Technical Bulletin

STAYSTIK®

Patented Technology *

571 – Silver Filled Electrically Conductive Film
672 – Aluminum Nitride Filled Thermally Enhanced Film
472 – Non-Filled Dielectric Interposer Film
872 – Alumina Filled “Low Flow” Dielectric Film

These thermoplastic adhesive films are designed for use in a variety of electronic applications. These materials are characterized by their excellent bonding at low process temperatures and extremely low ELASTIC MODULUS (60,000psi). The compliancy of these adhesives allows for the bonding of two materials having large dissimilarities in thermal expansion coefficients (TCEs). The unique reworkability of this thermoplastic adhesive system offers many advantages in applications traditionally ill-suited to thermoset adhesives.

Fully Polymerzed Resin – No “Cure”
Easily Reworkable – No Outgassing
Bonds in Seconds – Not Hours or Minutes
Low Modulus Reduces Stress to Bonded Materials

TYPICAL PROPERTIES	571	672	472	872
FILLER MATERIAL:	SILVER	AIN	NONE	ALUMINA
ATTACH TEMPERATURE RANGE:	125°C - 200°C	125°C - 200°C	125°C - 200°C	125°C - 200°C
CONTINUOUS USE RANGE:	-65°C - +150°C	-65°C - +150°C	-65°C - +150°C	-65°C - +150°C
MAX EXCURSION TEMPERATURE:	+280°C	+280°C	+280°C	+280°C
THERMAL CONDUCTIVITY (W/M/°K):	≥ 3.0	≥ 1.0	≤ 0.25	≤ 0.6
VOLUME RESISTIVITY (Ohm-cm):	≤ $5x10^{-4}$	≥ $1x10^{+9}$	≥ $1x10^{+9}$	≥ $1x10^{+9}$
DIE SHEAR ADHESION @ 25°C:	≥ 1800 psi	≥ 2000 psi	≥ 2000 psi	≥ 2000 psi
ELASTIC MODULUS (psi):	≥ 60,000	≥ 60,000	≥ 60,000	≥ 60,000
GLASS TRANSITION TEMP. (Tg):	≥ 25°C	≥ 25°C	≥ 25°C	≥ 25°C
SHELF LIFE @ 25°C:	1 YEAR	1 YEAR	1 YEAR	1 YEAR

* United States Patent #5,061,549
* United States Patent #5,401,536

Cookson Electronics
A Division of Cookson Group plc

FILM AVAILABILITY

- Sheet material is available in thicknesses of 1.5mil, 3mil and 5mil. Sheet sizes range from 4" x 4" up to a maximum of 10" x 12".
- Same thicknesses apply for preforms. Cookson has a fully equipped stamping facility on site. Provide your dimensions or drawing.
- Rolls / Tape: Cookson has the capability to provide long strips of film adhesive slit to 0.250" or wider for continuous feed bonding machines.

BONDING

Bond film material at 125°C to 200°C. Pressure required is dependent on temperature and dwell time at temperature. Lower temperatures require higher pressures. Higher temperatures require little or no pressure. It is critical that both interfaces to be bonded reach the required temperature. Typical pressures for most applications range from 1 to 10psi. Time required to form a bond will depend on the application. Bonds can be formed in seconds under optimum conditions. Typical bond times are 10 to 60 seconds. Equipment used for heating can range in sophistication from a hot plate to a box oven or continuous feed belt furnace.

STORAGE

Store at room temperature. Do not refrigerate or freeze. It is recommended that film be kept in nitrogen cabinet or dessicator to prevent exposure to moisture. If the material is kept beyond the recommended shelf life, it is not necessarily unusable. But, a quality control should be performed on the properties relevant to the application.

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