

Product Description

DTS6004 is a single-channel dToF (Direct Time of Flight) SiP mini-module, integrating a high-performance dToF SoC developed by PolarisIC and a VCSEL transmitter, which is able to achieve high-precision distance measurement within the range of 6m@88% reflectance target surface (indoor environment under 1k Lux light). With a frame rate of 30Hz for single-point measurements and 7.5Hz for 2x2-point measurements, the DTS6004 supports 2 x 2 time division and zone acquisition of distance data. dToF SoC and VCSEL transmitter can achieve high accuracy distance measurement within 6m@88% reflectivity target surface (indoor environment under 1k Lux light). dToF SoC and VCSEL transmitter can achieve high accuracy distance measurement within 6m@88% reflectivity target surface (indoor environment under 1k Lux light). dToF SoC can measure distance within 6m@88% reflectivity target surface (indoor environment under 1k Lux light). The DTS6004 has a built-in histogram algorithm for excellent resistance to ambient light, and can be calibrated for contaminants and reflectance to improve measurement data stability and consistency.

The DTS6004 uses a 940nm laser that meets Class 1 human eye safety requirements. Powered by a single power supply and based on an I²C interface for data communication, it is easy to integrate and use.

Visit www.polarisic.com to get more product details.



DTS6004

Single-Photon dToF Module

Application Areas:

- Projector Focus Assist, Keystone Correction
- User detection or presence detection

Product Features:

- Highly integrated miniature dToF SiP with dimensions as small as 4.9mm x 2.5mm x 1.6mm;
- Based on high performance SPAD sensor, range up to 6m@88% reflectivity target surface (indoor environment under 1k Lux light);
- Adopt histogram technology, based on statistical data combined with super-resolution algorithm to obtain high-precision distance results;
- Integrated time correlated photon counting (TCSPC) anti-ambient light algorithm and narrow-band filter, with excellent anti-ambient light capability;
- Integration of self-developed co-processor, flexible adjustment of algorithm parameters, and fine adaptation for application scenarios;
- High-precision TDC, built-in reference SPAD, full-range measurement accuracy of $\pm 3\%$;
- Support multiple access to the same set of I²C bus, saving host interface resources;
- Glass contamination correction and multi-path reflection immunity;
- Reflowable compact package.

1 Technical Specification

Feature	Detail
Package	OLGA-12
Size	4.9mm×2.5mm×1.6mm
Operation Voltage	Typical Value: 3.3V
Range	Single Point: 6m@88% reflectivity target surface (indoor environment under 1k Lux)
	2×2 Points: 4m@88% reflectivity target surface
Frame Rate	Single Point: 30Hz 2×2 Points: 7.5Hz
Multi Zones Support	Time Division 2×2
FoV	15°
Operation Temperature	-20°C~+75°C
Infrared Emitter	940nm
I ² C	Baud 1Mbps/400k bps
Power Wastage	140mW ⁽¹⁾

⁽¹⁾ Module power consumption operating conditions at 3.3V, 30fps

2 System Block Diagram

