

820nm SUPERLUMINESCENT DIODES

Based on Princeton Lightwave's advanced high power angled ridge waveguide structure platform, we have developed a series of products to meet a wide range of application needs. This 4 μm ridge, angled chip, in a GaAs structure for 820 nm, is packaged in a thermo-electric cooled standard butterfly package and can be pigtailed with either SMF or polarization maintaining fiber (PMF).



Features:

- Wide Bandwidth: 20 nm FWHM
- Low Noise Ripple: 3.5% @ 4 mW

Applications:

- Fiber Optic Gyro
- Medical Diagnostic Equipment
- Instrumentation

Key Product Specifications:

Parameter	Symbol	Units	Conditions	Min.	Typ.	Max.
Output Power	P_f	mW	Power in Fiber	2	4	-
Operating Current	$I_{th\ BOL}$	mA	Forward drive current; beginning of life (BOL)	-	140	300
EOL Operating Current	$I_{f\ EOL}$	mA	Forward drive current; end of life (EOL)	-	-	1.2 * $I_{f\ BOL}$
Forward Voltage	V_f	V	At rated power; BOL	-	-	2.5
Center Wavelength	λ_c	nm	RMS peak λ at rated power	$\lambda_c - 10$	820	$\lambda_c + 10$
Spectral Width	$\Delta\lambda$	nm	Measured at 3dB from peak	15	20	-
Spectral Noise	N_λ	%	Measured at spectral peak		1.7%	3.5%
Polarization Extinction Ratio	PER	dB		8		
Thermoelectric Cooler						
TEC Current	I_c	A	Max. $\Delta T = 40^\circ C$	-	-	3.4
TEC Voltage	V_c	V	Max. $\Delta T = 40^\circ C$	-	-	3.8
Thermistor Resistance	R_{th}	k Ω	Thermistor temperature $T_s = 25^\circ C$	9.5	10	10.5
Thermistor Constant	B	K		-	3900	-
Package						
Case Temperature	T_c	$^\circ C$		0	-	65
Hermeticity	-	atm cc/s		-	-	5×10^{-7}
Internal Moisture	-	ppm		-	-	5000
Module Useful Lifetime		Yrs.	Chip Temperature of $25^\circ C$	25	-	-
Fiber pigtail						
Polarization Maintaining Fiber, 80 micron and 125 micron diameter, un-terminated (customer specified)						

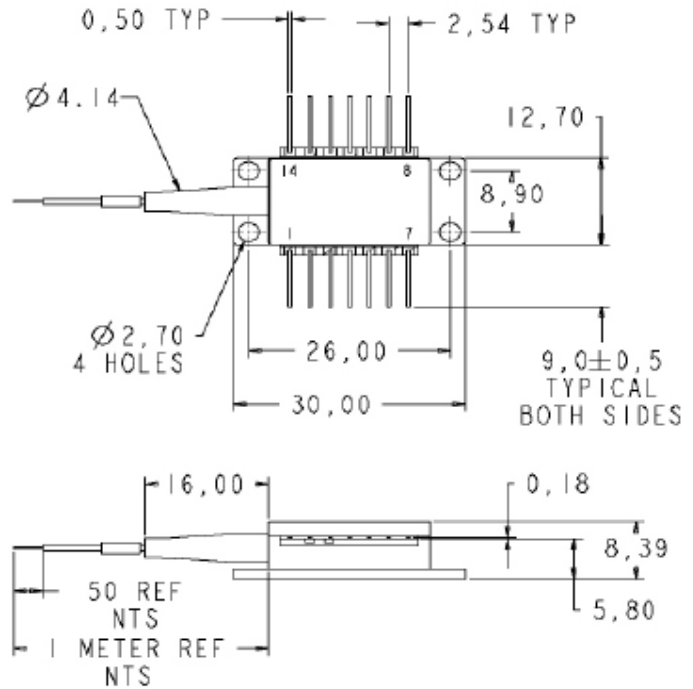
4. MECHANICAL SPECIFICATIONS

The 14 pin butterfly package contains the SLD and is hermetically sealed. The negative temperature coefficient thermistor in the package has a nominal resistance of 10 kΩ. The Steinhart-Hart coefficients with 10 μA current are:

$$A = 1.467852 \text{ E-03}$$

$$B = 2.382437 \text{ E-04}$$

$$C = 1.022214 \text{ E-07}$$



Pin	Name	Pin	Name
1	TEC (-)	8	PD Cathode
2	TEC (+)	9	PD Anode
3	Thermistor	10	Thermistor
4	Thermistor	11	Thermistor
5	Case ground	12	NC
6	SLD Anode	13	Case ground
7	SLD Cathode	14	TEC (-)

Contact Sales and Marketing for more information on this product at 609-495-2600 or email sales and marketing at: sales@princetonlightwave.com