



Better LED cooling thanks to laser-treated surfaces

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LED lighting has the advantage of being small and providing a lot of light for lower energy consumption. A challenge is to keep the temperature of the LED low.

The temperature of a LED is typically kept low by passive cooling. By giving the cooling element a laser surface treatment, the cooling capacity is improved. This creates opportunities for lowering the material cost of cooling elements and further miniaturisation of the lighting element. In the experimental setup (top left) a laser treated aluminium plate is mounted on a LED. The surface is enlarged by a texture (top right) to make it easier to give off heat. The temperature is measured via a thermocouple. The graph below shows a slower temperature rise for the surface with a laser treatment compared to an untreated surface.

