



Modulight, Inc.

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ML1003 TECHNICAL SPECIFICATION				
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TECHNICAL SPECIFICATION ML1003

1 SCOPE

Modulight's ML1003 is a high-performance single-mode 1310 nm bare die laser product. The laser emits 300 mW pulsed power (10 μ s PW, 1% DC) at 1310 nm wavelength. ML1003 is designed to be used as light source in fiber optic test and measurement equipment.

2 ORDERING INFORMATION

ML1003

3 ELECTRO-OPTICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Optical power ¹	P _o	300	-	-	mW	T _c = 25°C, I _f = 750 mA
		-	260	-		T _c = 60°C, I _f = 750 mA
Threshold current ²	I _{th}	-	33	50	mA	T _c = 25°C
		-	48	-		T _c = 60°C
Forward voltage	V _{op}	-	1.3	2	V	CW, T _c = 25°C, P _{op} = 50 mW
Serial resistance		-	2.2	-	Ω	CW, T _c = 25°C, P _{op} = 50 mW
Slope efficiency ¹	η	-	0.47	-	W/A	T _c = 25°C, up to 300 mW
		-	0.35	-		T _c = 60°C, up to 300 mW
Central wavelength ¹	λ_c	1290	1310	1330	nm	T _c = 25°C, I _f = 750 mA
Spectral width ^{1,3}	$\Delta\lambda$	-	4	7	nm	T _c = 25°C, I _f = 750 mA
		-	4	-		T _c = 60°C, I _f = 750 mA
Perpendicular beam divergence angle (FWHM) ^{1,4}	θ_{\perp}	-	34	-	deg	I _f = 750 mA, PW = 10 μ s, DC = 1%
Parallel beam divergence angle (FWHM) ^{1,4}	θ_{\parallel}	-	30	-	deg	I _f = 750 mA, PW = 10 μ s, DC = 1%

4 ABSOLUTE MAXIMUM RATINGS⁵

Parameter	Symbol	Rating	Unit
LD reverse voltage	V _{RLD}	2	V
LD forward current	I _{FLD}	1000 ⁶	mA
Lead soldering temperature (<10 s)	T _{SLD}	260	°C
Operating case temperature	T _c	0-70 °C	°C
Storage temperature	T _{STG}	-40-85°C	°C

¹ PW = 10 μ s, DC = 1%

² 1st derivative method

³ RMS, -20 dB

⁴ Full Width at Half Maximum

⁵ Operation in excess of any one of these parameters may result in permanent damage.

⁶ DC \leq 1%, PW \leq 10 μ s



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5 TYPICAL PERFORMANCE

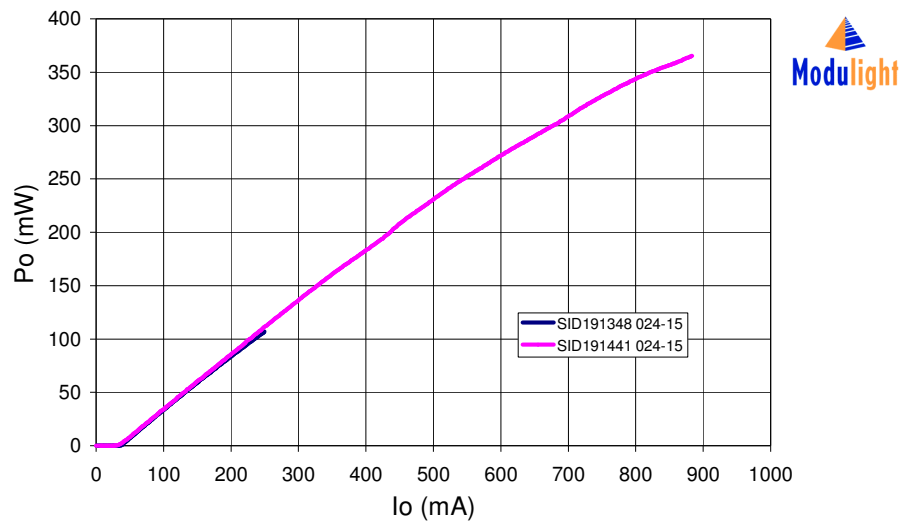


Figure 1. LI curve in CW mode (blue) and pulsed (10 μ s PW, 1% DC) mode (cyan), 25°C fixture temperature.

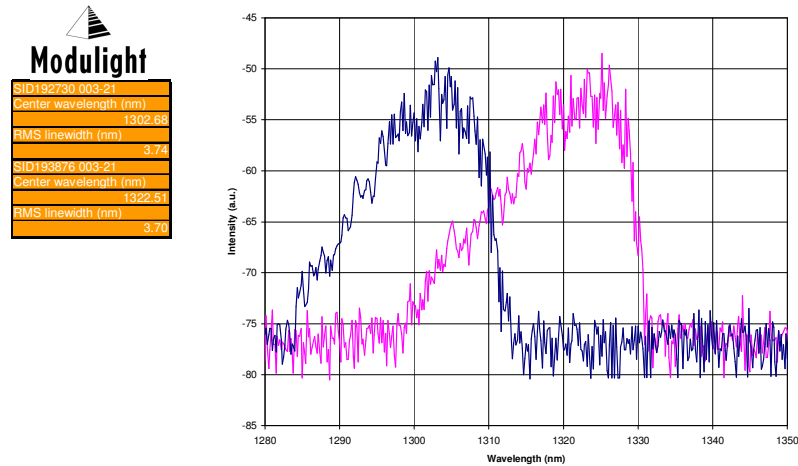


Figure 2. Example spectra, pulsed (10 μ s PW, 1% DC) mode, 25°C (blue) and 60°C (magenta) fixture temperature.

6 SAFETY INFORMATION

- The laser light emitted from this laser diode is invisible and may be harmful to the human eye. Avoid eye exposure to the beam, both direct and reflected.



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- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please take care of proper ESD protection prior to handling the products.
- These Modulight products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.



Peak power and wavelength are for safety analysis only do not present device performance

7 LIABILITY NOTE

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