

Structure Light Module

SLM-4242-R940-200-26K-56-74

Description

The structure light module provided accurate dot pattern with DOE + laser emitting technology. It can project 26k dots with low noise. The wavelength of structure light module is narrow under stable thermal condition (VCSEL laser). The module is designed for industrial device and PWM drivable.



Features

- High density random dots (26K dots)
- SMT package for industrial application
- Near-IR illumination (940nm)
- Narrow wavelength 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°C, Chip 60°C, CW		1500	2000	mA
Max. Operating voltage	Room 25°C, Chip 60°C, CW		1.95	2.40	V

Electronical Characteristics (CW)

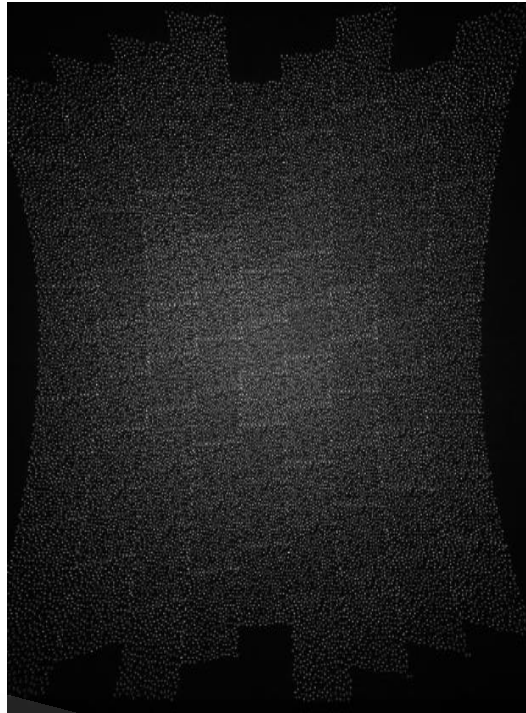
Parameters	Condition	min	typical	max	unit
Threshold current	Room 25°C, Chip 60°C		250	300	mA
Operating current	Room 25°C, Chip 60°C	300		500	mA
Operating voltage	Room 25°C, Chip 60°C			2.00	V
Convert efficiency	Room 25°C, Chip 60°C				%

Optical Characteristics

Parameters	Condition	min	typical	max	unit
Wavelength	25±3°C	933	940	947	nm
Working range		0.2	1	1.5	m
Horizontal FOV of projection	940nm, 25°C		56		Deg.
Vertical FOV of projection	940nm, 25°C		74		Deg.
Number of dots	@FOV		26K		pcs
Laser compliance (Eye-safety regulation)	Class 1, IEC 60825-1:2014	@ 1500mA current & 10% duty cycle.			

Product Drive Information

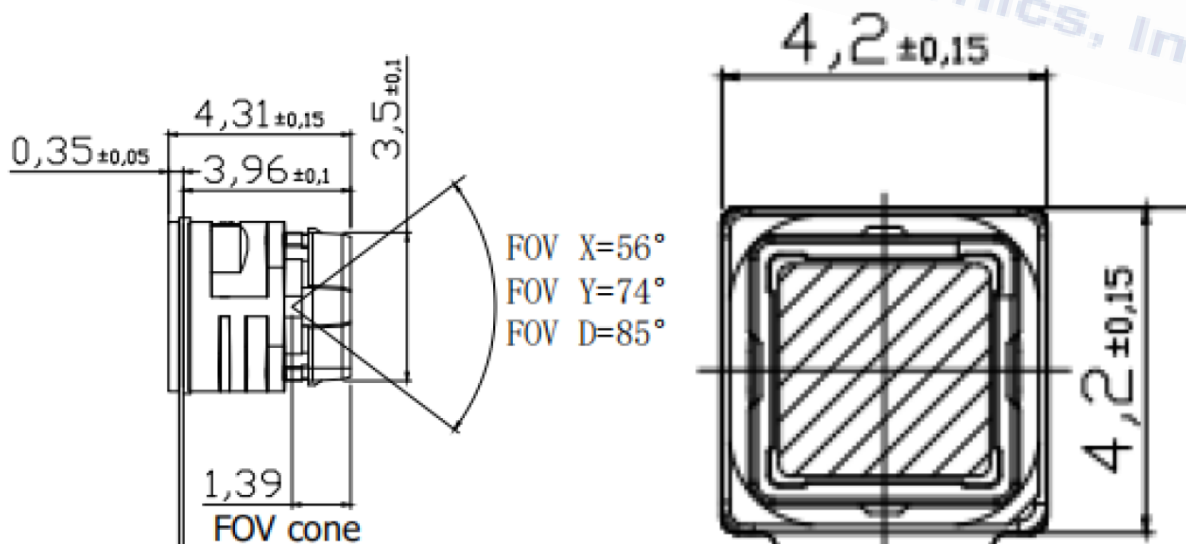
	Symbol	Unit	Min.	Tpy.	Max.	Comments
OP current Pulse	Iop	mA	-	1500	2000	Optical Power \leq 0.7W 3ms/10%@if=1.5A
OP voltage Pulse	Vop	V	-	1.95	2.4	Optical Power \leq 0.7W 3ms/10%@if=1.5A
Op current CW	Iop	mA	300	-	500	Optical Power \leq 0.2W Junction temperature less than 80°C
OP voltage CW	Vop	V	-	-	2	Optical Power \leq 0.2W Junction temperature less than 80°C
Threshold current Pulse	Ith	mA	-	250	300	CW/@25°C

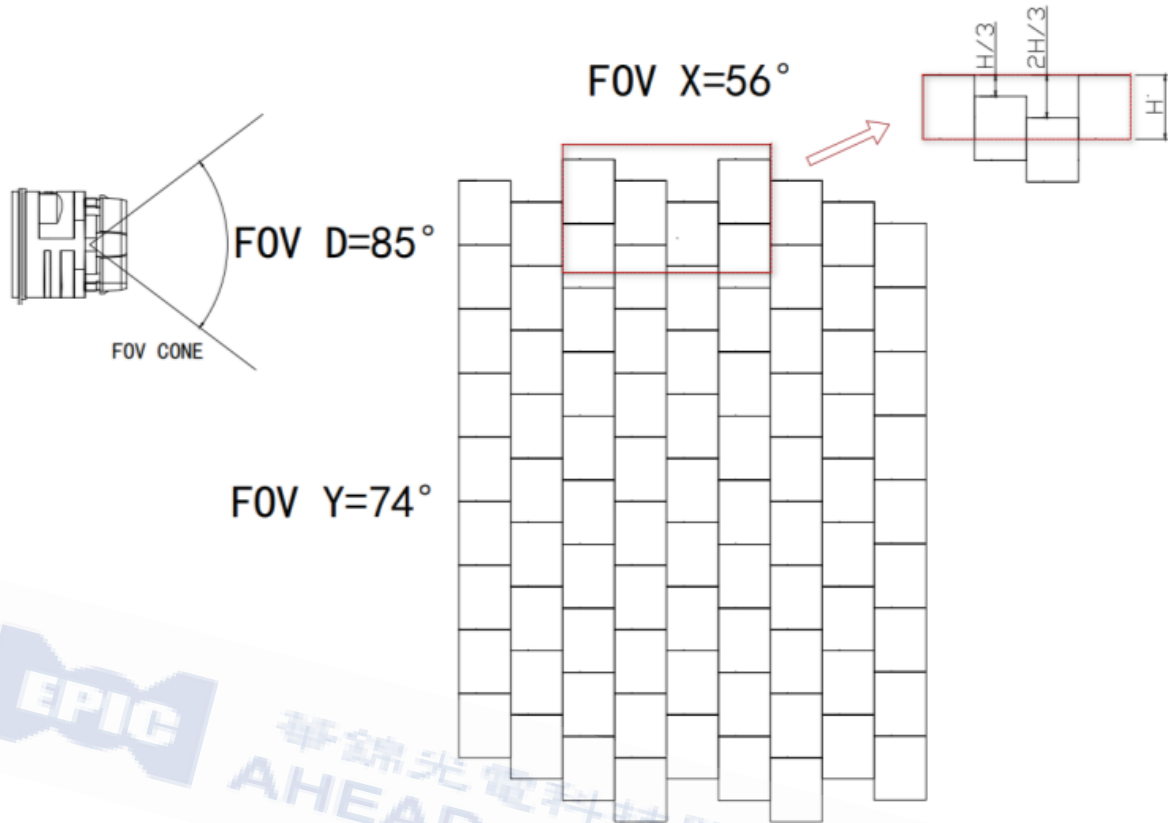


散斑全面圖

Mechanical characteristics

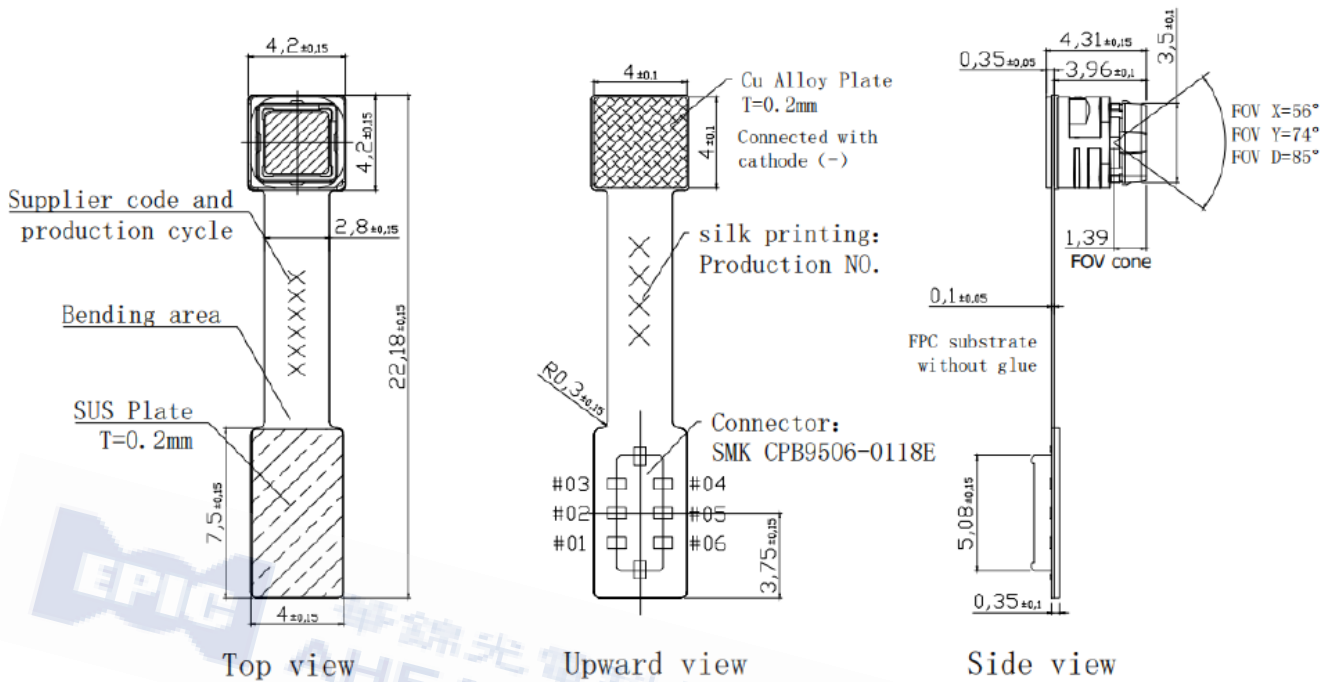
2D Drawing





Side view

Foot PIN Reference



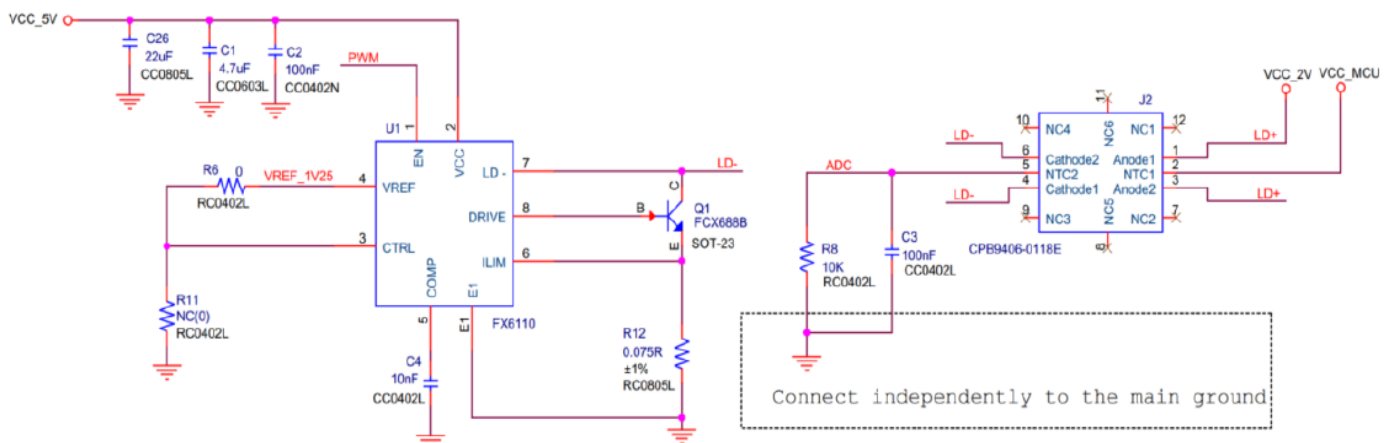
NTC RES = 10Kohm \pm 1%



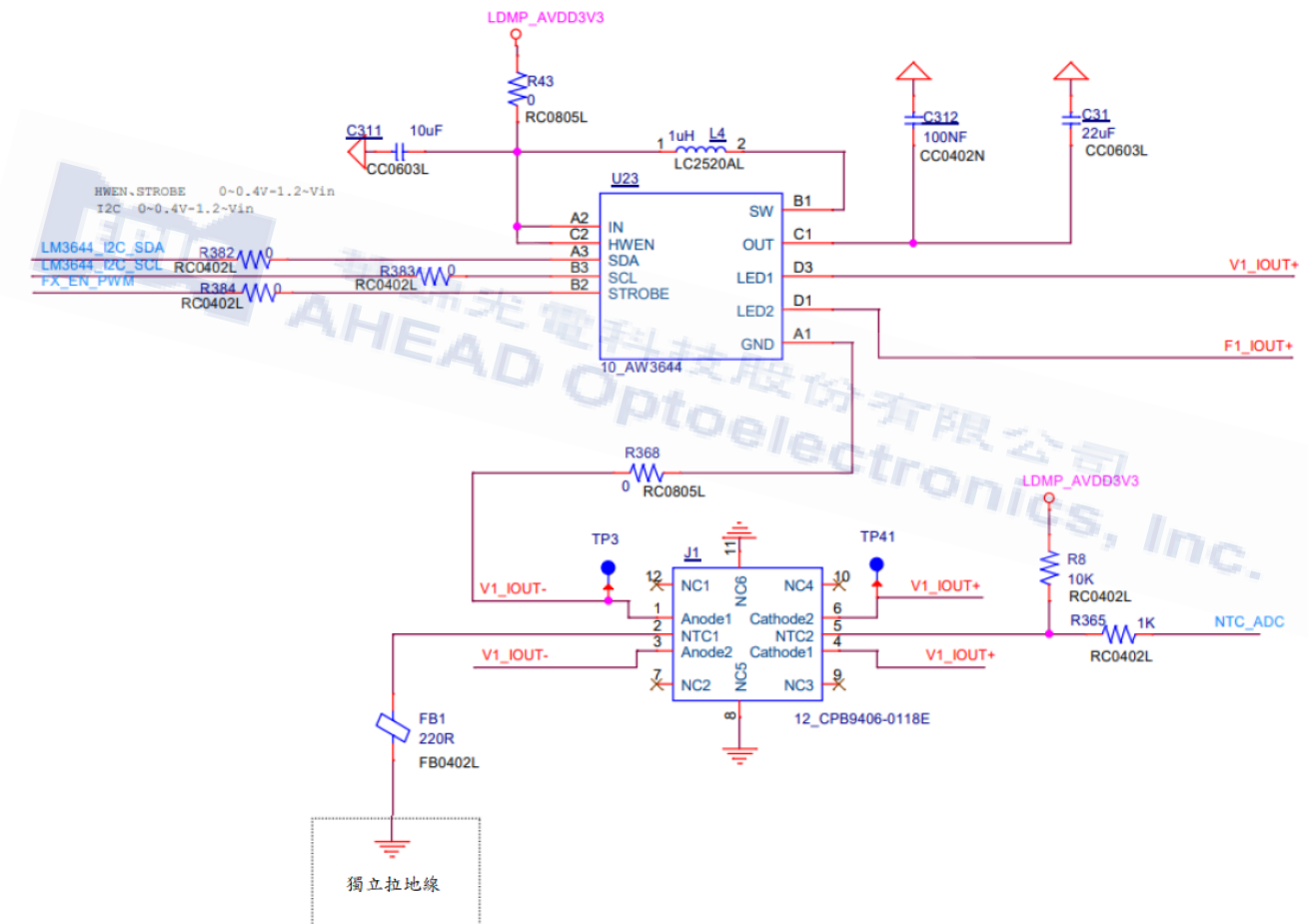
Cu Alloy Plate_connected with cathode (-)

Pin	#01	#02	#03	#04	#05	#06
	Anode(+)	NTC(+)	Anode(+)	Cathode(-)	NTC(-)	Cathode(-)

參考電路1 穩定性好，可設計到項目裡驅動發射器



參考電路2 驅動晶片 AW3644 I2C 最大1.5A驅動電流



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 fail due to intrinsic characteristic so does EPIC module as it includes laser chip and laser diode TO-CAN(LD). 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 EPIC module does not cause any accidents resulting in injury, death, fire, property damage, economic damage or environment damage. In case customer uses module in the system requiring higher safety, customer is responsible to review the conditions for consistency of entire system and all safety concerns to meet the specific requirements. EPIC 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 EPIC who reserves the rights to modify, to insert, and/or to withdraw any part of the rules specified herein.



Version#	Remark	Date
0.1	4242 initial version	2023/12/04
0.2~0.8	Content modified	2023/12/27
0.9	Water mark, remove laser compliance of the optical characteristics	2024/01/31
1.0	Add laser compliance item at optical characteristics.	2024/02/01
1.1	update product driver information	2024/02/01