

A study on aerosol jet printing technology in LED module manufacturing.

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Streszczenie

State of the art fabrication of LED modules based on chip-on-board (COB) technology comprises some shortcomings both with respect to the manufacturing process itself but also with regard to potential sources of failures and manufacturing impreciseness. One promising alternative is additive manufacturing, a technology which has gained a lot of attention during the last years due to its materials and cost saving capabilities. Especially direct-write technologies like Aerosol jet printing have demonstrated advantages compared to other technological approaches when printing high precision layers or high precision electronic circuits on substrates which, as an additional advantage, also can be flexible and 3D shaped. Based on test samples and test structures manufactured by Aerosol jet printing technology, in this context we discuss the potentials of additive manufacturing in various aspects of LED module fabrication, ranging from the deposition of the die-attach material, wire bond replacement by printed electrical connects as well as aspects of high-precision phosphor layer deposition for color conversion and white light generation.

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