Omega\text{m}$	$2.6 \times 10^4$	$2.6 \times 10^4$
Dielectric loss factor $\tan \delta$		$3.1 \times 10^{-1}$	$3.1 \times 10^{-1}$
Dielectric constant $\epsilon_r$		18.5	18.5
<b>Mechanical Properties</b>			
Measured thickness (+/-10%)	mm	0.300	0.300
Hardness	Shore A	45	59
Tensile strength	N/mm <sup>2</sup>	0.3	11.3
<b>Physical Properties</b>			
Application temperature	$^{\circ}\text{C}$	-40 to +125	-40 to +125
Density	g/cm <sup>3</sup>	1.98	1.87
Total mass loss (TML)	Ma.-%	< 0.15	< 0.15
Flame rating	UL-94	V-0	V-0
Possible thickness		details see page 58	

Compression KL 90 & KL 91



Ceramic filled double-sided adhesive film - with or without fibre glass! KL 90 and KL 91 are double sided adhesive films. They have an excellent, permanent adhesive strength with high thermal conductivities and very good insulation characteristics at the same time.

Low thermal contact resistances can be achieved with a very reliable adhesive strength on different surfaces. Mechanical fixation with clips, screws or rivets is needed. Due to the soft surface finish, tolerances can be compensated very well. Light weight, easy handling and high elasticity are further advantages.

Data for engineer guidance only.  
Observed performance varies in application.  
Engineers are reminded to test the material in application.

**NOTE:**

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. KERAFOL® is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. All specifications are subject to change without notice. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded. In case KERAFOL® would be nevertheless held liable, on whatever legal ground, KERAFOL®'s liability will in no event exceed the amount of the concerned delivery. All KERAFOL® products are sold pursuant to the KERAFOL®'s Terms and Conditions of sale and delivery in effect from time to time, a copy of which will be furnished upon request.

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