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SPECIFICATIONS

1280 nm High Power Superluminescent LED

DL-CS2079A

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A. PRODUCT DESCRIPTION

The DenseLight DL-CS2079A series is a broadband SLED that operates in a true inherent superluminescent mode. This superluminescent property generates broader band at higher drive currents in contrast to other conventional SLEDs which are ASE-based, where high drive tends to give narrower band. Its low coherence reduces Rayleigh backscattering noise. Coupled with high power and large spectral width, it offsets photoreceiver noise and improves spatial resolution (in OCT) and measurand sensitivity (in sensors). The SLED is available in 14-pin BTF package. It is compliance with the requirements of Telcordia GR-468-CORE.

Enabled by DensePICTM spread spectra bandgap engineering technology, future generations of DenseLight SLEDs promise higher chip powers (up to 50mW possible), and broader spectral bands (beyond 120nm). Higher levels of integration may feature integrated SLEDs with phase modulators, optical couplers and photodetectors into a complete optical sensor chipset.

For responsive prototyping enquiries please email: info@denselight.com

B. FEATURES

- Typical ex-fiber output power of >7mW
- Typical 3dB bandwidth of >70nm
- Typical spectral modulation of 0.4dB
- 14-pin BTF package
- Single mode fiber

C. APPLICATIONS

- Fiber Optic Gyroscope
- Optical Test Instrument
- Fiber Optic Sensors
- Fiber Optic Communications
- Optical Coherence Tomography
- Biomedical Imaging Device
- Clinical Healing Equipment



D. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	V_R	-	-	2	V
Forward current	I_{F}	-	-	450	mA
Forward voltage	V_{F}	I_{op}	-	2.8	V
Case temperature	T _c	I _{op}	-40	65	°C
SLED temperature ¹	T _{SLED}	I _{op}	0	70	°C
Thermoelectric cooler voltage	V_{TEC}	-	-	3.56	V
Thermoelectric cooler current	I_{TEC}	-	-	2.6	A
Storage temperature	$T_{\rm stg}$	Unbiased	-40	85	°C
Storage humidity	-	-	5	85	%RH
Electro static discharge (ESD)	V_{ESD}	Human body model	-	500	V
Lead soldering temperature	S _{temp}	-	-	260	°C
Lead soldering time	Stime	-	-	10	sec

E. SPECIFICATIONS ($T_{SLED} = 25$ °C)

Parameter	Symbol	Condition	Min	Тур	Max	Unit
Operating current	Iop	-	-	-	400	mA
Forward voltage	V_{F}	I_{op}	-	-	2.4	V
Power in SMF	Po	I_{op}	7	1	1	mW
Central wavelength	λ	I_{op}	1260	1275	1290	nm
Bandwidth	B_{FWHM}	I_{op}	70	1	1	nm
Spectrum modulation	R	I_{op}	-		0.4	dB
Thermistor resistance	R _{therm}	T = 25 °C	9.5	10	10.5	$\mathrm{k}\Omega$
Thermoelectric cooler voltage	V_{TEC}	I_{op}	-	-	2.9	V
Thermoelectric cooler current	I_{TEC}	I _{op}	-	-	1.6	A

 $^{^{1}}$ T_{SLED} is monitored by internal thermistor with external pin out.

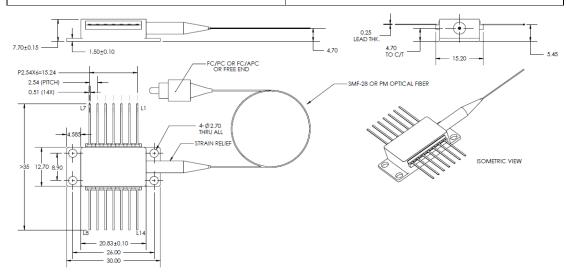
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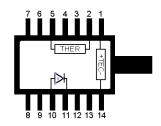
F. PACKAGE

BTF package

Part	Description
Package type	BTF
Fiber:	SMF-28
MFD	9μm
Cladding diameter	125µm
Coating diameter	245µm
Jacket	900μm loose tube
Fiber pigtail length	1m
Fiber bending radius	>40mm
Connector	FC/APC
Dimensions	See figure



Pin Assignment		
1	TEC+	
2	THERMISTOR	
3	_	
4	_	
5	THERMISTOR	
6	_	
7	_	
8	_	
9	_	
10	SLED ANODE +	
11	SLED CATHODE -	
12	-	
13	CASE	
14	TEC -	

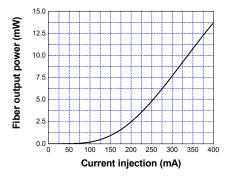


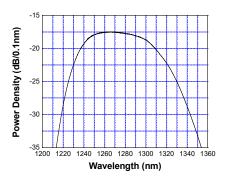
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G. TYPICAL PERFORMANCE CHARACTERISTICS

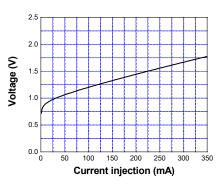
Operating condition: T_{SLED}= 25 °C

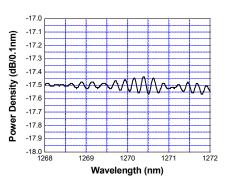




P-I Curve

Spontaneous Emission Spectrum





I-V Curve

Spectrum Modulation

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H. DISCLAIMER FOR CUSTOMER SPECIFIC APPLICATIONS

Denselight product is not intended for use other than stated on the application note or as defined in the product specification. The performance of the product should always be tested in the actual application conditions. As our products are used in conditions beyond our control, we cannot assume any liability for damage caused through their use. Users of DenseLight products are solely responsible to thoroughly test and qualify their system and / or application for their intended application and have determined such at their sole discretion. DenseLight cannot assume any liability for the use of our products in conjunctions with other. Customer assumes the sole risk and liability of the product performance other than specified by the product specific data sheet or application notes without DenseLight's specific written consent.

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