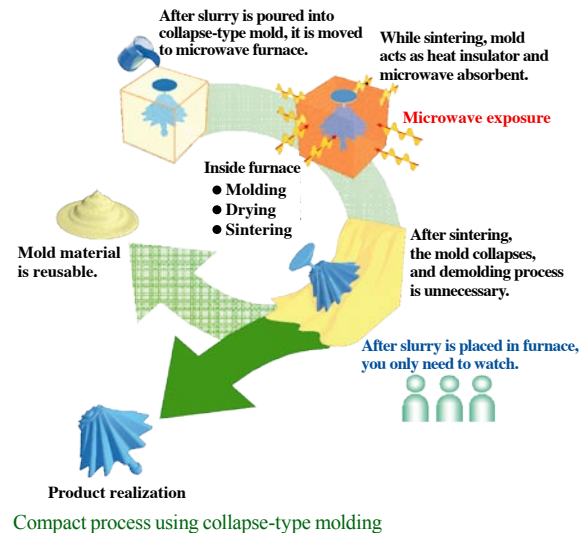


Integration and simplification of ceramic manufacturing process

Reduces the manufacturing periods to less than half by using microwave

We have developed a new process that integrates and simplifies the ceramic manufacturing process by using microwave heating technique. This new process reducing the manufacturing periods of ceramics to less than half. It is a low environment load manufacturing process because it reduces the energy consumption during the process.

For the process, new collapse-type molding die was developed. It enabled the omission of the demolding and debinder processes. In this new process, a series of heating processes from drying to sintering are carried out inside a microwave furnace after ceramic slurry is poured into the collapse-type mold.



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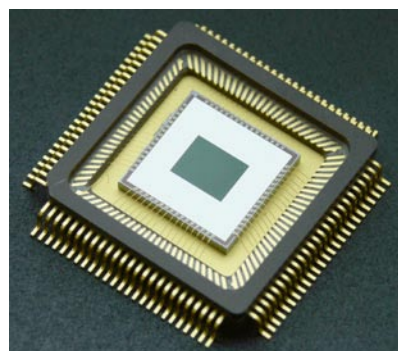
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Environment & Energy

Highly sensitive and wide spectral range image sensor based upon the CuInGaSe_2 solar cell techniques

Image sensors with extended sensitivity in the near infrared region have large demands in consumer applications, such as night vision of automotive and security cameras. The sensitivity of typical crystalline silicon (c-Si) based image sensors rapidly decreases in the infrared wavelength range $\lambda > 1000$ nm.

We have succeeded to fabricate a novel image sensor, for the first time, with a CuInGaSe_2 photodiode array fabricated on Si-LSI circuits. The developed image sensor consists of 352×288 pixels with each pixel size of $10 \mu\text{m} \times 10 \mu\text{m}$. The sensitivity of wavelength range up to $\lambda \sim 1200$ nm was confirmed, and the integral sensitivities have been also extended by improving the aperture ratio and spectral response.



CuInGaSe_2 -based image sensor
(chip size: 7.5 mm×7.5 mm)



A night image taken by the CuInGaSe_2 -based image sensor

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