

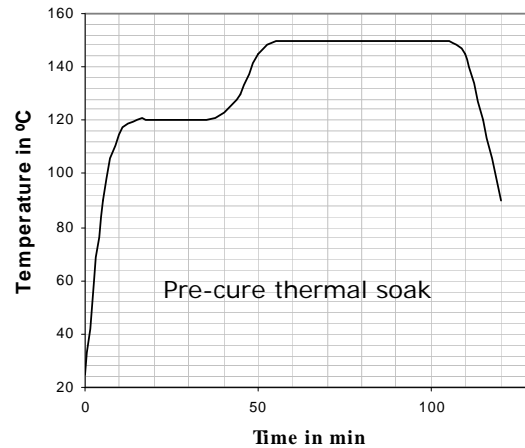
A.5.3.4 Thermal Cure: Optimization

Typical specification:

Temperature T and time t

Probably a range of T & t combinations

Possibly ramp rates dT/dt



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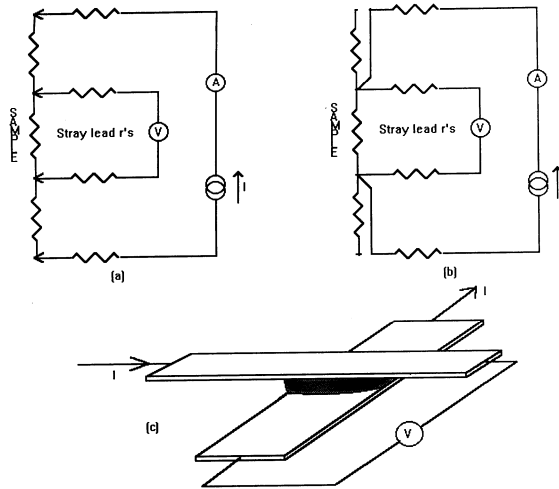
A.6. Electrical Test

- 6.1 4-terminal measurement
- 6.2 3-terminal measurement
- 6.3 Low R measurement
- 6.4 Test board & high frequency test coupon
- 6.5 Current crowding
- 6.6 Electrical failure

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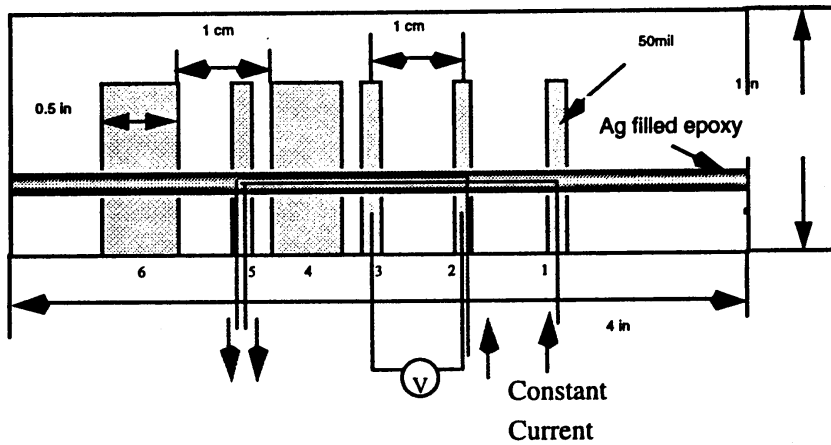
6.1 Four-terminal measurement



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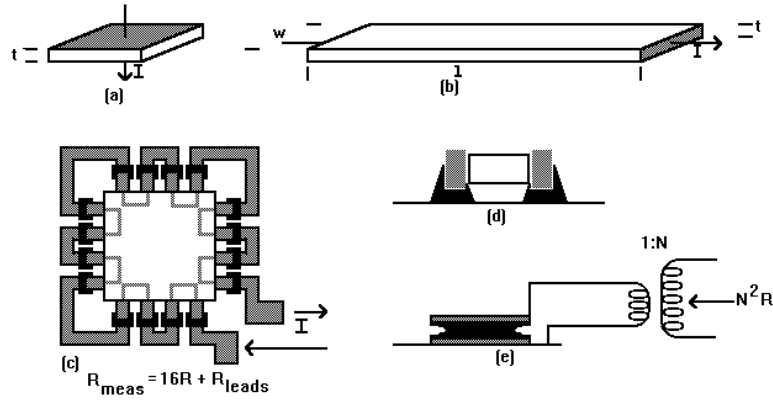
6.2 Three terminal measurement for pad contact resistance



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6.3 Low Resistance

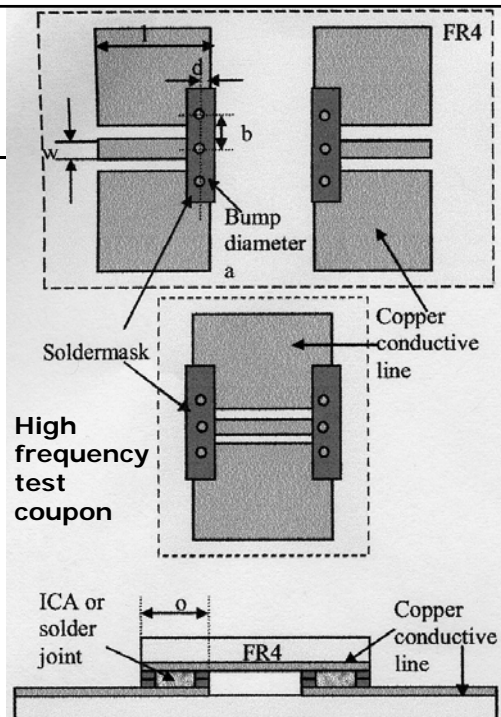
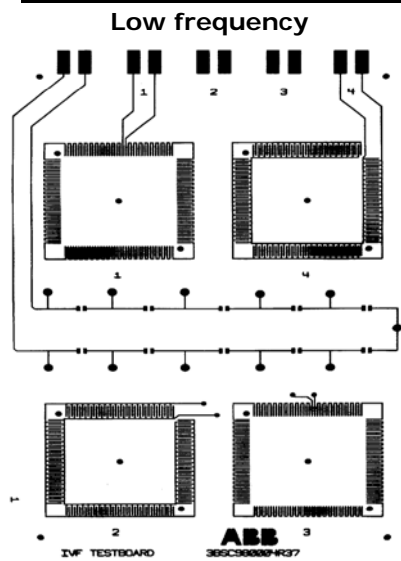


Wheatstone bridge

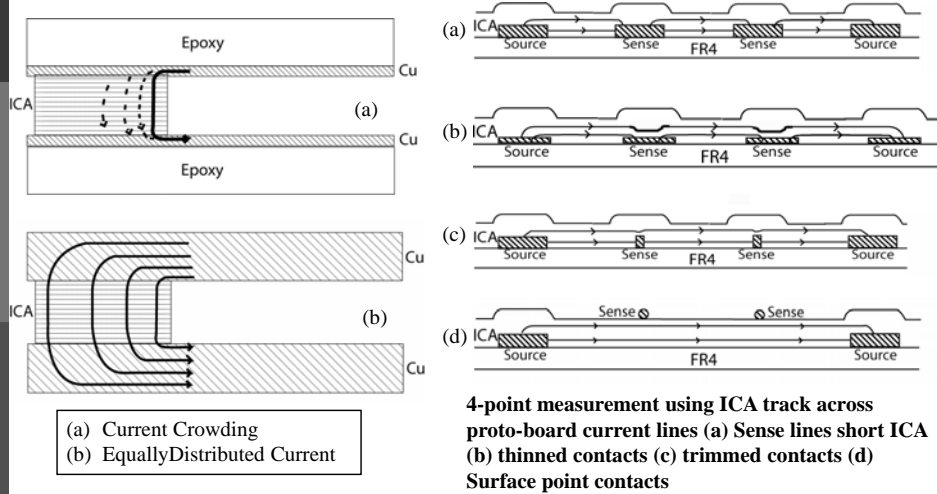
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6.4 SMT test boards



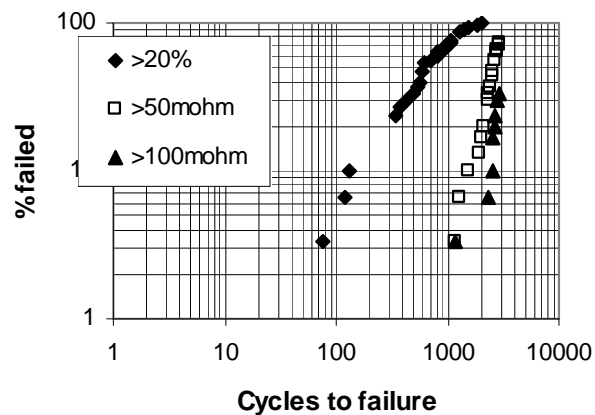
6.5 Current crowding & contact shorting



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6.6 Cumulative failure of an ACA film flip-chip joint in temperature cycling test measured by single joint contact resistance measurement



What is a functional definition of "Failure?"

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Electrically Conductive Adhesives

**B. Anisotropic Conductive Adhesive
Paste (ACP) or Z-Axis Film (ACF/ZAF)**

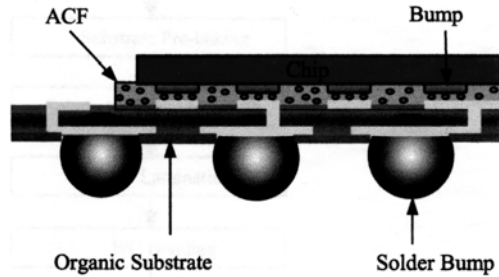


Figure 1. Package concept.

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C. Anisotropic Conductive Adhesives

1. Introduction

■ Structure

- Applications
 - Processing
2. Mechanical
- Adhesion
 - Viscoelasticity
 - Cure pressure effects
 - Flow modeling

3. Electrical

- Modeling: analytical
- Contraction stress
- High frequency
- FE modeling
- Particle placement

4. Thermal

■ CTE

- Thermal conductance
- Modeling

5. Reliability

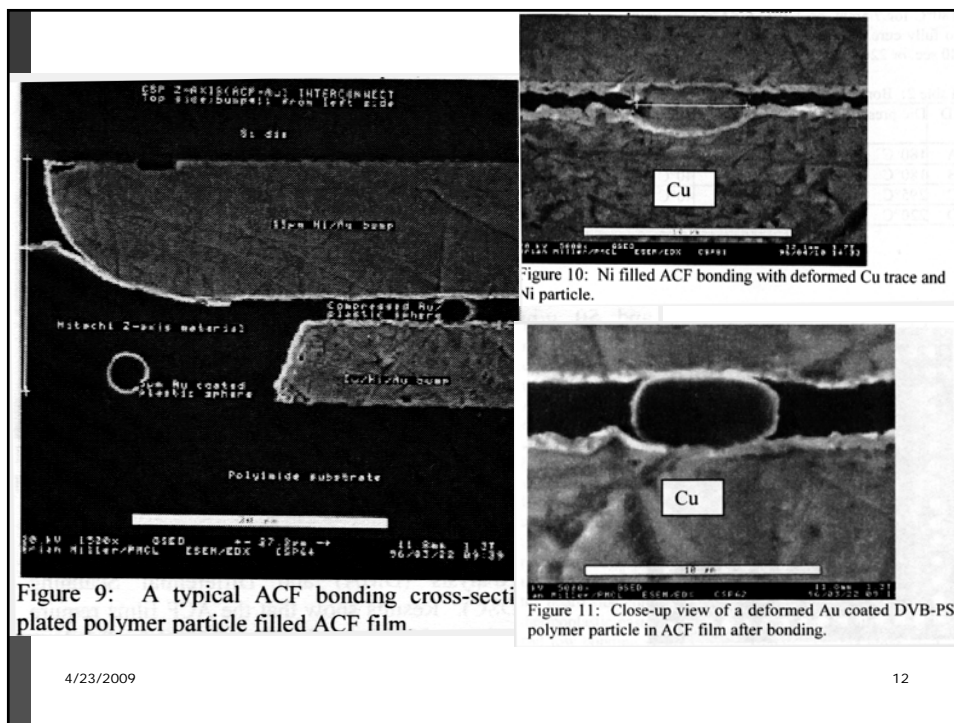
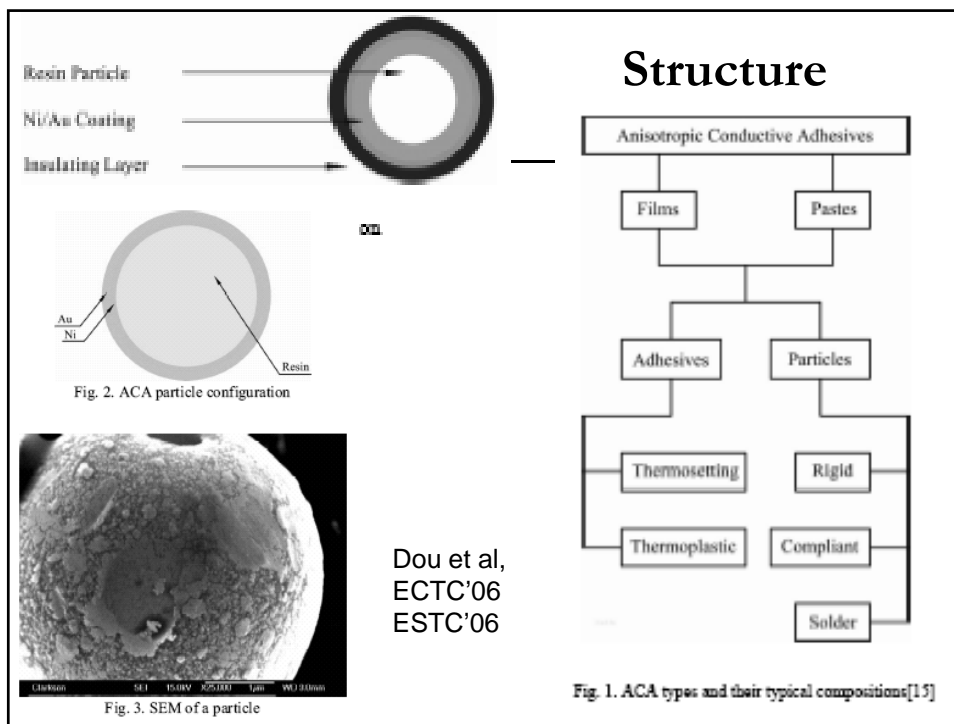
- Thermal cycling
- Warping
- Substrate effects
- Particle rupture
- Humidity
- Environmental corrosion

6. Variations

- Sn-Bi
- Nanowires
- Ordered particles
- Hitachi

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1.2 ACA Paste (ACP) Application

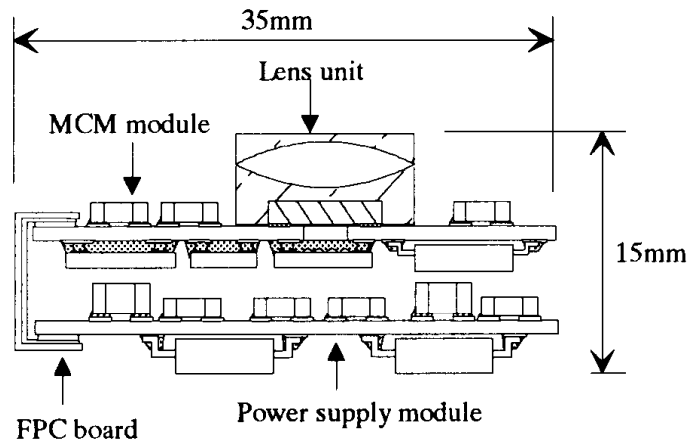


Fig. 2 Cross sectional image of the camera module

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□ (Karasawa et al, IEMT/IMC, 1999)

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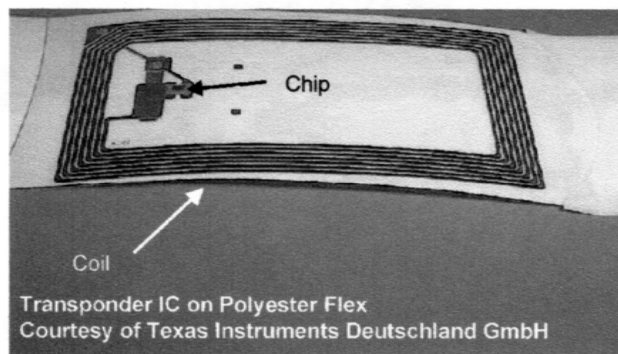
ACP Application (IZM-Berlin)

Department: Chip Interconnection Technologies
and Advanced Packages

Applications

Flip Chip on Flex Using Anisotropic Conductive Adhesives

- Application:
Transponder Tag
(Airline Bag Tag)
- Substrate:
Polyester
- Coil:
Aluminum
- Adhesive:
anisotropic
conductive
(filler content: 20%)



ACF Application

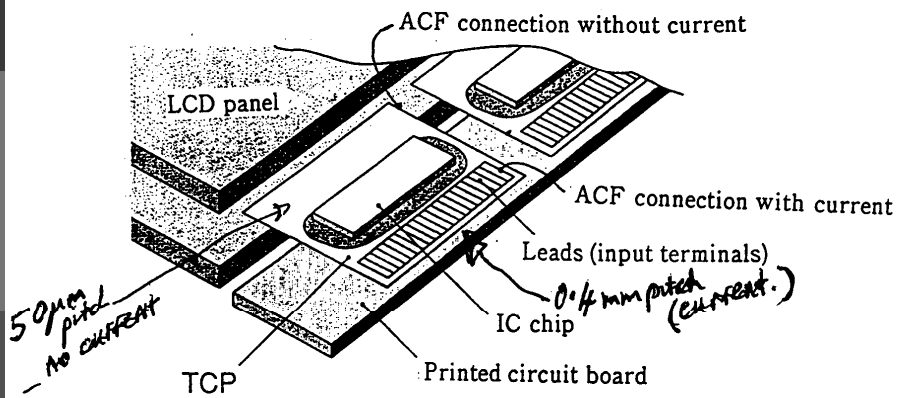


Figure 8 ACF connection on an application of LCD module by Sharp

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