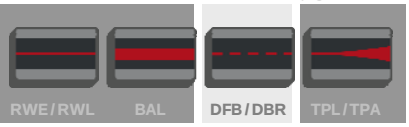
DISTRIBUTED FEEDBACK LASER

GaAs Semiconductor Laser Diode
with integrated grating structure



PRELIMINARY SPECIFICATION

DFB Laser

EYP-DFB-0773-00075-1500-TOC03-0000

General Product Information

Product	Application
773 nm DFB Laser with TO Housing	Spectroscopy
Monitor Diode, Thermoelectric Cooler and Thermistor	Metrology

Absolute Maximum Ratings

	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-20		75
Forward Current	I_F	mA			180
Reverse Voltage	V_R	V			0
Output Power	P_{opt}	mW			90

Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device. Operation at the Absolute Maximum Rating for extended periods of time can adversely affect the device realibility and may lead to reduced operational life.

Recommended Operational Conditions

	Symbol	Unit	min	typ	max	
Temperature at Laser Chip	T_{LD}	° C	15		40	measured by thermistor
Forward Current	I_F	mA			140	
Output Power	P_{opt}	mW	10		75	total output measured with integrated sphere

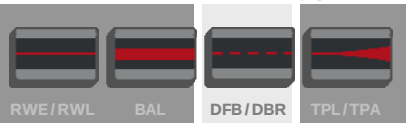
Characteristics at T_{amb} 25 °C at Begin Of Life

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Center Wavelength	λ_C	nm	772	773	774	see images on page 4
Spectral Width (FWHM)	$\Delta\nu$	MHz		2	10	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06		
Temperature Coefficient of Current	$d\lambda / dI$	nm / mA		0.003		
Output Power @ I_F = 140 mA	P_{opt}	mW	75			total output measured with integrated sphere
Slope Efficiency	S	W / A	0.6	0.8	1.0	

eagleyard Photonics GmbH
Rudower Chaussee 29 (IGZ)
12490 Berlin GERMANY
fon +49. 30. 6392 452-0
fax +49. 30. 6392 452-9
info@eagleyard.com
www.eagleyard.com

DISTRIBUTED FEEDBACK LASER

GaAs Semiconductor Laser Diode
with integrated grating structure



PRELIMINARY SPECIFICATION

DFB Laser

EYP-DFB-0773-00075-1500-TOC03-0000

Characteristics at T_{amb} 25 °C at Begin Of Life

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Threshold Current	I_{th}	mA			70	
Operational Current @ P_{opt} = 75 mW	I_{op}	mA			140	
Sidemode Supression Ratio	SMSR	dB	30	45		P_{opt} = 50 mW
Cavity Length	L	µm		1500		
Divergence parallel	$\Theta_{\parallel}$	°	6	8	10	
Divergence perpendicular	$\Theta_{\perp}$	°	18	21	24	
Polarization				TM		E field parallel to long axis of housing
Spatial Mode (transversal)				TEM_{00}		fundamental mode
Spectral Mode (longitudinal)				Single Mode		

Monitor Diode

Parameter	Symbol	Unit	min	typ	max	Measurement Conditions / Comments
Monitor Detector Responsivity	I_{mon} / P_{opt}	µA / mW	0.5		5	U_R = 5 V, target values
Reverse Voltage Monitor Diode	$U_{R\,MD}$	V	3		5	
Monitor Linearity	Lin_{MD}	%	-10		+10	P_{opt} = 10 … 75 mW, U_R = 5 V

Thermoelectric Cooler

	Symbol	Unit	min	typ	max	
Current	I	A			1.8	
Voltage	U	V			3.2	
Thermal Load	Q_c	W			3.1	
Temperature Difference	dT	K			50	T_{chip} = 25°C; P_{opt} = 75 mW

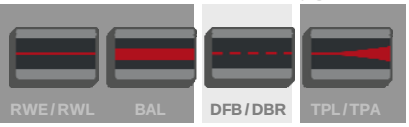
Thermistor (Standard NTC Type)

	Symbol	Unit	min	typ	max
Resistance	R	kOhm		10	
Beta Coefficient	β			3892	

eagleyard Photonics GmbH
Rudower Chaussee 29 (IGZ)
12490 Berlin GERMANY
fon +49. 30. 6392 452-0
fax +49. 30. 6392 452-9
info@eagleyard.com
www.eagleyard.com

DISTRIBUTED FEEDBACK LASER

GaAs Semiconductor Laser Diode
with integrated grating structure



PRELIMINARY SPECIFICATION

DFB Laser

EYP-DFB-0773-00075-1500-TOC03-0000

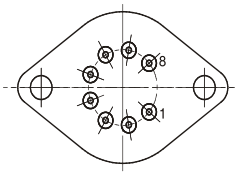
Package Dimensions

	Symbol	Unit	min	typ	max
Height of Laser Output above Header	H_L	mm		5.0	
Housing Dimension	l x w x h	mm^3		38.8 x 25.4 x 9.2	
Pin Length	L	mm	11.0		

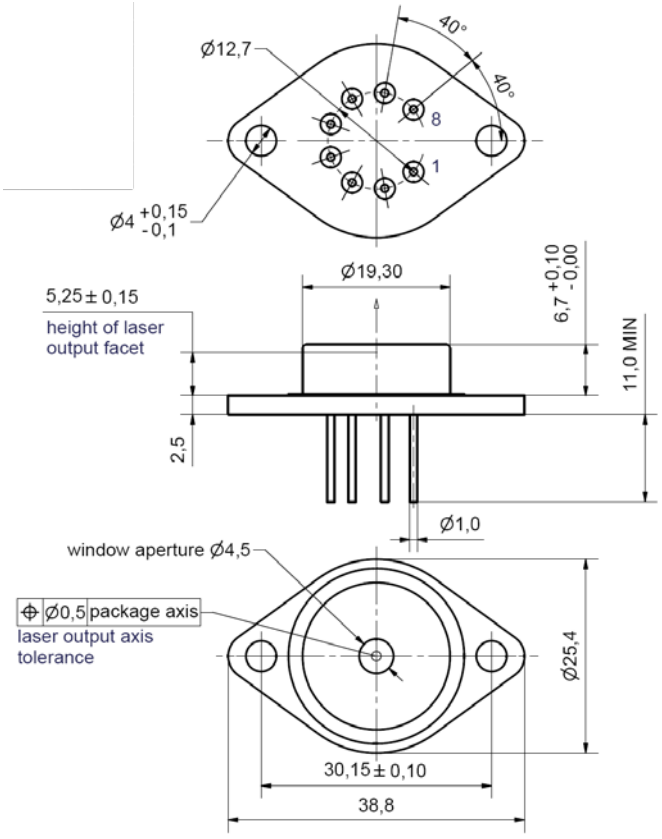
Package Pinout

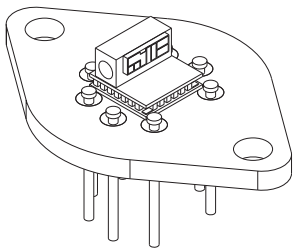
1	Thermoelectric Cooler (+)	5	Laser Diode (Anode)
2	Thermistor	6	Photo Diode (Anode)
3	Thermistor	7	Photo Diode (Cathode)
4	Laser Diode (Cathode)	8	Thernoelectric Cooler (-)

bottom view



Package Drawings



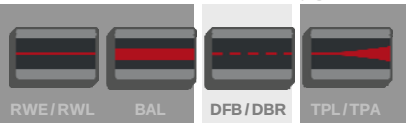


eagleyard Photonics GmbH
Rudower Chaussee 29 (IGZ)
12490 Berlin GERMANY
fon +49. 30. 6392 452-0
fax +49. 30. 6392 452-9
info@eagleyard.com
www.eagleyard.com

We focus on power.

DISTRIBUTED FEEDBACK LASER

GaAs Semiconductor Laser Diode
with integrated grating structure



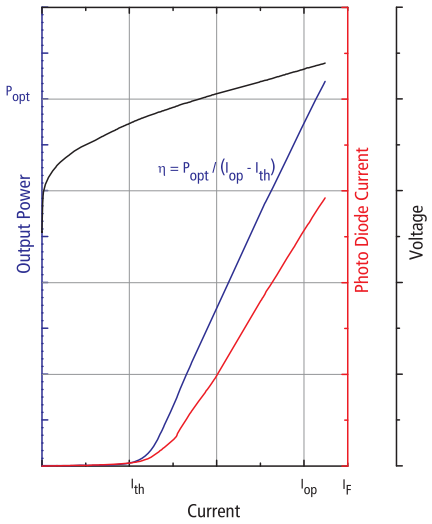
PRELIMINARY SPECIFICATION

DFB Laser

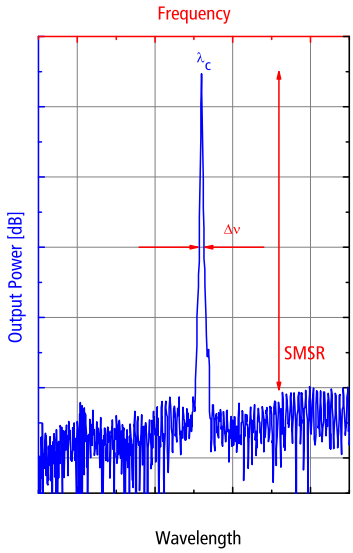
EYP-DFB-0773-00075-1500-TOC03-0000

Typical Measurement Results

Output Power vs. Current



Spectra at Specified Optical Output Power



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

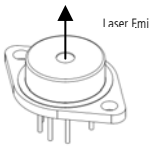
Unpackaging, Installation and Laser Safety

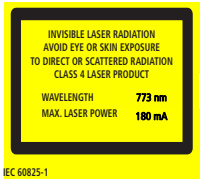
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The DFB diode type is known to be sensitive against optical feedback, so an optical isolator may be required in some cases. Operating at moderate temperatures on propper heat sinks willl contribute to a long lifetime of the diode.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. Avoid direct and/or indirect exposure to the free running beam. Collimating the free running beam with optics as common in optical instruments will increase thread to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.





Complies with 21 CFR 1040.10 and 1040.40

eagleyard Photonics GmbH
Rudower Chaussee 29 (IGZ)
12490 Berlin GERMANY
fon +49. 30. 6392 452-0
fax +49. 30. 6392 452-9
info@eagleyard.com
www.eagleyard.com

We focus on power.