



9882 Thermally-Conductive Adhesive Transfer Tape

Product Data Sheet

Updated : February 1996
Supersedes : November 1993

Product Description

9882 is a 2 mil version of the 3M thermally-conductive adhesive transfer tape, and acrylic pressure sensitive film supplied on a protective release liner.

The tape yields excellent thermal conductivity and electrical insulation properties, combined with a high level of adhesion (with reworkability).

Typical applications of 9882 include ambient temperature bonding of ICs, packages, components, flex circuits and heat sinks to a variety of materials, and at the same time help provide control of heat transfer.

Physical Properties

Not for specification purposes

Adhesive Type	Acrylic	3M ref :
Thickness (ASTM D-3652) Tape Liner Total	50 µm ± 0.0005 inches 50 µm 100 µm	
Release Liner	Clear Polyester	
Specific Gravity	2.0 g/cm ³	
Tape Colour	White	
Shelf Life	12 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

Performance

Characteristics

Not for specification purposes

Shear Strength

Static shear 0.5 in² (323mm²) will hold listed weight for 10,000 minutes.

72°F (22°C) 1000 grams
158°F (70°C) 1000 grams

Dynamic Shear

To aluminium, 1in² (645mm²) overlap, jaw speed : 0.5 in/min (12.7 mm/min)

Condition	Lbs/in ² (kPa)
22°C	75 (520)
70°C	45 (310)

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**Performance
Characteristics (Cont.)**

Not for specification purposes

Peel Adhesion

90 degree peel to
aluminium, jaw speed : 12
in/min (350 mm/min), 5 mil
(0.13mm) anodised
aluminium foil backing.

Condition	oz/in (N/m) width
72 hours 22°C	45 (490)
72 hours 70°C	90 (990)

**Total Mass Loss (%
Volatile Material)**

Measured after 4 hours at
125°C. % wt loss < 1.0%

Dielectric Constant

ASTM D150

Condition	
1 kHz, 23°C	5.39
1 MHz, 23°C	4.49

Dielectric Strength

ASTM D149 (@ 23°C) >750Vac/mil
(>29.5 kVac/mm)

Thermal Resistance

Determined (internal 3M test
method) by using a known
area of thermally conductive
adhesive transfer tape to
bond a transistor in a TO-
220 package to an
aluminium heat sink, then
supplying a known amount
of power to the transistor
and

measuring ΔT between the
TO-220 package and the
heat sink.

Measurements of ΔT were
taken over a transistor
temperature range of 20°C -
120°C, and dwell times after
bonding of 1 minute to 24
hours.

Data in °C-in²/W.

0.31

Thermal Conductivity

(Internal 3M test method,
using data from thermal
measurements W/m-°K).
 K_{eff} is measured thermal
conductivity which
necessarily includes an

interfacial component
 $K_{int} \cdot K_{bulk}$ adjusts for the
interfacial resistance, the
latter being determined by
extrapolation of the thermal
resistance versus tape

thickness data to zero
thickness.

Therefore $K_{eff} < K_{bulk}$.

K_{bulk}	0.5
K_{eff}	0.3

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Application Techniques

Thermally-conductive adhesive transfer tape allows for fast, easy application and immediate joining of substrates at room temperature with light pressure. No long cure cycles at high temperatures or clamping devices are required as with thermosetting films such as epoxies. Rather than a chemical cure cycle, thermally-conductive adhesive transfer tape has a "wetting cycle" in which, on a molecular scale, the adhesive wets and interlocks surfaces instantly. The adhesive has sufficient initial tack to hold components in position and depending on the substrate, initial bond will be 20-50% of the ultimate bond strength.

Ultimate bond strength will be achieved after an extended period at ambient temperatures or several hours at elevated temperatures. Nominal tape application temperature 70°F (21°C) or higher. Tape application is not recommended below 60°F (16°C) as the adhesive will not adequately wet the substrates which may result in bond failure.

Thermally-conductive adhesive transfer tape is supplied on a protective release liner which increases stability and permits easier handling. The tape is usually supplied in roll form with a single release liner; however, it also can be die cut to meet specific design or application needs.

Surfaces to be bonded should be clean and dry prior to tape application. Do not remove the release liner prior to application as the tape should not be handled as a free standing film. With the release liner in place, apply tape in a manner that will avoid air entrapment. Trim excess tape if necessary (or use die-cut material) and provide contact pressure to the liner with PA1 tape wipe or roller. Remove liner and apply pressure to both surfaces to be bonded.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



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