Technical Note

DRY FILM PHOTORESIST: TENTING

INTRODUCTION

This Technical Note will focus on dry film photoresist tenting. Tenting involves the process of laminating dry film photoresist over developed vias to improve reliability and appearance, add functionality, or to provide additional structure, durability, and protection. Cleanliness and lamination are the critical parameters for the tenting process. Users will need to optimize the lamination and development process to ensure results meet the needs of their application.

TENTING LAYER LAMINATION AND DEVELOPMENT

EQUIPMENT	• Set Laminator temperature so substrate reaches a minimum 45°C. Prefer 60°C to 80°C • Recommended pressure 14-16kg; lower pressure ~6kg may be necessary. • Recommended speed 0.2 - 0.5 m/min
PRE LAMINATION	• First layer surface clean and unexposed areas are clear of debris created during development step of first layer. • A clean first layer improves appearance as well as adhesion for the tented layer.
LAMINATION	• The substrate and film should come into contact at the heated laminator roll, not before. • Film should remain taut during lamination to limit any air entrapment. • Substrate should reach temperature range of 50-60°C.
REMOVE RELEASE LINER FROM WAFER	• Peel back an edge of the release liner, make sure dry film is still attached to first layer. • Peel back release liner from wafer >90°.
POST LAMINATION	• Post lamination bake may be necessary to remove air bubbles created during lamination; <100°C for 30 seconds.
EXPOSURE, DEVELOP, AND HARD BAKE	• UV expose; 100-300 mj/cm2, thickness dependent. • Perform post exposure bake. • Develop using appropriate developer. • Hard bake 60 minutes at 175-200°C.