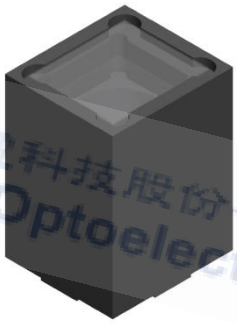
Structure Light Module

SLM-5069-850-T1000-16K-52-79

Description

The structure light module provided accurate dot pattern with DOE + laser emitting technology. It can project 16k dots with low noise. The bandwidth of structure light module is narrow under stable thermal condition (VCSEL laser).



Features

- **High density random dots(16K dots)**
- **SMT package for industrial application**
- **Long distance projection**
- **Near-IR illumination (850nm)**
- **Narrow bandwidth under stable thermal condition**
- **IEC 60825-1: CLASS 1 eye safety test**
- **PWM drivable**

Applications

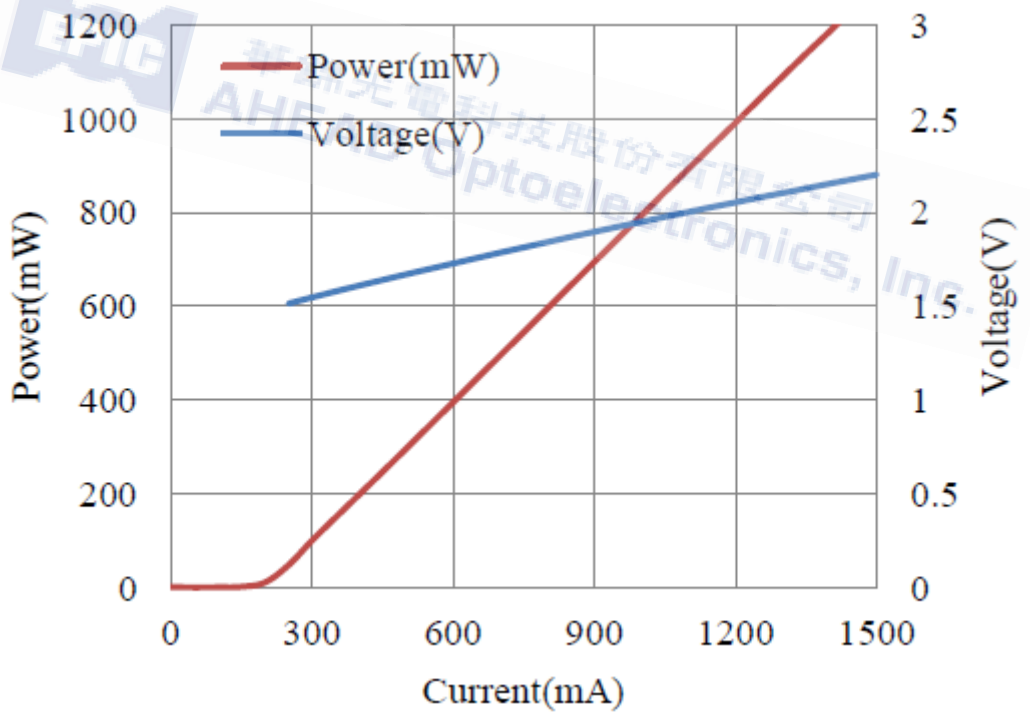
- **3D object distance measurement**
- **Structured light 3D recognition**
- **3D face recognition**
- **3D scanning**
- **3D Gesture Recognition**
- **3D Liveness Detection**
- **Security monitor**
- **Robot vision**
- **Proximity sensor**

Absolute Maximum Rating

Parameters	Condition	min	typical	max	unit
Max. Operating current	Room 25℃, Chip 60℃, CW		2000		mA
Max. Operating voltage	Room 25℃, Chip 60℃, CW		2.30		V

Electronical Characteristics (CW)

Parameters	Condition	min	typical	max	unit
Threshold current	Room 25℃, Chip 60℃		200		mA
Operating current	Room 25℃, Chip 60℃		1200	2000	mA
Operating voltage	Room 25℃, Chip 60℃		2.10	2.3	V
Convert efficiency	Room 25℃, Chip 60℃		38		%



Typical electro / optical characteristics curves measured at 25℃, pulse width = 0.3ms / duty cycle = 1%

Optical Characteristics

Parameters	Condition	min	typical	max	unit
Wavelength	25±3℃	840	850	860	nm
Working range		0.5	4		m
Horizontal FOV of projection	850nm, 25℃	50	52	54	Deg.
Vertical FOV of projection	850nm, 25℃	77	79	81	Deg.
Number of dots	@FOV		16K		pcs
Laser compliance (Eye-safety regulation)	Class 1, IEC 60825-1:2014				

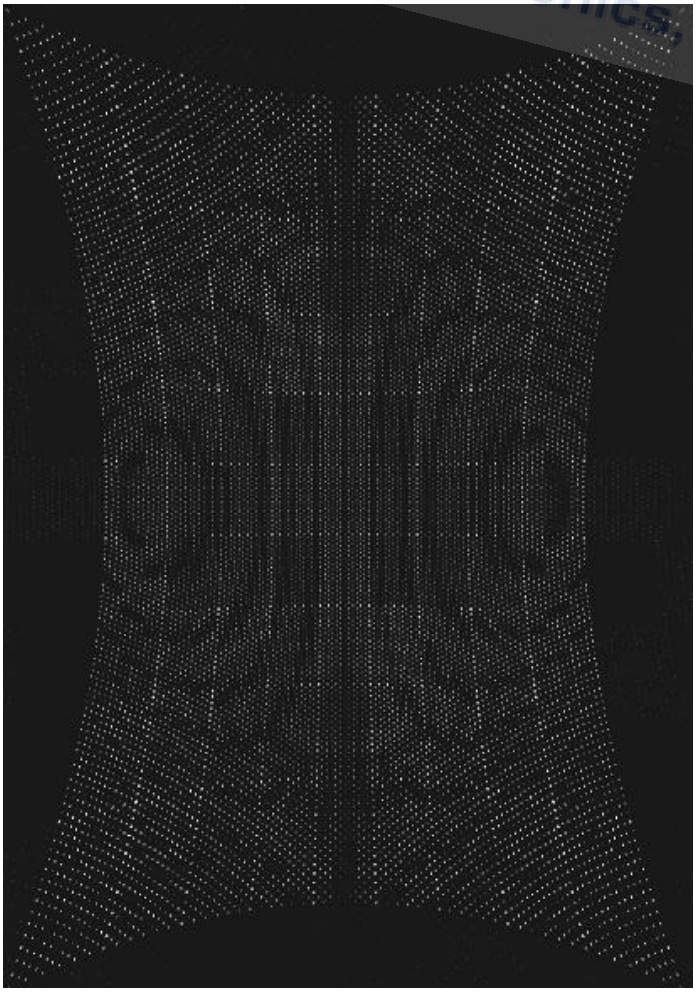
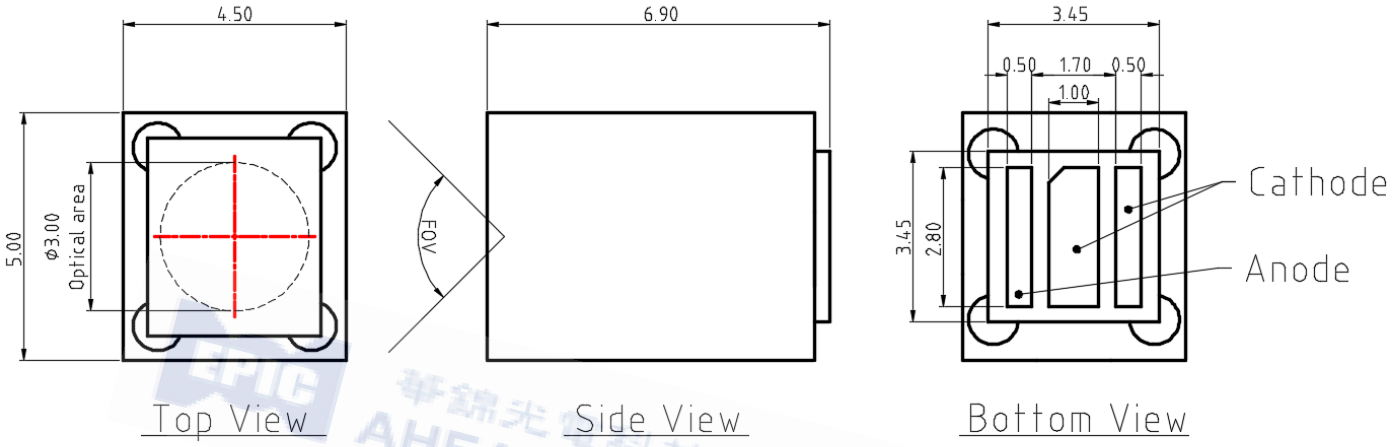


Image at working distance of 4m

Mechanical characteristics

2D Drawing



Unit : mm
Tolerance : ±0.15

Caution

1. **Wearing ESD protections device before handling the moulde.**
2. **Avoid to touch the emitting area or optical items of the module.**
3. **Never look into the light from emitting area directly.**

Disclaimer

1. **Semiconductor devices generally faildue to intrinsic characteristic so does AHEAD module as it includes laser chip and laser diode (VCSEL).Hence, customer's product has to be designed with full regard to the safety by incorporating the redundancy, fire prevention, error prevention therefore, any problem or error with AHEAD module does not cause any accidents resulting in injury, death, fire, property damage, economic damage or environment damage.In case customer usesmodule in the systemrequiring higher safety, customer is responable toreview theconditions for consistency of entire system and all safety concerns to meet the specific requirements.AHEAD is not liable to the user for any losses, costs, damages or expenses incurred arising directly or indirectly from any misuse or unintended use of the product.**
2. **Accoding to the above is provided by AHEAD who reserves the rights to modify, to insert, and/or to withdraw any part of the rules specified herein.**

Version#	Remark	Date
1.0	5069 initial version	2023/10/25
1.1	Update 2D Drawing bottom view	2023/10/31
1.2	updated 2D structure	2024/01/18
1.3	modify wording of the 2D drawing	2024/01/23
1.4	Add water mark	2024/01/31