

Data Sheet

VCSEL TOF3838 Module

850nm 1W

Dogain Optoelectronic Technology(Suzhou)Co.,Ltd

PN: DG-VP-A850-1WBS38
Rev. 1.0

Aug. 2025

Note: Customers represent that they have all the necessary expertise to create and implement their own safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions.

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Product Introduction

Features

- Size: 3.9mmx3.9mmx1.65mm
- ALN ceramic package
- Stable wavelength, narrow spectral width
- Peak wavelength 850nm
- High power, high reliability and high power conversion efficiency
- Other wavelengths, chip dimensions, and emitter patterns are available according to customer request.

Application

- Face recognition, gesture recognition
- Night Vision Illuminating
- Volumemeasurement, 3D scanning
- Avoidance
- AR/VR

Electro-optical characteristics (25°C)

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Optical Output Power	P_{OP}	-	1.3	-	W	CW If = 1.5A 25°C
Threshold Current	I_{th}	-	0.27	-	A	
Operating Current	I_{op}	-	1.5	-	A	CW 25°C
Operating Voltage	V_{op}	-	2	-	V	CW If = 1.5A 25°C
Slope Efficiency	η_s		1	-	W/A	CW If = 1.5A 25°C
Power Conversion Efficiency	PCE	-	43	-	%	CW If = 1.5A 25°C
Wavelength	λ_{peak}	840	850	860	nm	CW If = 1.5A 25°C
Spectral Width (RMS)	$\Delta\lambda$	-	-	2.5	nm	CW If = 1.5A 25°C
Beam Full Divergence (D86)	φ	-	21	-	°	CW If = 1.5A 25°C
Wavelength coefficient	$d\lambda/dT$		0.07		nm/°C	CW If = 1.5A 25°C

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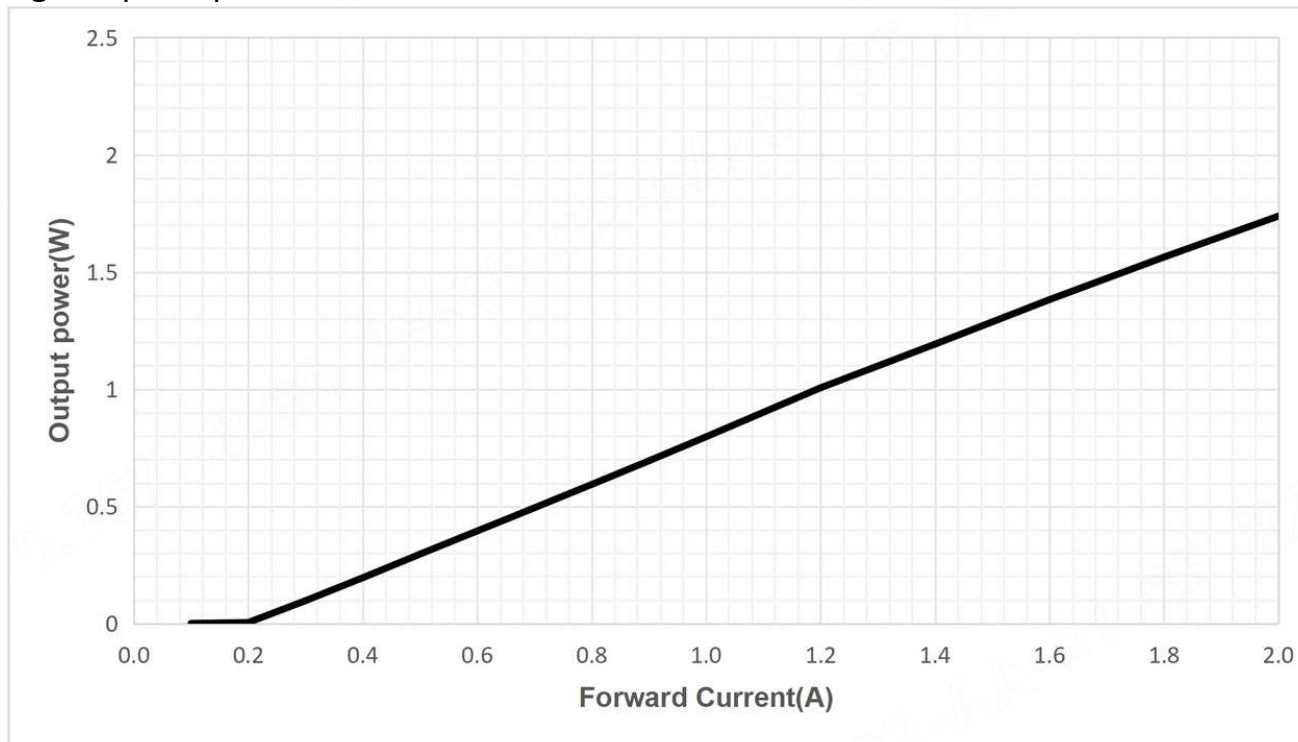
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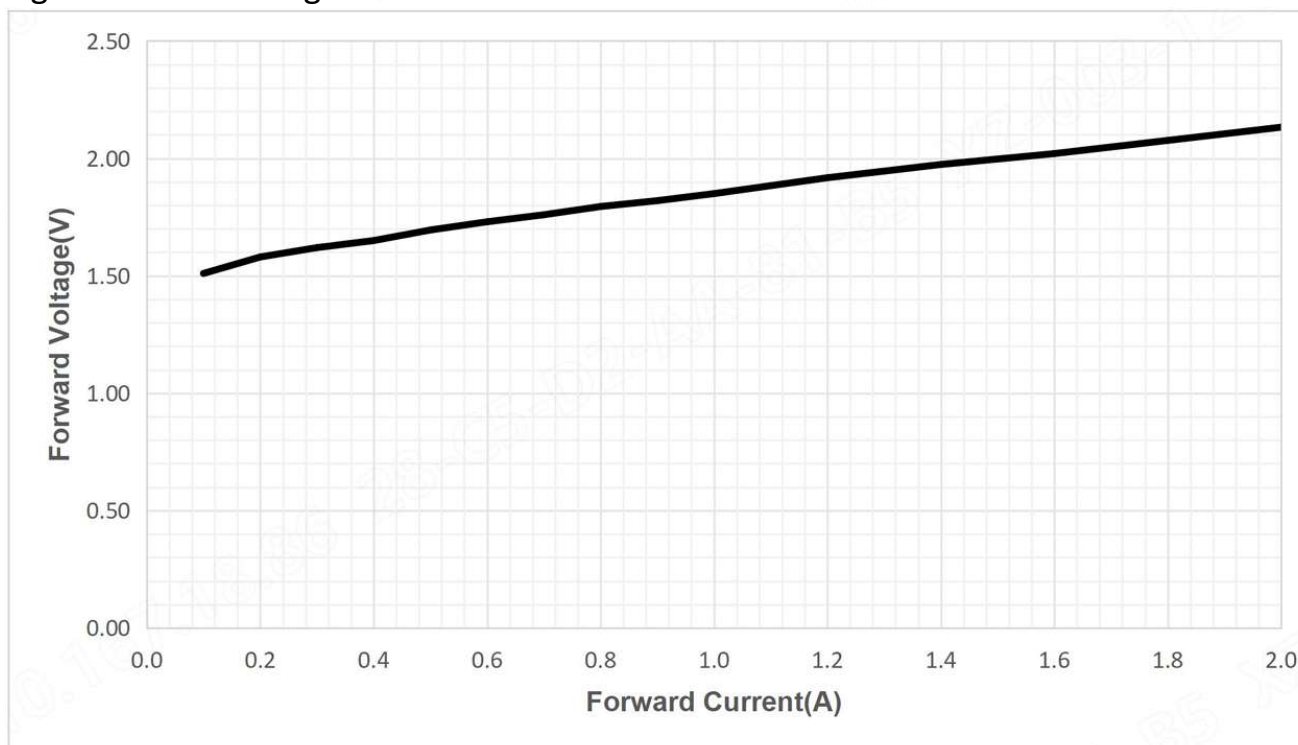
Typical Optical Characteristics Curves

Fig.1- Optical power vs. Forward Current



* Test condition is CW 1.5A 25°C.

Fig.2-Forward Voltage vs. Forward Current



* Test condition is CW 1.5A 25°C.

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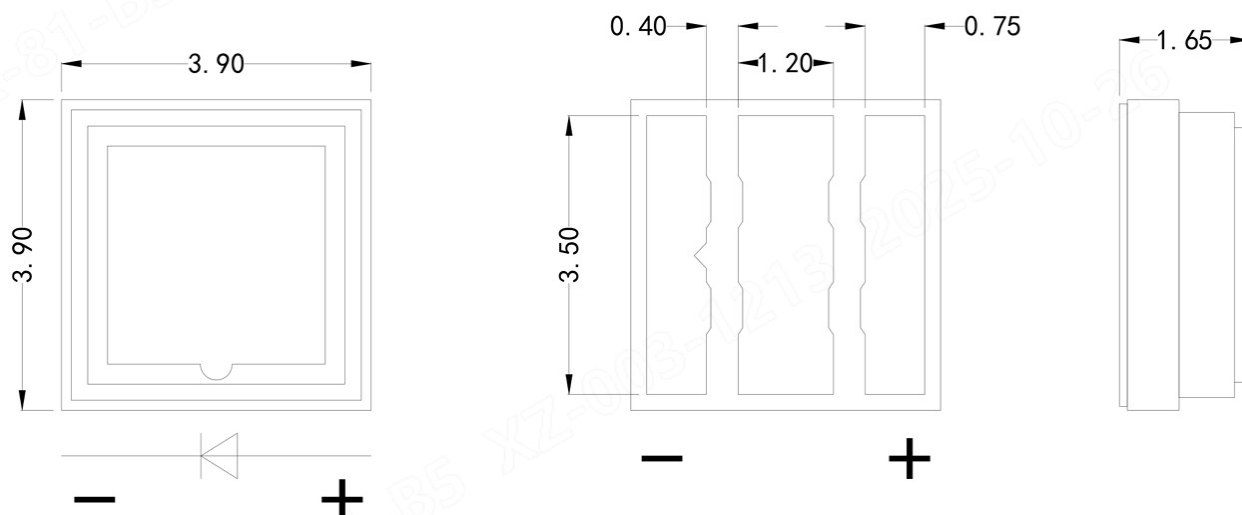
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Fig.3-Laser Far Field Pattern



* Test condition is CW 1.5A 25°C.

Product appearance mechanical characteristics



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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Operating temperature	Top	-20	85	℃
Operating humidity	Hop	0	85	%
Storage temperature	Ts	-40	85	℃
Storage humidity	Hs	0	85	%

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Eye safety and disclaimer

Security recommendations

Depending on the usage of the device, the module may emit highly concentrated invisible infrared light that is harmful to the human eye. Products containing these modules may be required to follow the safety precautions specified in IEC 60850-1 and IEC62471.

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Note:

No responsibility is assumed for the use of these products. The products can emit Class I~IV radiation and must be operated with extreme care. Avoid directly viewing the laser beam or exposure to specular reflections. Proper eye wear must be worn at all times when operating. VCSEL Chip in the modules are electrostatic-sensitive device and proper ESD protection is required for handling.



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