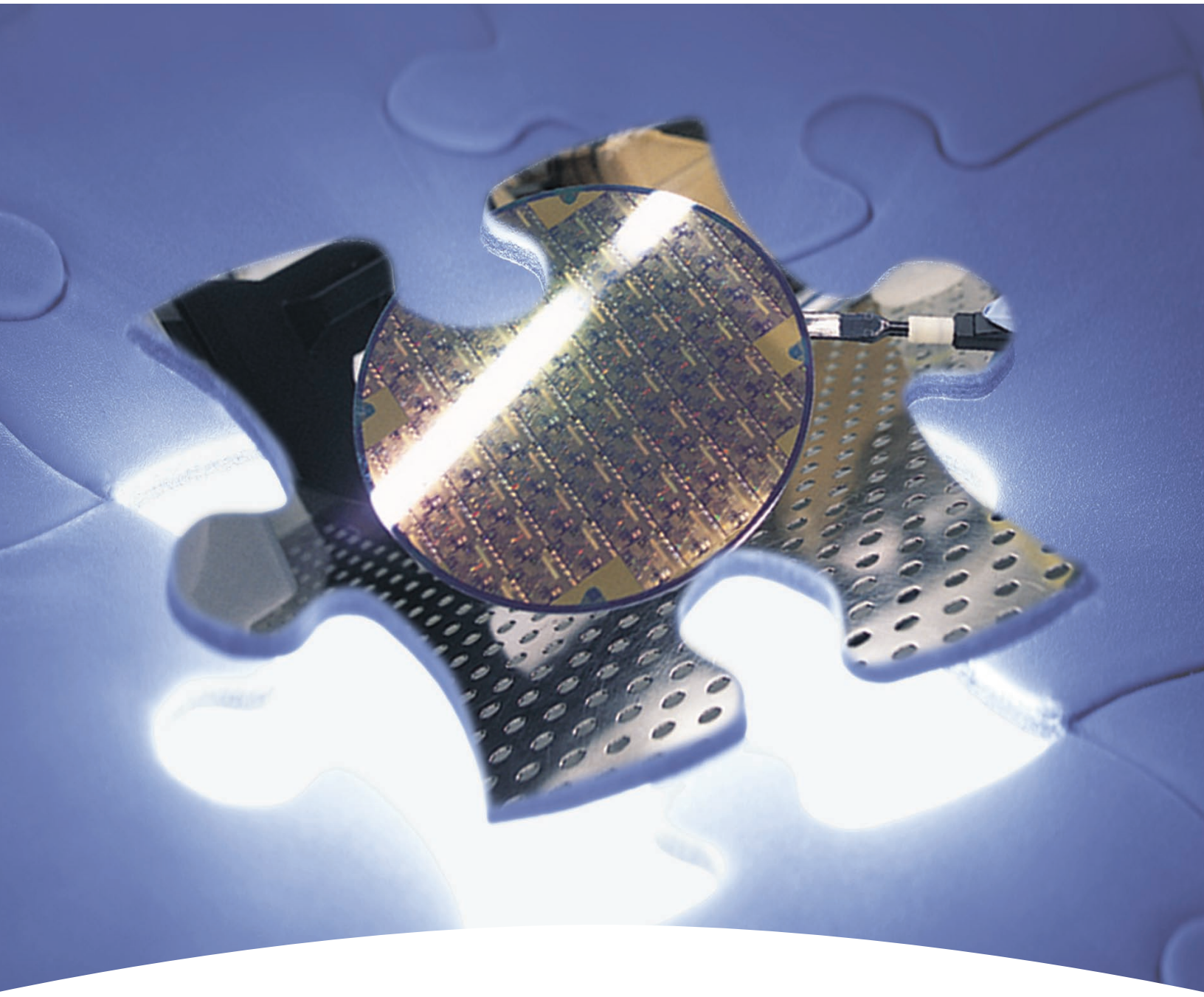
Electronic Polymers

Honeywell



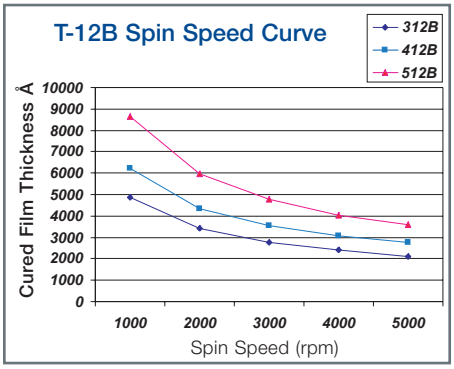
Honeywell ACCUGLASS® T-12B Spin-on Glass

Honeywell ACCUGLASS® T-12B Spin-on Glass

ILD AND IMD PLANARIZATION AND GAP FILL

BENEFITS

- Industry proven performance and broad acceptance
- T-12B fills gaps as small as 0.1µm
- High thermal stability. Compatible with hot aluminum and tungsten plug processing. Permeability allows for hydrogen annealing of gate oxides
- Thickness variation within a wafer of less than 1% over 8-inch wafers
- Lower dielectric constant compared to silicates, phosphorus silicates and most siloxanes
- Crack resistance up to 2.0µm
- Silanol free films post-cure
- Good adhesion to top and bottom dielectric layers



OVERVIEW

The ACCUGLASS T-12B (κ =3.2) Spin-on Glass (SOG) Series is a family of methyl-siloxane polymers used for interconnect and overcoat passivation in the manufacture of integrated circuits.

The ACCUGLASS T-12B series is specially formulated to fill narrow (down to 0.1µm), high aspect ratio (up to 10) gaps without voids while planarizing multi-level metal devices that require a lower κ than SiO_2.

ACCUGLASS T-12B contains 15wt% CH_3 (methyl) groups bonded to Si atoms in the Si-O backbone. The specific formulation results in a stable dielectric constant, high crack resistance, excellent gap fill and planarization properties of the cured film. In addition, post-cure films exhibit low shrinkage and are silanol (SiOH) free.

Thin films of ACCUGLASS T-12B are applied using a commercial coater and cured in a vertical or horizontal furnace to thicknesses up to 9000Å (single coat) and 2.0µm (double coat).

FEATURES

Thickness

Product	Thickness Range
312B	2,100Å – 4,900Å
412B	2,800Å – 6,200Å
512B	3,600Å – 9,000Å

Film Properties Post Cure

Dielectric Constant @ 1 MHz: 3.2
Tensile Stress: 21 MPa
Refractive Index @ 633 nm: 1.39
Coeff. of Thermal Expansion: $5X10^{-6}K^{-1}$

APPLICATIONS

- ILD and Planarization
- Overcoat Passivation
- Gapfill

ACCUGLASS T-12B is suitable for gap fill and planarization of ILD layers used in multilevel metal IC devices. Typically, partial etchback (PEB) is used for ILD processing. ACCUGLASS T-12B can also be used to improve planarization of the final passivation layer.

0.35µm gaps filled using ACCUGLASS 412B.

Material Properties

312B Shelf Life @ 4°C: 6 months
412B Shelf Life @ 4°C: 6 months
512B Shelf Life @ 4°C: 6 months

Shelf Life Equivalencies @ Room Temperature: 20°C
312B– 1 Day at RT = 2 days in 4°C Storage
412B– 1 Day at RT = 5 days in 4°C Storage
512B– 1 Day at RT = 5 days in 4°C Storage

Bottle sizes available:
125ml, 250ml, 500ml, 1L, 2L, 4L

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