

Data Sheet(Preliminary)

980nm 14Gb/s multimode VCSEL A01

Dogain Optoelectronic Technology (Suzhou) Co., Ltd.

PN: DG-M-V980-N14STE

DG-M-V980-N14FTE

Rev. 1.0

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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.

Product Introduction

Performance characteristics

DoGain's DG-M-V980-N14STE is an 980nm, 250um*250um*150um size (single chip) and multimode vertical cavity surface emitting laser diode chip for using in non-hermetic environment up to 14Gb/s.

DoGain's DG-M-V980-N14STE is an 980nm, 250um*1000um*150um size (1x4 Array) and multimode vertical cavity surface emitting laser diode chip for using in non-hermetic environment up to 14Gb/s.

Key Features

- 980nm multimode vertical cavity surface emitting laser
- Data rates from DC to 14Gb/s
- Available as single chip and 4 channel arrays
- Top-anode and Top-cathode configuration
- High humidity robustness
- RoHS compliant
- Wide operating temperature range: -40 to 125°C

Application

- HDMI
- Multimode datacom
- Vehicle optical communication

Electro-optical characteristics (25°C)

Parameters	Symbol	Min	Typical	Max	Units	Test Condition
Optical Output Power	P _{OP}	1.5	2.5	-	mW	I _{op} =6mA, T _s =25°C
Threshold Current	I _{th}	0.4	0.8	1.2	mA	T _s =25°C
Operating Current	I _{op}	-	6	-	mA	CW 25°C
Differential Resistance	R _s	-	70	90	Ω	T _s =25°C
Operating Voltage	V _{op}	1.7	2.1	2.5	V	I _{op} =6mA, T _s =25°C
Slope Efficiency	η _s		0.45	-	mW/mA	T _s =25°C
Wavelength	λ _{peak}	965	980	990	nm	I _{op} =6mA, T _s =25°C
Center Emission Wavelength Temperature Variation	Δλ/ΔT	-	0.07	-	nm/°C	-
Small Signal Bandwidth	f _{-3dB}	-	14	-	GHz	I _{op} =6mA, T _s =25°C
Relative Intensity Noise	RIN	-	-130	-	dB/Hz	I _{op} =6mA, T _s =25°C
Spectral Width (RMS)	Δλ	-	-	0.6	nm	I _{op} =6mA, T _s =25°C
Beam Full Divergence (D86)	φ	-	26	-	°	I _{op} =6mA, T _s =25°C

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

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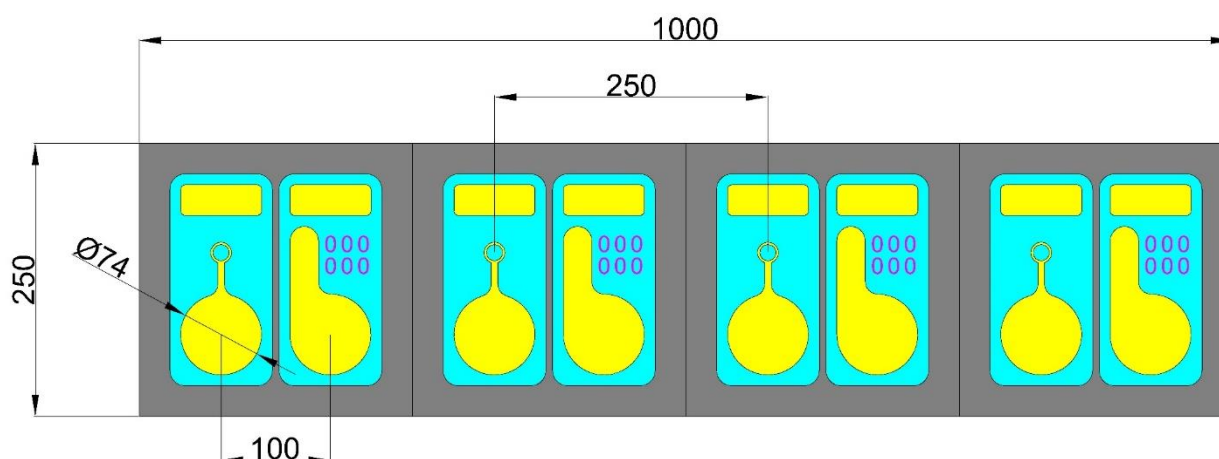
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Product appearance mechanical characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Die Length, DG-M-V980-N14STE	L	230	250	270	μm
Die Length, DG-M-V980-N14FTE	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	-40	125	°C
Operating humidity	Hop	0	85	%
Storage temperature	Ts	-50	135	°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.

Product Disclaimer

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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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