Product Description:

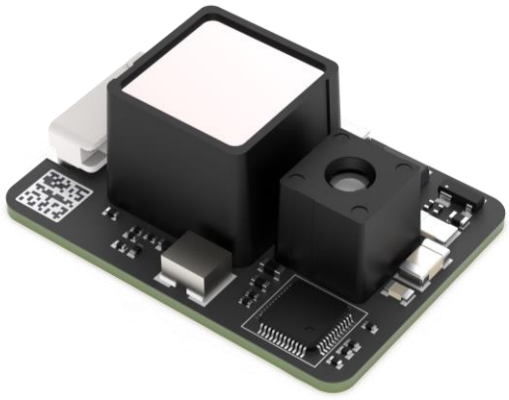
The DTS6012M is a fully integrated single-channel dToF rangefinder mini-module with a self-developed, highly sensitive infrared-enhanced SPAD sensor with a 20m range. The on-chip integration of time-dependent photon thresholding algorithm, histogram statistical algorithm, and fast TDC architecture realizes high-precision ranging while achieving 12m@160KLux ambient light immunity with reflectance correction.

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;
- Drone 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;
- ±3cm @＜6m, ＜1%@ out of 6m, maximum range up to 20m;
- Integrated histogram algorithm outputs dual-peak positions for easy calibration;
- Equipped with an integrated algorithm based on time-correlated photon thresholds, the module demonstrates robust anti-ambient light performance, achieving a capability of 12m @ 160KLux;
- 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
FoI	<2°
Multi-Target Detection	Bimodal
Temperature Compensation	Available
Reflectivity Correction	Available
Laser Wavelength	905nm
Module Weight	1.35g

1.2 Performance Parameters

Parameter	Min.	Typ.	Max.	Unit
High Light Detection Range (@160Klux Ambient Light)	0.3	-	12	m
Maximum Measurement Distance	-	-	20	m
Frame Rate	-	100	1000	fps
Precision	-	±3cm@<6m ±1%@>6m	-	-
I2C Interface Rate	-	400K	-	bit/s
UART Interface Rate	-	921600	-	bit/s

1.3 Operating Conditions

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

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

2 System Block Diagram

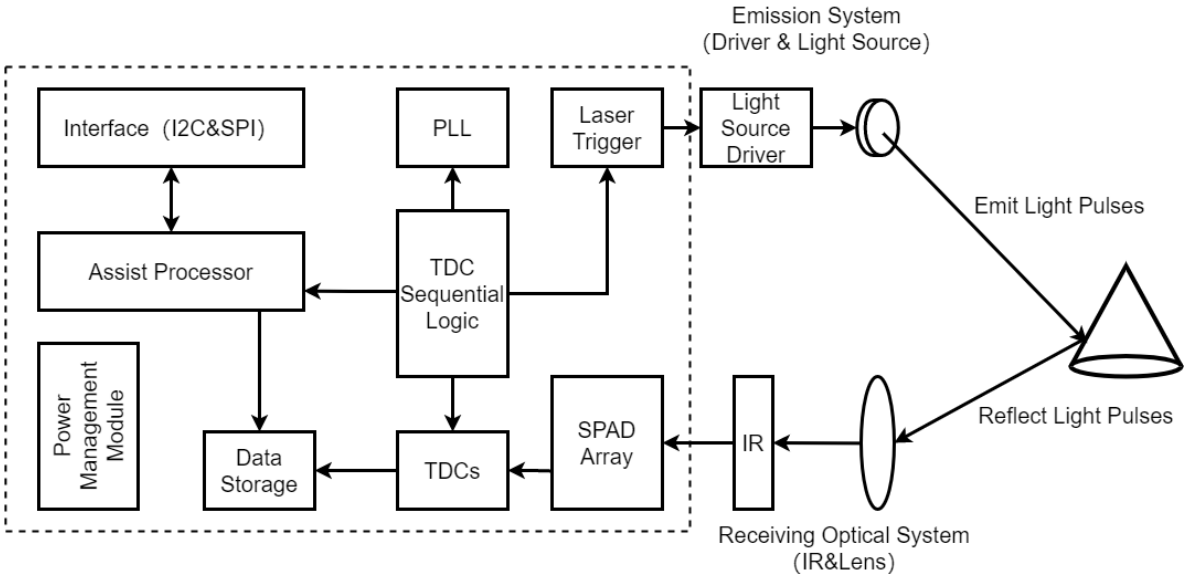


Figure1 System Block Diagram of DTS6012M