ABSTRACT

A METHOD TO FORM LIQUID CRYSTAL DISPLAYS USING A TRIPLE DAMASCENE TECHNIQUE

A new method of forming liquid crystal displays has been achieved. Metal conductors are provided in an insulating layer overlying a semiconductor substrate. A first isolation layer is deposited. A first silicon nitride layer is deposited. The first silicon nitride layer is patterned to form openings for planned vias overlying the metal conductors. A second isolation layer is deposited. A second silicon nitride layer is deposited. The second silicon nitride layer is patterned to form masks overlying where dummy supports for the metal pixels are planned and to form openings to extend the planned vias. A third isolation layer is deposited. The third isolation layer is patterned to form openings for the planned metal pixels. The second isolation layer and the first isolation layer are etched through to complete the vias and the dummy supports. A metal layer is deposited filling the openings for the metal pixels, the dummy support, and the vias. The metal layer is polished down to the top surface of the third isolation layer to complete the metal pixels. A thin film passivation is deposited. A liquid crystal layer is deposited. A transparent image point electrode is formed to complete the liquid crystal display.

(FIGURE 2 IS SUGGESTED FOR PUBLICATION)