

ABSTRACT OF THE DISCLOSURE

LOW OXIDE TRENCH DISHING CHEMICAL MECHANICAL POLISHING

Chemical mechanical planarization (CMP) polishing compositions, methods and systems are provided to reduce oxide trench dishing and improve over-polishing window stability.

- 5 High and tunable silicon oxide removal rates, low silicon nitride removal rates, and tunable SiO₂: SiN selectivity are also provided. The compositions use a unique combination of abrasives, such as ceria coated silica particles; and the chemical additives, such as maltitol, lactitol, maltotritol, ribitol, D-sorbitol, mannitol, dulcitol, iditol, D-(-)-Fructose, sorbitan, sucrose, ribose, Inositol, glucose, D-arabinose, L-arabinose, D-mannose, L-
- 10 mannose, meso-erythritol, beta-lactose, arabinose, or combinations thereof as oxide trench dishing reducing additives.

[No figure]