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All Solution-Processed Organic Light Emitting Diode with Low Melting Point Alloy Encapsulation

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Abstract : Organic Light Emitting Diodes (OLEDs) are being developed rapidly as next-generation displays due to their self-luminous and flexible characteristics. OLEDs are highly susceptible to moisture and oxygen due to their structural properties. Thus, requiring a high level of encapsulation technology. Recently, encapsulation technology such as Thin Film Encapsulation (TFE) has been developed for OLED, but it is not perfect to prevent moisture permeation on the side. In this study, we propose OLED encapsulation method using Low melting Point Alloy (LMPA). The LMPA line was designed in square box shape on the outer edge of the device and was formed by screen printing method. To determine if LMPA has an effect on OLED, we fabricated solution processed OLEDs with a square-shaped LMPA line and evaluate the I-V-L characteristics of the OLEDs. Also, the resistance characteristic of the LMPA line was observed by repeatedly bending the LMPA line. It is expected that LMPA encapsulation will have a great advantage in shortening the process time and cost reduction.

Keywords : OLED, encapsulation, LMPA, solution process
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