

PRODUCT BULLETIN

HD-8800 Series Aqueous Positive Polyimides

Introduction

HD-8820 is the latest technology for semiconductor stress buffer and packaging applications. Major benefits include:

- Aqueous development chemistry for lower total process cost and smaller environmental footprint
- Positive acting for high resolution
- Specially formulated for fast photo-speed to increase throughput in Lithography
- Excellent mechanical and thermal properties to hold up in the most demanding applications
- Low moisture uptake and good dielectric properties to protect vital circuitry
- Wide processing window reduces in process monitoring and adjustments
- Excellent storage and room temperature stability reduces wasted material
- Copper compatibility allows successful use in advanced packaging applications.

Stress Buffer Applications

Traditional use of polyimides has been as stress buffer layers on logic or memory chips. These layers protected the delicate semi-conductor circuitry from encapsulating molding compounds that might abrade the surface due to the mismatch in the coefficient of thermal expansion. They also offered a level of alpha particle protection from violating the memory. Recently, a HD-8800 Series material was selected for a use as a stress buffer on a demanding high volume DRAM memory application.

Packaging Applications

Electronic packaging designers today are facing increasing challenges to reduce component size and weight for the expanding portable products market, which includes mobile phone, memory

cards and personal digital assistants. Chip Scale Packaging (CSP), in various forms, allows for miniaturization of semiconductor components. Because of its excellent mechanical properties, copper compatibility and sidewall slope profiles, HD-8800 Series products can be used as a single organic dielectric layer over which redistribution circuitry is placed. A second organic dielectric layer can be added over the circuitry as a solder mask or compliant layer.

Low Cure

Next generation memory devices utilize material sets that require lower thermal budgets. Many new memory applications must keep process temperatures below 225°C for acceptable yields. HD Microsystems researchers are working to lower the curing temperature of the HD-8800 Series products. A new material has been successfully qualified in a customer application requiring low cure temperatures without compromising any final cured film properties.

About HD Microsystems

HD Microsystems is a joint venture (JV) between DuPont Electronics and Hitachi Chemical Company. The JV was formed in 1997 and resulted in the combination of over 50 years of experience in the research and production of semiconductor grade polyimides. New product development has benefited from the combined resources of the two parent companies with strong R&D focus.

The JV has two manufacturing sites (Japan and eastern USA) that share common equipment and testing facilities for capacity, redundancy and back-up. Sales and technical support offices are available in Japan, Taiwan, Europe and the USA. For worldwide contacts to get more information on HD-8800 Series materials for stress buffer or wafer level packaging applications, see our web site at: <http://www.hdmicrosystems.com/conn/offices.html>