

Product Description:

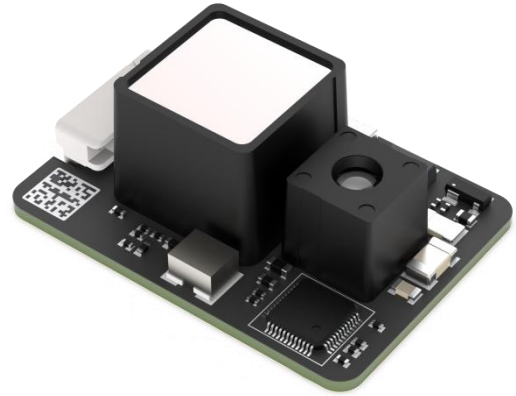
DTS6012M is a fully-integrated single-channel dToF rangefinder compact module, integrating self-developed high-sensitivity infrared-enhanced SPAD sensors with ranges up to 20m@overcast and 12m@100KLux sunlight. It adopts SPAD chip fully integrated solution, histogram statistical algorithm and fast TDC architecture, etc., to achieve high accuracy ranging and at the same time, it has 12m@100KLux sunlight resistance and reflectivity correction function.

The DTS6012M integrated power module is powered by a single 3.3V supply with built-in temperature compensation. Supporting I2C and UART interfaces for easy integration and use, and featuring a compact and reliable optical LGA package with small size and light weight, it is an excellent choice for micro-small ToF applications.

Visit us www.polarisic.com to get more information.

Application Fields:

- Floor cleaning robots and AGV obstacle avoidance;
- Assisted landing and obstacle avoidance;
- Proximity detection;
- Presence detection;



Pictures for reference only

DTS6012M

Compact module with single-point dToF sensor

Product Features:

- Highly integrated dToF ranging compact module solution;
- Ultra-compact form factor, measuring just 21x15x7.87 millimeters;
- Extremely light weight, only 1.35 grams;
- $\pm 6\text{cm}$ @ $< 6\text{m}$, $\pm 1\%$ @ out of 6m, maximum range up to 20m;
- Integrated histogram algorithm outputs dual-peak positions for easy calibration;
- Time Correlated Photon Counting (TCSPC) algorithm with 12m@100KLux sunlight resistance;
- The TDC time window is configurable;
- Data is consistently output at a configured interval, with a maximum frame rate of 1kfps;
- Equipped with reflectivity correction.

1 Parameter

1.1 Fundamental Parameters

Feature	Detail
Size	21mm×15mm×7.87mm
Number of Pins	6
Interface Type	I2C、UART
Operating Voltage	Min.:3.0V Typ.:3.3V Max.:3.6V
FoV	<2°
Multi-Target Detection	Dual Target Detection
Temperature Compensation	Available
Reflectivity Correction	Available
Laser Wavelength	905nm
Module Weight	1.35g

1.2 Performance Parameters

Parameter	Min.	Typ.	Max.	Unit
Sunlight resistance (@100KLux sunlight)		12		m
Range	0.1	-	20	m
Frame Rate		100	250	fps
Precision	-	±6cm@<6m ±1%@≥6m	-	-
I2C Interface Rate			400K	bit/s
UART Interface Rate			921600	bit/s
Standby power		160		mW
Operating power		329		mW

1.3 Operating Conditions

Parameter	Value	Unit
Operating Temperature Range	-20 ~ 50	°C
Storage Temperature Range	-40 ~ 85	°C
ESD Protection Level ³	Human Body Model	2000
	Machine Model	200
	Charged Device Model	500

Standard Reference: HBM: JESD22-A114; CDM: JESD22-C101; MM: JESD22-A115

2 System Block Diagram

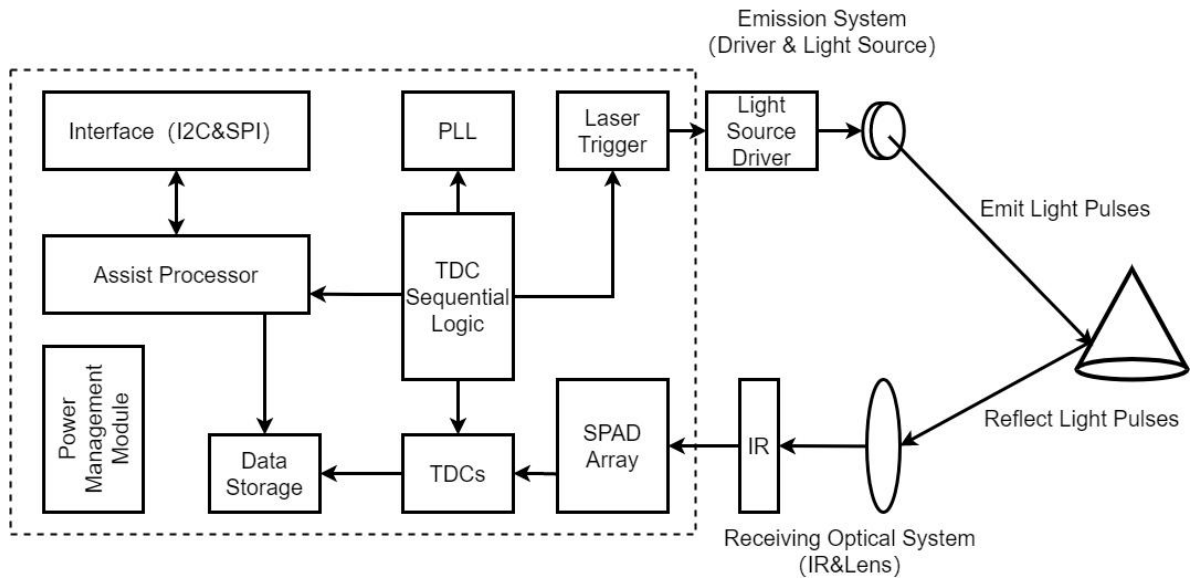


Figure1 System Block Diagram of DTS6012M