

What is an integrated capacitor?

Integrated capacitor - Capacitor design splits between junction and film deposition methods built on an underlying MOSFET structure. Instead of relying on a specific region, as in the integrated resistor, integrated capacitors utilize the junctions of a diode or MOSFET as a dielectric.

Can MOS capacitors be used for high-dynamic infrared image sensors?

To study the real effect of inversion MOS capacitors for high-dynamic infrared image sensors, the 55 nm 1P4M CIS process platform was used to build a 12,288 × 12,288 pixel array infrared image sensor structure based on an adaptive capacitor.

Can adaptive capacitors improve DR imaging?

Adaptive capacitors can be widely used in various pixel structures to achieve high DR imaging. Based on the 55 nm CMOS process platform, the research on an adaptive capacitor to improve the DR is carried out in a 12,288 × 12,288 ultra-large array infrared image sensor chip.

What is adaptive capacitance based on infrared pixel structure?

To this end, a highly dynamic pixel structure based on adaptive capacitance is proposed, so that the capacitance of the infrared image sensor can automatically change from 6.5 fF to 37.5 fF as the light intensity increases.

Why is inversion MOS capacitor used in infrared pixel circuit?

Since the capacitance of the inversion MOS capacitor changes with the gate-source voltage adaptively, the inversion MOS capacitor is used as the capacitor in the infrared pixel circuit, which can solve the contradiction between noise in low light and full well capacity in high light.

How does adaptive integration capacitor affect the linearity and sensitivity of image sensor?

CG is the ratio of the CDS signal to the number of photo-generated electrons. The CG calculation equation is (12) where 1 represents an electron. Therefore, the effect of the adaptive integration capacitor on the linearity and sensitivity of the image sensor can be investigated by using the curve of the CDS signal and CG.

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General Considerations Switched-capacitor amplifiers operate in two phases: Sampling and Amplification
Clock needed in addition to analog input V_{in}

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An IC is a collection of electronic components -- resistors, transistors, capacitors, etc. -- all stuffed into a tiny chip, and connected together to achieve a common goal. They come in ...

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Question: In an integrated circuit, a capacitor is formed by growing a silicon dioxide layer ($\epsilon = 4$) of thickness $1 \mu\text{m}$ over the conducting silicon substrate and covering it with a metal electrode of area S . Determine C if a capacitance of 2 nF is desired. ... Transcribed image text: In an integrated circuit, a capacitor is formed by ...

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Mixed-signal integrated circuits are categorized as data acquisition ICs (including A/D converters, D/A converters, digital potentiometers), clock/timing ICs, switched capacitor (SC) ...

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