

Data Sheet(Preliminary)

VCSEL Chip Array

850nm 56Gb/s PAM4 A02

Dogain Optoelectronic Technology (Suzhou) Co., Ltd.

PN: DG-M-V850-P5FTB

Rev. 2.0

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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

Performance characteristics

DoGain's DG-M-V850-P5FTB is an 850nm, 250um*1000um*150um size (1x4 Array) and multimode vertical cavity surface emitting laser diode chip for using in non-hermetic environment up to 56Gb/s PAM4.

Key Features

- 850nm multimode vertical cavity surface emitting laser
- Data rates from DC to 56Gb/s PAM4
- Top-anode and Top-cathode configuration
- High humidity robustness
- RoHS compliant

Application

- Multimode datacom

Electro-optical characteristics (25°C)

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Optical Output Power	P _{OP}	3	-	6	mW	I _{op} =7.5mA, T _s =25C
Threshold Current	I _{th}	-	0.9	1.5	mA	T _s =25C
Differential resistance	R _s	-	80	-	Ω	I _{op} =7.5mA, T _s =25C
Operating Voltage	V _{op}	1.8	2.1	2.4	V	I _{op} =7.5mA, T _s =25C
Slope Efficiency	η _s		0.6	-	mW/mA	I _{op} =7.5mA, T _s =25C
Wavelength	λ _{peak}	840	-	860	nm	I _{op} =7.5mA, T _s =25C
Center Emission Wavelength Temperature Variation	Δλ/ΔT	-	0.07	-	nm/°C	-
Small Signal Bandwidth	f _{-3dB}	-	19	-	GHz	I _{op} =7.5mA, T _s =25C
Relative Intensity Noise	RIN		-140	-	dB/Hz	I _{op} =7.5mA, T _s =25C
Spectral Width (RMS)	Δλ	-	-	0.6	nm	I _{op} =7.5mA, T _s =25C
Beam Full Divergence (D86)	φ	20	26	28	°	I _{op} =7.5mA, T _s =25C

* All tests are under CW condition with heatsink temperature 25°C

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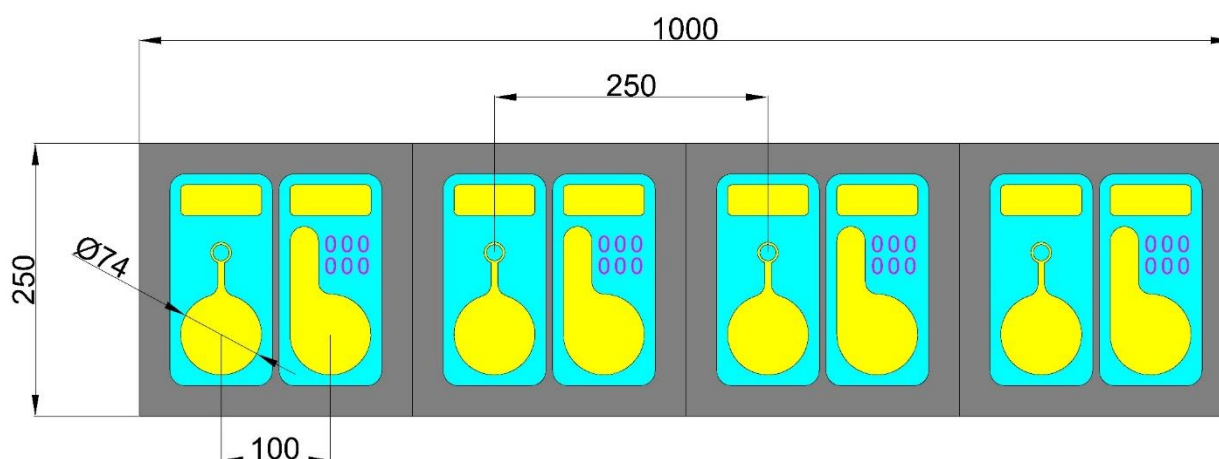
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Product appearance mechanical characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Die Length, DG-M-V850-P5FTB	L	980	1000	1020	μm
Die Width	W	230	250	270	μm
Die Thickness	T	135	150	165	μm
Bond pad gold metalization thickness		-	1	-	μm



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Operating temperature	Top	0	70	°C
Operating humidity	Hop	0	85	%
Storage temperature	Ts	-40	125	°C
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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