

# ZEMREX™ KOOL-PADS™

## THERMALLY CONDUCTIVE INSULATORS

# K177 & K228

KOOL-PADS K177 and K228 offer a low cost alternative to all other types of thermally conductive insulators. Constructed from a thermally conductive silicone rubber compound coated onto a layer of woven glassfibre, they provide a strong flexible and clean insulator, which will not crack, age or permit contamination.

Used mainly between heatsinks and semiconductors, KOOL-PADS soft pliable surfaces allow consistent and efficient heat transfer while maintaining good electrical insulation. When replacing mica and grease, KOOL-PADS will allow reduced assembly through ease of application. They contain no organic materials, will not support fungus growth and resist most cleaning fluids. KOOL-PADS meet the UL flame retardant rating of 94V-0.

### ADHESIVE COATING

KOOL-PAD insulators are available with pressure sensitive adhesive which is an assembly aid and does not affect the wide operating temperature range.

### CUSTOM AND STANDARD SHAPES

Materials K177 and K228 are available from stock in most standard outlines shown on the following pages. All materials are available for custom cutting with moderate tool charges and quick delivery. Sheets are available from stock.

### MOUNTING PRESSURES

Typical mounting pressures are 21-42 Kg/CM<sup>2</sup>. This is achieved by using a torque of 0.4-0.7 Nm on the transistor mounting screw, depending upon package size. Most clip mounting methods provide a lower pressure which will result in a higher thermal resistance.

### BREAKDOWN VOLTAGE

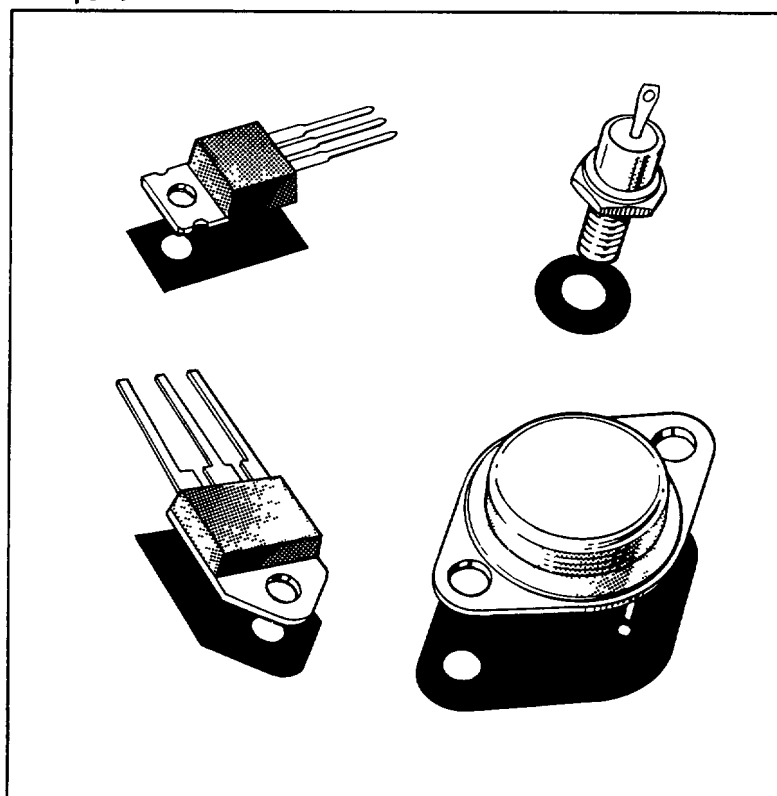
All our insulating materials are tested in-house to the ASTM D149 procedure for determining dielectric strength and do not involve punched holes in the test sample.

When screw mounting a semiconductor with nut, bolt and insulating bush there is a danger of flash-through from the underside of the semiconductor to the heatsink on the outside of the insulating bush. Depending on the insulator thickness and other mechanical factors (see insulating bush page) this flash-through could be as low as 700 volts. Should your flash test requirements be higher then we suggest the use of mounting clips or Thermaflex. Contact our technical department for advice.

### PLASTIC ENCAPSULATED SEMICONDUCTORS

If electrical insulation is not required particularly when using plastic encapsulated devices then a very much higher thermal conductance can be achieved by using ZEMREX CM20 pads, shown on the following pages.

151-085



## TYPICAL PROPERTIES OF KOOL-PADS

| PART PREFIX CODE                                              | K177-          | K228-          |
|---------------------------------------------------------------|----------------|----------------|
| Thickness (mm)                                                | 0.177<br>±0.02 | 0.228<br>±0.02 |
| Breakdown Voltage 50Hz RMS<br>Normal<br>Moist                 | 4000<br>2000   | 5000<br>2500   |
| Approximate<br>Thermal resistance<br>(TO-3 transistor)°C/Watt | 0.40           | 0.50           |
| Thermal Conductivity<br>W/°K m                                | 0.710          | 0.710          |
| Hardness, Shore Micro                                         | 85±4           | 85±4           |
| Specific Gravity                                              | 2.0-2.1        | 2.0-2.1        |
| Elongation percent                                            | 4              | 4              |
| Continuous Use<br>Temp °C                                     | -60 to<br>+180 | -60 to<br>+180 |
| Colour                                                        | Grey           | Grey           |

### ORDERING PROCEDURE.

K177—NA—XXX  
K177—AC—XXX  
K228—NA—XXX  
K228—AC—XXX

NA = Non adhesive  
AC = Adhesive coat  
XXX = Part No suffix