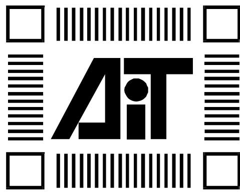

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DIE-ATTACH FILM
ESP7665-HK-FG

Low Bond Line
High Flow
Electrically Insulating
Ultra-Low Ionic Impurities
Fiber-Glass Reinforced

IDEAL FOR:

- Outstanding Dielectric Interface
- Matching to PWB and Metal Substrate
- Die Attach Film Adhesive
- High Temperature Laminate
- Low Dielectric Constant (~3.6) and Loss (<0.003)

DESCRIPTION:

ESP7665-HK-FG is a fiber-glasss mesh lined version of ESP7665-HK. It is a die attach film adhesive that can also be applied to wafer level packaging. It contains a modified micro-alumina crystallite filled, high-bond strength epoxy film designed for traditional die-attach application. It is also engineered and proven with outstanding stress absorbing capaility.

ESP7665-HK-FG is a dry epoxy film that may be melt-laminated onto wafer or substrate of circuite sites at 100-130ºC @ 5-15 psi without premature curing. It is also useful for bonding component and substrate to substrate and carrier with matched thermal coefficients of expansion. ESP7665-HK-FG has good thermal conductivity to achieve one of the lowest thermal interface resistance.

AVAILABILITY:

ESP7665-HK-FG is available in wafer, sheet sizes or as custom preforms. Standard thickness available is 75 and 150 micron. Special thicknesses with tight tolerance are available.

APPLICATION PROCEDURES:

For Wafer Laminated Die-Attach:

(1) Keep product at room temperature for 15 minutes. Remove film from protective paper.

(2) Before using, remove protective liner from film.

(3) Pre-laminate at 80-100ºC @ <5 psi. Dice with standard tape and release procedure.

(4) Place on heated substrate and cure*.

TYPICAL PROPERTIES*

Property	Value
Electrical Resistivity (150 ºC/ 60 minutes)	>1x10^{14} ohm-cm
Dielectric Strength (Volts/mil)	> 750
Glass Transition Temp.(ºC)	175
Current Carrying Capabilities	Not Applicable
Lap-Shear Strength	Not Applicable
Device Push-off Strength	>4000 psi >27.8 N/mm²
Hardness (Type)	90 (D)
Cured Density (gm/cc)	2.2
Thermal Conductivity	>12.6 Btu-in/hr-ft²-ºF >1.8 W/m-ºC
Linear Thermal Expansion Coeff. (ppm/ºC)	17
Maximum Continuous Operation Temp. (ºC)	150

* Properties given are typical values and not intended for use in preparing specifications. The user is advised to evaluate the product in the manner the product is intended to be used in manufacturing and in the final product.

*CURE SCHEDULES:

Temperature	Time	Pressure
100ºC	2 hr	5-15 psi
125ºC	1 hr	5-15 psi
150ºC	30 min	3-15 psi

For tack-and-cure: Tack the die with DAF with heated collet and heated stage holding the header, leadframe, module or substrate at 100-150ºC. Post curing at the same temperature.

Besides major transition of Tg at around 175ºC, additional molecular relaxation occurs at 50-120ºC.

1 cP = 10-3 Pa·s = 1 mPa·s; 145psi=.99974MPa=.99974 N*mm²; 1lb = 4.448N; 1 inch=25.4 mm; 1V/mil= 39.3701 V/mm; 1 lb-in = 0.11298 N-m

SHELF LIFE:

Storage temperature	Shelf Life
25ºC	1 yr in sealed package

The information contained herein is believed to be reliable. All recommendations or suggestions are made without guarantee inasmuch as conditions and methods of commercial use are beyond our control. Properties given are typical values and not intended for use in preparing specifications. The user is advised to evaluate the product in the manner the product is to be used in manufacturing and in the final product. Under no circumstance shall A.I. Technology be liable for accidental, consequential or other damages arising from the use or handling of this product.

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