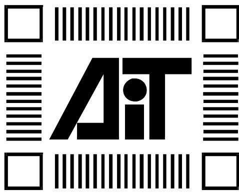

AI TECHNOLOGY INC
70 Washington Road
Princeton Jct., NJ 08550
(609) 799-9388 fax (609) 799-9308
E-Mail: ait@aitechnology.com
Internet: http://www.aitechnology.com

DRY EPOXY FILM

ESP7455-W

Flexible Epoxy Film
Thermally Conductive
Higher Flow During Bonding
Outstanding Thermal Stability
Meet 883/5011 & NASA-ESA Spec.

IDEAL FOR:

- Wafer-Level Lamination for Stack Chip
- Die, Component, and Substrate Attach
- Large Area & Mismatched CTE Bonding
- In-Line Direct Bonding with "Tack-and-Cure"

DESCRIPTION:

ESP7455-W is an alumina-filled, higher flow epoxy film adhesive designed for bonding chip, component and substrate to a mismatched substrate or carrier. The adhesive film has very low ionic impurities of less than 10 ppm and good thermal stability.The dry, tack-free epoxy film may be tacked with placement pressure and continue to finish curing without pressure. This unique "tack-and-cure" processing of the adhesive film makes it ideal for an automated assembly.

ESP7455-W has good thermal conductivity. The extra low Tg of -60ºC helps to minimize thermal stress on the bonded parts during thermal cycling or shock testing from -55 to 150ºC.

AVAILABILITY:

ESP7455-W is available in sheet sizes or as custom preforms. Standard thicknesses are 0.002" and 0.006". Special thicknesses are available. The film is self supporting without the need of fiberglass mesh reinforcement.

APPLICATION PROCEDURE

(1) Keep product at room temperature for 15 minutes before using.

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

(3) Laminate onto wafer at 125-150C with UV release tape. Dice and remove chips.

(4) Place on substrate and cure according to one of the recommended schedules.

TYPICAL PROPERTIES*

Property	Value
Electrical Resistivity (150º ºC/ 60 min)	$>1\times10^{14}$ ohm-cm
Dielectric Strength (Volts/mil)	750
Glass Transition Temp.(ºC)	-60
Current Carrying Capabilities	Not Applicable
Lap-Shear Strength	>1000 psi >6.9 N/mm²
Device Push-off Strength	>2000 psi >13.8 N/mm²
Hardness (Type)	80 (A)
Cured Density (gm/cc)	2.1
Thermal Conductivity	>10 Btu-in/hr-ft²-ºF >1.5 W/m-ºC
Linear Thermal Expansion Coeff. (ppm/ºC)	110
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.

TACK & CURE PROCESS:

Temperature	Time	Pressure
TACKING:	Pressure)	
125-175ºC	1 sec	>10 psi
CURING	pressure)	
150ºC	30 min	
175ºC	5 min	
200ºC	1 min	

The die or component can also be tacked on the substrate at 125ºC or higher with 5-10 psi. When a fillet around the edge of the die or component is observed, the pressure can be released for the rest of the bonding cycle.

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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