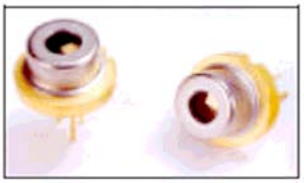
ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44, OFFICE@ROITHNER-LASER.COM

S98100MG



TECHNICAL DATA

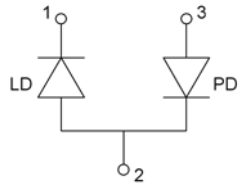
Infrared Laser Diode

Features

- Lasing Mode Structure: multi mode
- Peak Wavelength : typ. 980 nm
- Optical Ouput Power: 100 mW
- Package: 5.6 mm

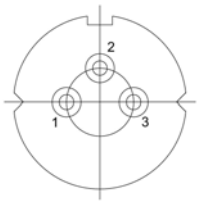
Electrical Connection

Pin Configuration	Bottom View



n-type

PIN	Function
1	LD Cathode
2	LD Anode, PD Cathode
3	PD Anode



Absolute Maximum Ratings (T_C=20°C)

Item	Symbol	Value	Unit
CW Output Power	P_O	100	mW
LD Reverse Voltage	V_r	2	V
PD Reverse Voltage	V_{rPD}	30	V
Operating Case Temperature	T_C	-10 … +40	°C
Storage Temperature	T_{stg}	-15 … +85	°C

Specifications (T_C=20°C)

Item	Symbol	Min.	Typ.	Max.	Unit
Optical Specifications					
CW Output Power	P_O	-	100	-	mW
Center Wavelength	λ_C	970	980	990	nm
FWHM Beam Divergence	$\theta_{\parallel}$	-	6	-	deg
	$\theta_{\perp}$	27	32	37	deg
Electrical Specifications					
Threshold Current	I_{th}	-	40	50	mA
Operating Current	I_{op}	-	165	190	mA
Slope Efficiency	η	0.5	0.8	-	mW/mA
Operating Voltage	U_{op}	1	1.5	2.1	V
Monitor Current	I_m	0.4	0.9	1.4	mA

The above specifications are for reference purpose only and subjected to change without prior notice.

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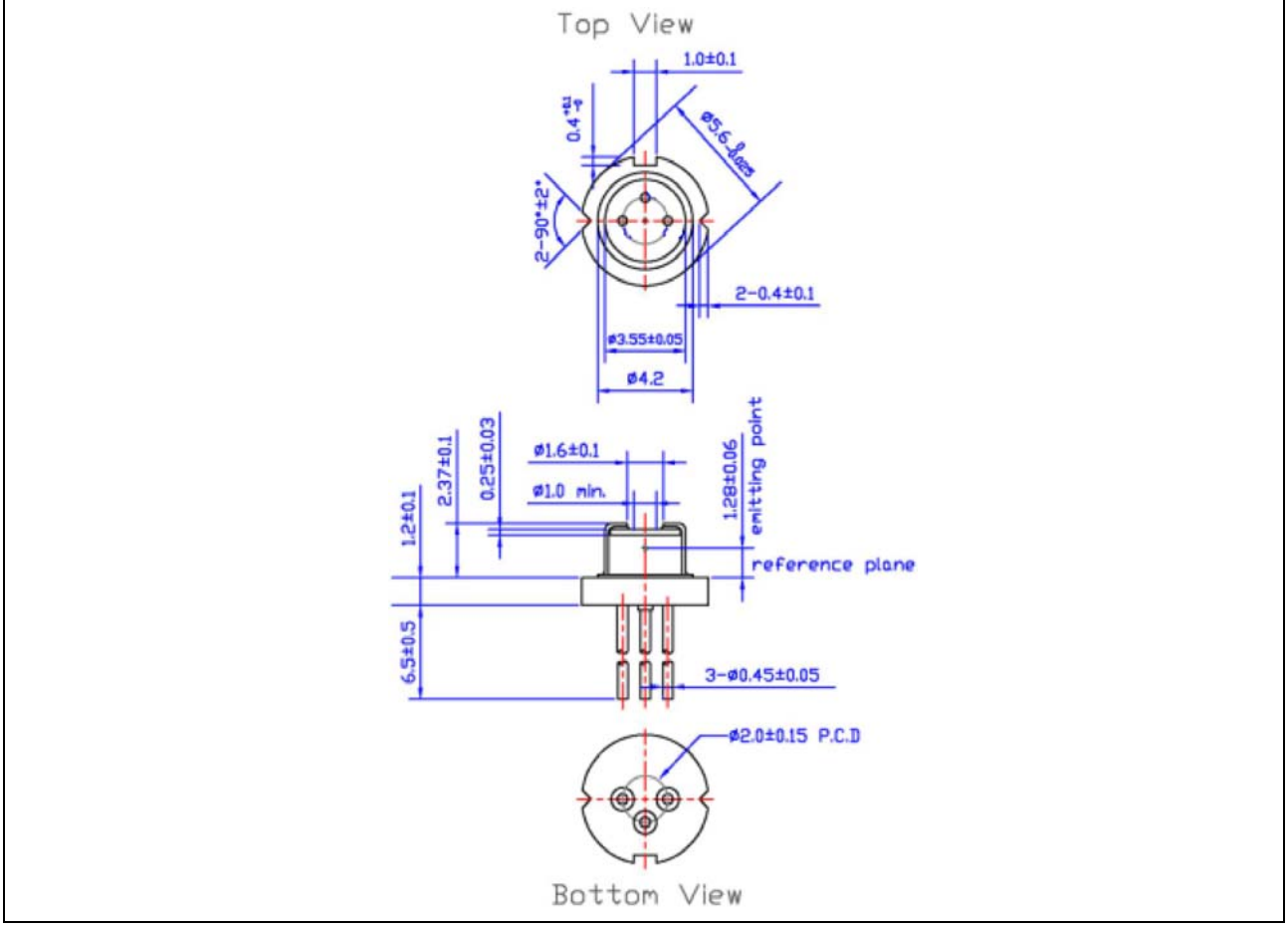
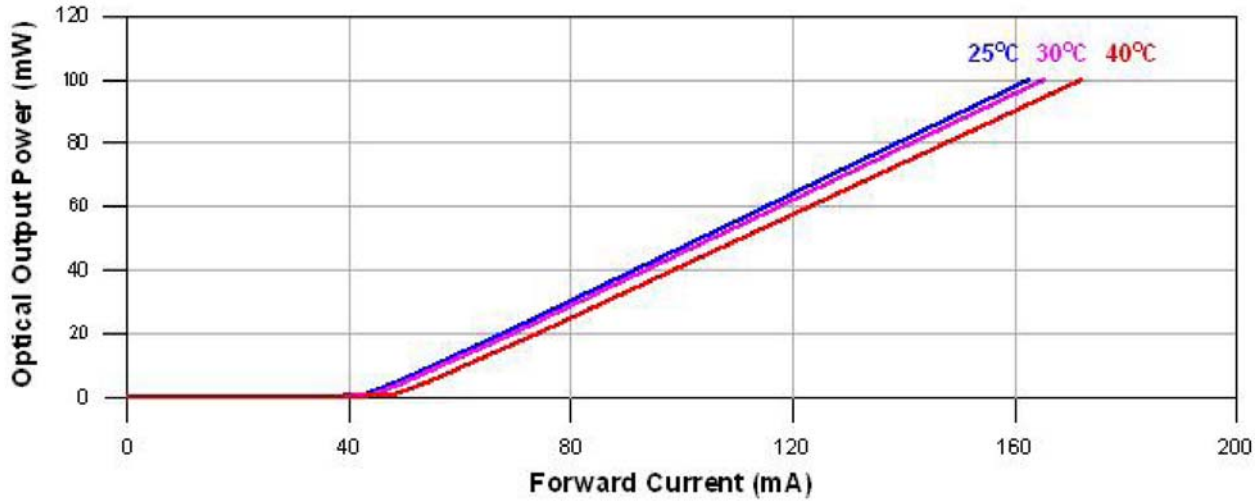
Package Dimensons

5.6 mm Package (*Unit:mm*)



Typical Performance Curves

Optical Ouput Power vs. Forward Current



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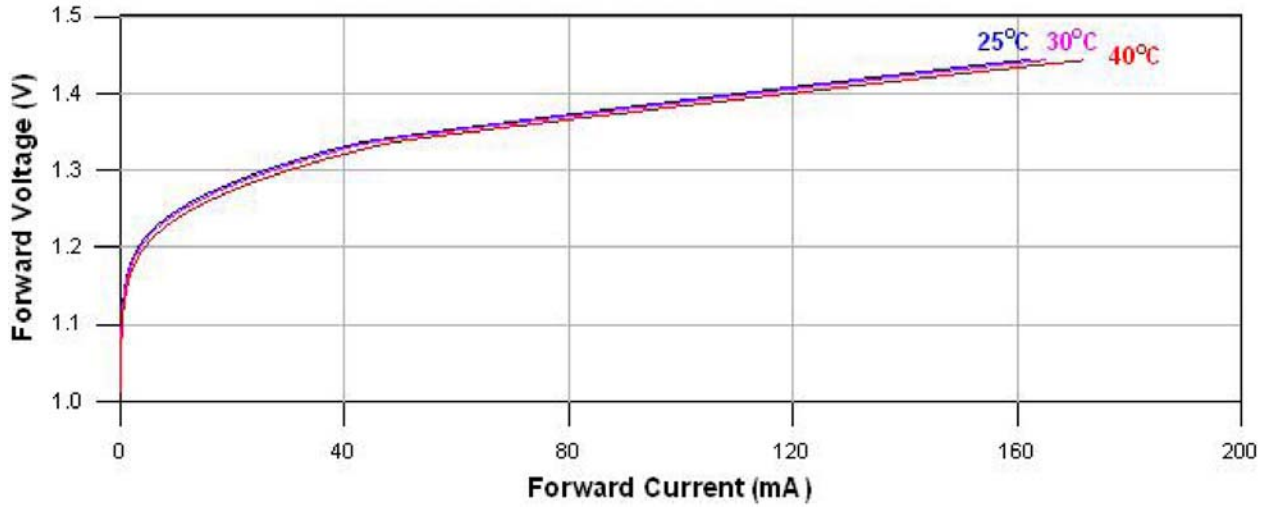
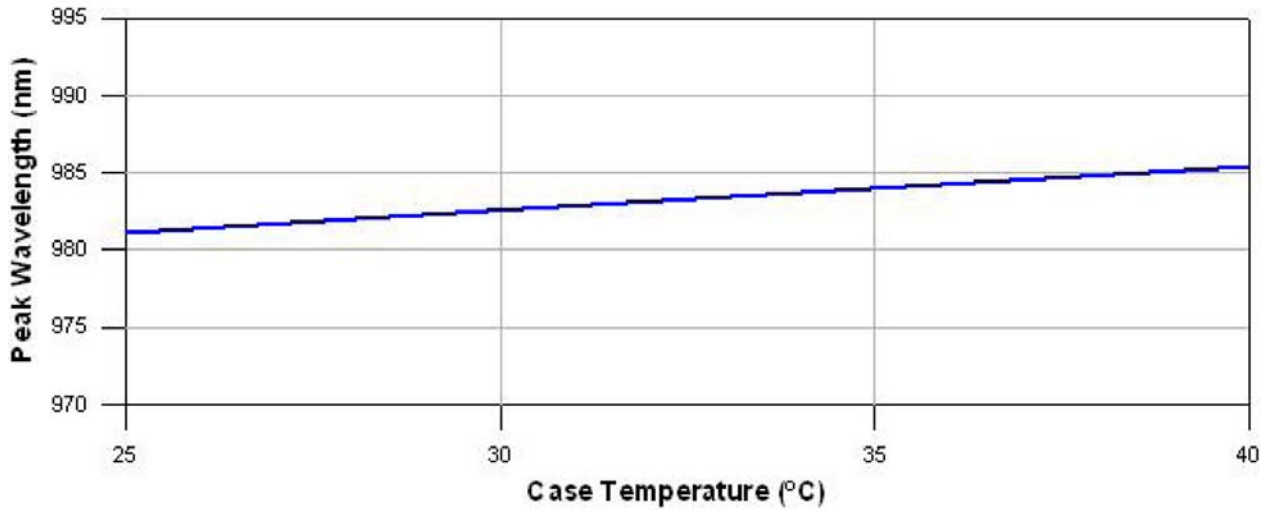
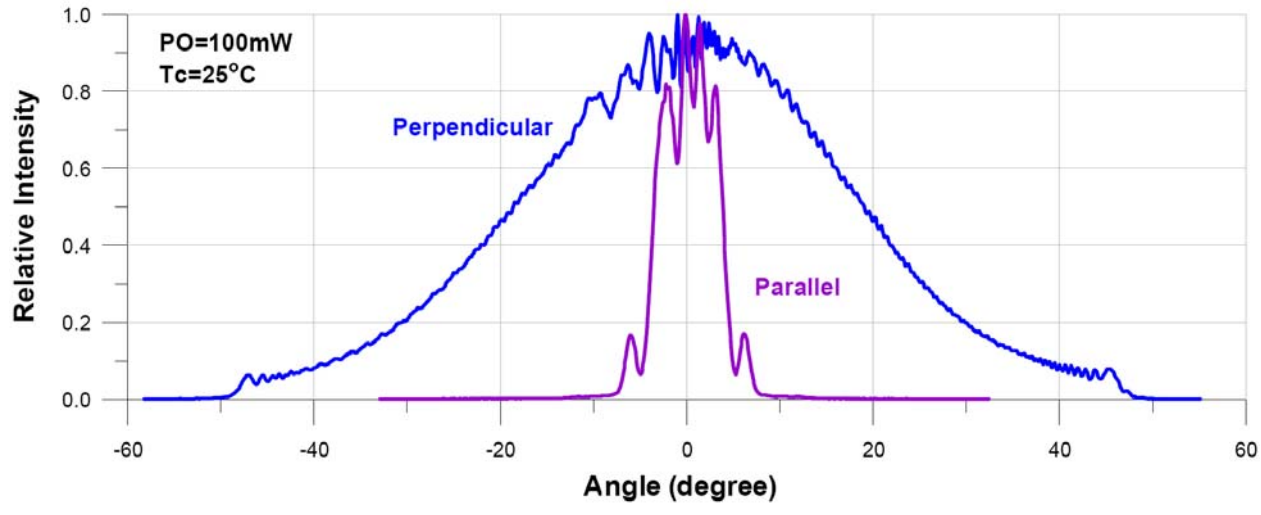
Forward Voltage vs. Forward Current



Peak Wavelength vs. Case Temperature



Far-Field Pattern



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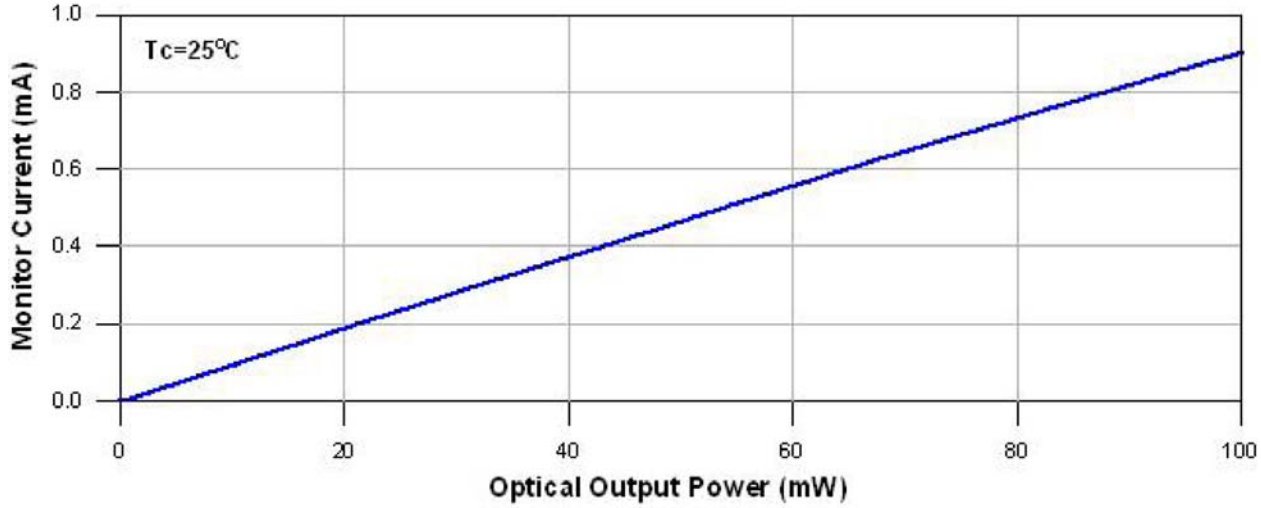
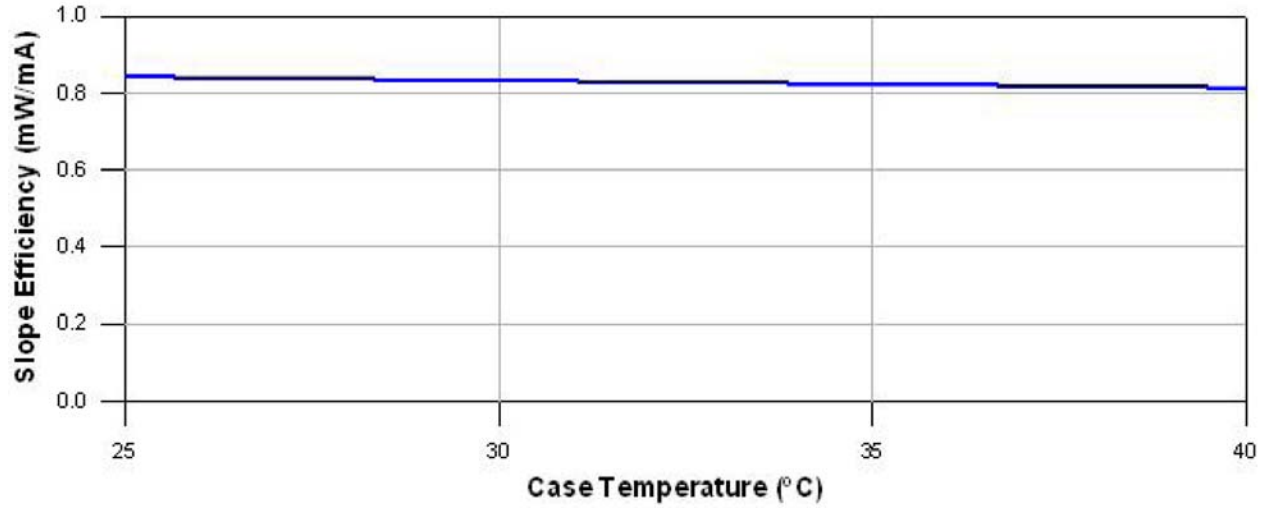
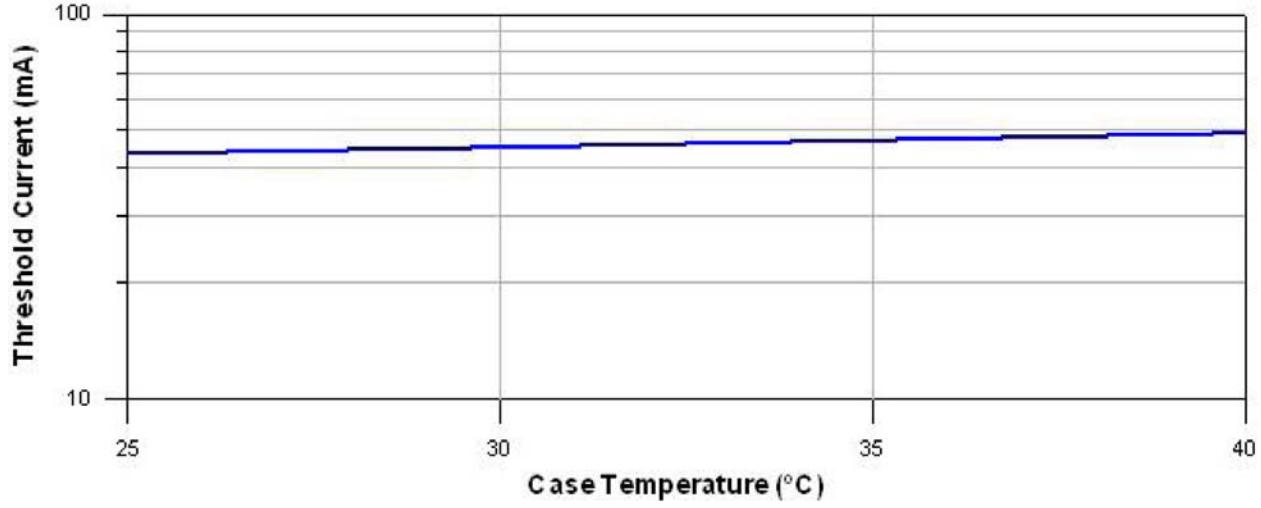
Monitor Current vs. Optical Output Power



Slope Efficiency vs. Case Temperature



Threshold Current vs. Case Temerature



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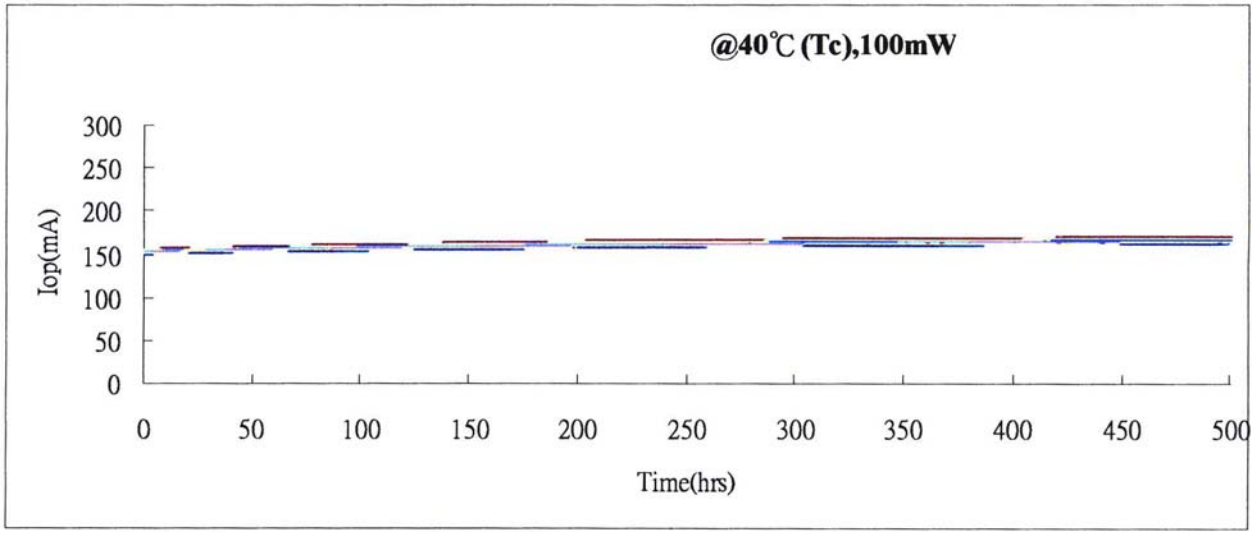
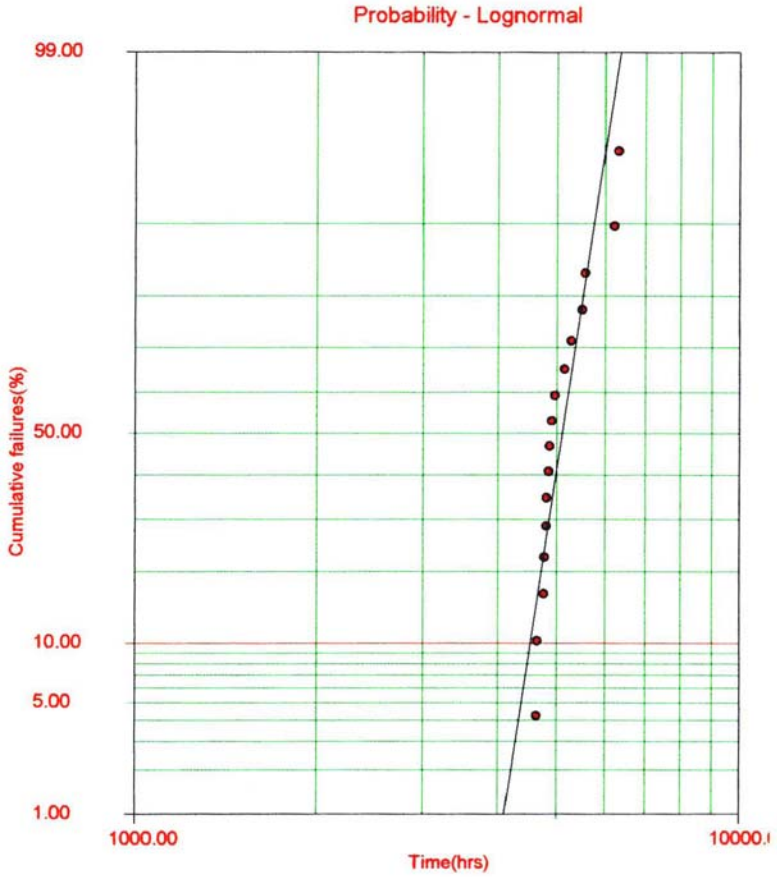
MTBF – test report

@ 40 °C (T_C), 100 mW



Using the after 250 hrs aging curves of the operation currents of the laser diodes to calculate the life time, the failure time of each laser diode is estimated by the linear extrapolation of the aging curves with $\Delta I_{op}/ I_{op} \geq 50\%$ as the end-of-life criteria.



Test results

Item	Life time (hrs)
Median life time, ML	4886
Mean time to failure, MTTF	5128
Time to 1% failure, TTF @ 1%	4099
Time to 10% failure, TTF @ 10%	4523

Safety of Laser light

- Laser Light can damage the human eyes and skin. Do not expose the eye or skin directly to any laser light and/or through optical lens. When handling the LDs, wear appropriate safety glasses to prevent laser light, even any reflections from entering to the eye. Focused laser beam through optical instruments will increase the chance of eye hazard.
- These LDs are emitting invisible light.

Cautions

1. Operating methode

- This LD shall change its forward voltage requirement and optical ouput power according to temperature change. Also, the LD will require more operation current to maintain same ouput power as it degrades. In order to maintain output power, use of APC (Automatic Power Control) is recommended. Which use monitor feedback to adjust the operation current.
- Confirm that electrical spike current generated by swithing on and off does not exceed the maximum operating current level specified herein above as absolute maximum rating. Also, employ appropriat countermeasures to reduce chattering and/or overshooting in the circuit.

2. Static Electricity

- Static electricity or electrical surges will reduce and degrade the reliability of the LDs. It is recommended to use a wrist trap or anti-electrostatic glove when handeling the product.

3. Absolute Maximum Rating

- Active layer of LDs shall have high current density and generate high electric field during its operation. In order to prevent excessive damage, the LD must be operated striclty below absolute maximum rating.