TrueFocus™ is a revolutionary new development in camera phone technology offering a world-class true point-and-shoot capability where the entire image is always in focus and ready for instant one-click shooting. TrueFocus™ is based on Wavefront Coding™ technology which is a method of optically encoding images through specialized optics and decoding them with a dedicated signal processor (OV630) to gain enhanced imaging and optical performance.

TrueFocus™ brings optics into the 21st Century and up to speed with Moore’s Law, enabling continued improvements to the user experience of imaging systems while maintaining or reducing cost.

Besides improved user experience, TrueFocus™ cameras address a number of critical issues found in traditional auto-focus (AF) camera solutions for camera manufacturers and systems developers. Replacing mechanical parts with snap fit lenses, which do not require focusing, significantly eases sourcing and manufacturing, saves cost and improves drop test related reliability issues. Wavefront Coded lenses can be made in plastic and are available through major lens manufacturers at similar cost to classical lenses. Without moving parts, TrueFocus™ also decreases power requirements and brings reliable performance under extreme temperature conditions.

TrueFocus™ camera systems consist of a Wavefront Coded lens, an OV3632 3-megapixel CMOS image sensor, and an OV630 TrueFocus™ signal processor. Modules are available in a 8.0 x 8.0 x 6.0 mm footprint, which is smaller than the AF modules currently available.
**OV3632 specs**

- **3.2 megapixel sensor**
- **Power supply:**
  - Analog: 2.8VDC ± 5%
  - Core: 1.8VDC ± 5%
  - IO: 1.7 - 3.3V
- **Output format:**
  - 10-bit digital RGB raw data
- **Lens size:** 1/3"
- **Power requirements:**
  - Active: 55mA
  - Standby: 20 µA
- **Output format:**
  - 10-bit digital RGB raw data
- **Pixel size:** 2.2 µm x 2.2 µm
- **Image area:** 4.54 mm x 3.41 mm
- **Package dimensions:** 6085µm x 6315µm

**OV630 specs**

- **Image processor**
- **Power supply:**
  - Core: 1.2V
  - IO: 1.8V / 2.5V
- **Regulator input:** > 1.8V
- **Power requirements:**
  - Active: 200mA
  - Standby: 25 µA after cut OFF
- **Temperature range:** 0 to 70°C
- **Package dimensions:** 7mm x 7mm BGA

**the benefits of TrueFocus™ technology**

- True point-and-shoot capability
- Significantly enhanced depth of field: everything in focus
- No autofocus lag: always in focus
- Increase the S/N ratio by lowering the F number, at the same time increase overall depth of field
- Relaxed design and mechanical tolerances allow plastic optics and ease of assembly (snap fit lens systems possible)

- TrueFocus™ shifts cost of optics and mechanics to silicon enabling cost reductions following Moore’s Law
- No mechanical parts needed for autofocus
- Ultra-small module design: 8.0 x 8.0 x 0.6mm
- Increased manufacturing yields
- Available now for sampling

**process illustration**

1. Optical system + WaveFront Coded surface element
2. CMOS sensor
3. OV630 image processor (performing decode function + standard OV620 ISP functions)
4. Final image

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