

Formation of Barrier Ribs via Micro Molding Process Using UV-curable Paste

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Abstract

In an attempt to reduce processing cost and to improve resolution of PDPs, a new processing route for barrier ribs of plasma display panel was attempted. This process consists of preparation step of master mold, replication of the mold by working mold, and filling UV curable paste into the cavities of working mold. The UV curable paste consisted of glass frit, UV curable vehicle, and dispersants. After the working mold filled with paste are cured by UV radiation and fired for densification of the glass frit. During the sintering process, distortion and cracking of the barrier ribs were observed frequently. In this study, the parameters that may cause such defects were identified, which include the shrinkage during UV curing process, stress due to evaporation of organic components, and sintering shrinkage. Considering such parameters, UV curable paste was developed and barrier ribs of PDPs were successfully processed via micro molding process. This work demonstrated the possibility of build-up route in manufacturing barrier ribs of PDP.