

Achievement, Issues, and next steps of CMOS image sensors

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CMOS image sensors have been widely applied to various fields in this decade by the great improvements of basic performances such as sensitivity, noise and resolution. Recent CMOS image sensors have achieved the pixel pitch of about $1\mu\text{m}$, the number of pixels of 40 million or more and the input conversion noise of about 1 electron. CMOS image sensor has come to exceed CCD image sensor greatly in the shipment amount. In this paper, the achievement technologies, current issues and next steps for high sensitivity, low noise, wide dynamic range and high speed in CMOS image sensors are discussed.

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