Abstract

The present invention discloses a high CRI white LED and a lamp comprising the white LED. The white LED includes a base, a reflector for mixing light, protrusions on the inner wall surface of the reflector, at least 6 LED chips emitting lights at different wavelengths, which are fixed and electrically combined on the heat conducting base, and a lead frame which has a shape and a size matched well with the bottom of the reflector and which is fixed outside the reflector and on the top surface of the base. Electrodes of the LED chips are electrically connected with leads on the lead frame. A transparent optical material covers the chips. The multi-wavelengths lights are mixed uniformly by diffuse reflection of the reflecting walls of the reflector to achieve a white LED with high CRI and high efficiency. A white LED lamp or a white LED plane light source comprising the white LED can avoid energy loss in optical conversion in which phosphors are used. With the configuration, the efficiency in electro-to-optic conversion and working lifetime of the lamps are improved. The lamp is also suitable for mass production.

Fig. 8a

