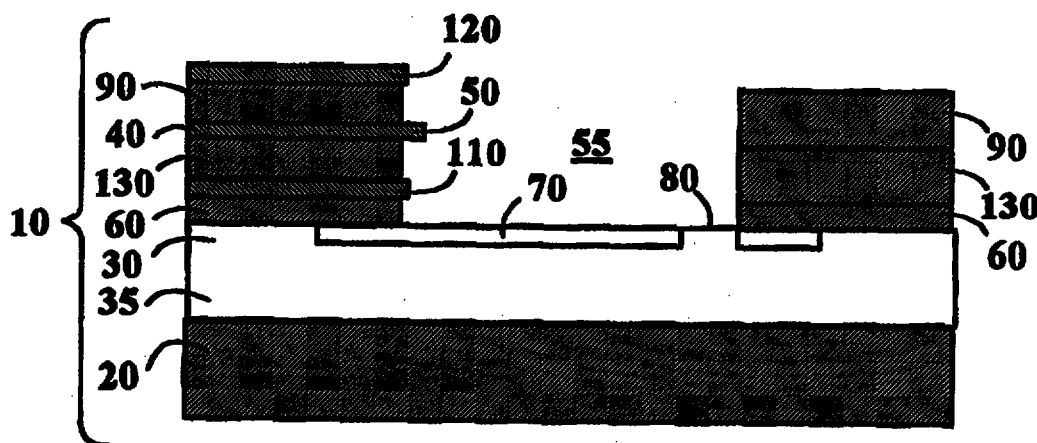




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(54) Title: SURFACE ELECTRON DISPLAY DEVICE AND FABRICATION PROCESS



(57) Abstract

A device useful as a display element has an electron emitter and an anode disposed to receive electrons emitted from the emitter. The anode has surface portions differing in resistivity, providing an electron sink portion at the surface portion of lowest resistivity. A preferred embodiment has a lateral field-emission electron emitter and has an anode formed by processes specially adapted to provide anode portions of differing resistivity, including the electron sink portion. The electron sink portion is preferably disposed at a position laterally spaced apart from the emitting tip of the device's electron emitter. In a particularly preferred fabrication process, the anode is formed by depositing a base layer, depositing and patterning an etch-stop layer with an opening to define the electron-sink portion, forming an opening by etching overlying layers down to the etch-stop layer, and heating the base layer and etch-stop layer to form an anode surface that includes both an integral electron-sink portion and a cathodoluminescent phosphor for emitting light. The fabrication process provides for fabricating a plurality of display element devices to make a flat panel display.