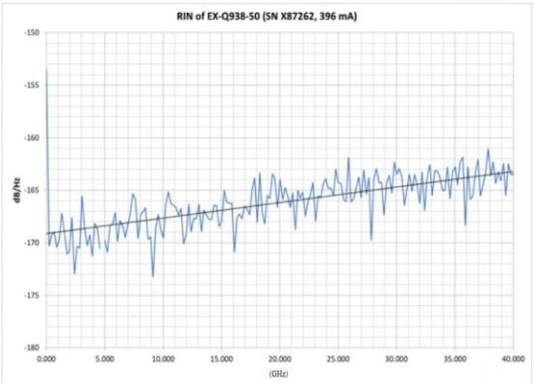
ExOptronics, Inc
www.exoptronics.com
Phone: 1-310-986-2889
Fax: 1-310-579-6582

EX-Q938 1550nm CW High Power Laser Module REV 007

Description

The **EX-Q938** laser is ideal CW optical source used RF over Fiber (RFoF) for its unique low Relative Intensity Noise(RIN). The EX-Q938 package is equipped with built-in TEC, thermistor, and photodiode monitor. It shows super thermal stability, very low RIN and narrow line width. 25 Ω electrical matching facilitates the modulation bandwidth in excess of 1GHz. This allows for multiple techniques to suppress SBS.

Key Features



- Low Relative Intensity Noise (RIN) to 40GHz
- High Optical Output Power to 100mW
- Polarization Maintaining Fiber Output
- Narrow Line Width
- Internal TEC, Thermistor & Monitor PD
- Telcordia GR-468 Compliant
- RoHS Compliant

Applications

- RF over Fiber networks
- Hybrid fiber-coaxial (HFC), CATV networks and metro architectures require high power, low RIN and narrow line width Long haul for compensation of high-loss passive or active components

Absolute Maximum Rating:

Parameter	Symbol	Condition	Min	Max	Unit
Operating case temperature	T_c	$I=I_{op}$	-40	75	°C
Storage Temperature	T_{stg}	--	-40	85	°C
Laser Forward Current	CW	--	--	600	mA
Laser Reverse Bias	V_r	--	--	2	V
Photodiode Reverse Bias	V_{rpd}	--	--	10	V
RF Input Power	P_{in}	--	--	20	dBm
TEC Current	I_{TEC}	--	--	1.7	A
TEC Voltage	V_{TEC}	--	--	4.0	V
Lead Soldering Temperature		--	--	250	°C
Lead Soldering Time		--	--	10	Sec

ExOptronics, Inc
www.exoptronics.com
Phone: 1-310-986-2889
Fax: 1-310-579-6582

Electro-Optical Characteristics (Tc=25° C, unless stated otherwise)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Threshold Current	I_{th}	T_c=25° C	-	20	50	mA
Output Power	P_f	IF=I_{op}	See options			mW
Laser Drive Current	I_{op}	50 mW option 65 mW option 80 mW option 100mW option	-	-	400 450 550 600	mA
Laser Drive Voltage	V_{op}	CW	-	-	3.5	V
Center Wavelength	λ_c	I=I_{op}	1530	-	1570	nm
Side-mode Suppression Ratio	SMSR	I=I_{op}	30	45	-	dB
Monitor Current Response	I_m	I=I_{op}	150		-	µA
Relative Intensity Noise[1)]	RIN	1 GHz 2 - 17GHz 18 GHz 19 – 20GHz		-	-160.0 -154.5 -153.5 -152.5	dB/Hz
Line Width	υ	I=I_{op}		-	1.0	MHz
TEC Current	I_{TEC}	-40°C<T_C<75°C	-1.0		+1.7	A
TEC Voltage	V_{TEC}	-40°C<T_C<75°C	-2.0		3.0	V
Wavelength drift with case temp	$d\lambda_c/dT_c$	-20°C<T_C<75°C	-	-	0.09	nm/ °C
Thermistor Resistance	R_{TH}	Top=25° C	9.5	10	10.5	KΩ
Optical Return Loss	ORL	-	40	-	-	dB
Optical Isolation	ISO	-	30	40	-	dB
Polarization Extinction Ratio	PER	E-field along slow axis	18	19	-	dB

1. RIN measurement per ExOptronics test set up.
2. Loose tube PM fiber is default, tight buffer PM fiber is optional
3. FC/APC is standard/default fiber connector

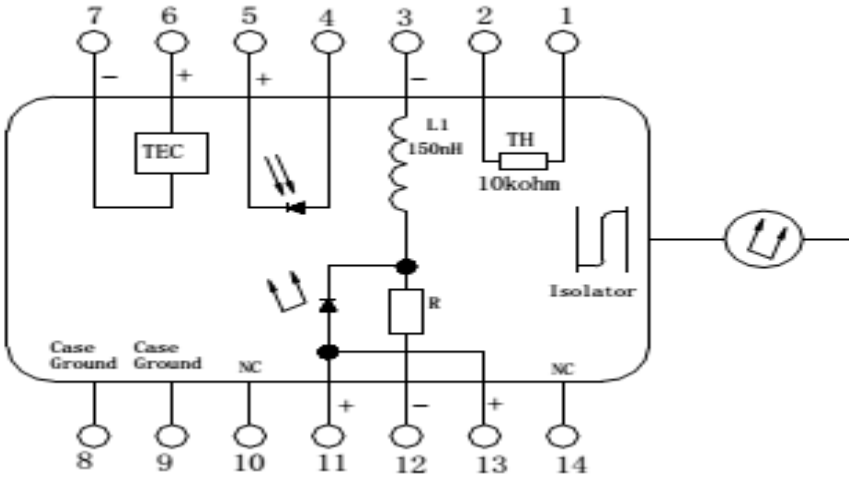
ExOptronics, Inc
www.exoptronics.com
Phone: 1-310-986-2889
Fax: 1-310-579-6582

Ordering Options:

EX-Q938-XX-XX

Power	ITU Option
50: >50 mW	55N: Non-ITU (1530-1570nm)
65: >65 mW	5DXX: DWDM-ITU
80: >80 mW	where
100: >100mW	XX=20: 1561.50nm (192.0THz)
	....
	XX=59: 1530.33nm (195.9THz)

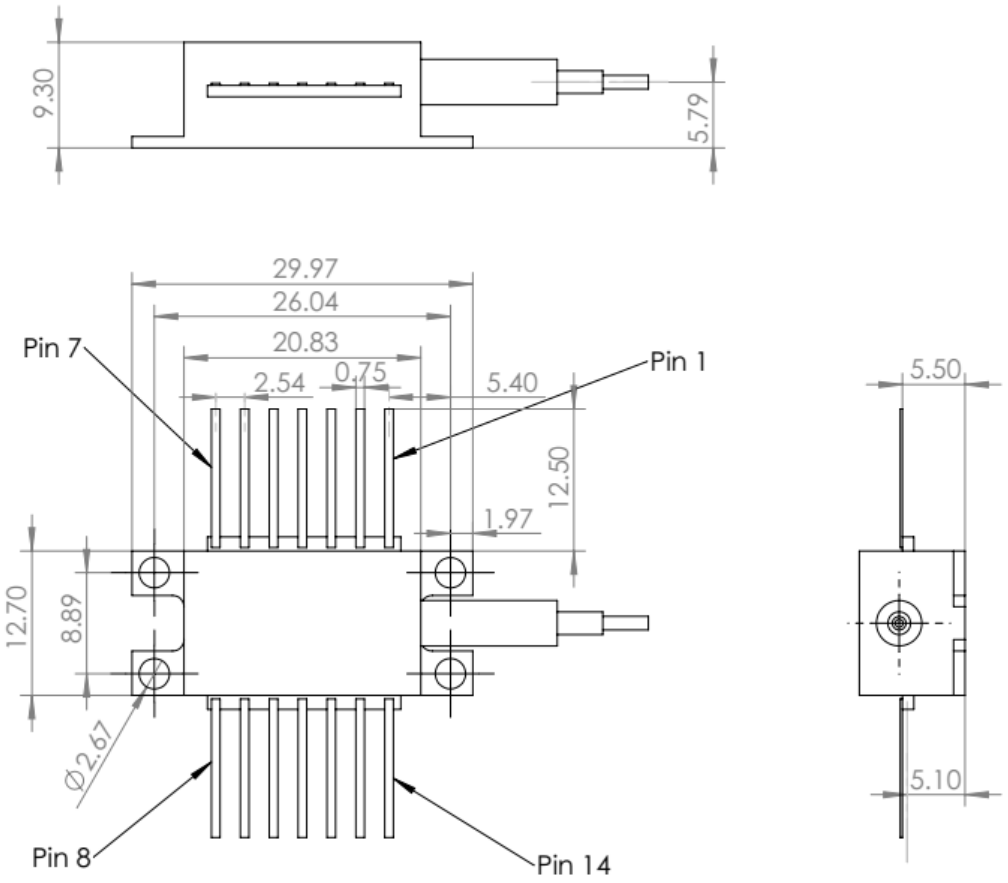
Electrical Schematic



Pin Assignments			
Pin	**Function**	**Pin**	**Function**
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	DC Laser Bias (-)	10	NC
4	MPD Anode	11	Laser Common (+), Case Ground
5	MPD Cathode	12	Laser Modulation (-)
6	TEC (+)	13	Laser Common (+), Case Ground
7	TEC (-)	14	NC

ExOptronics, Inc
www.exoptronics.com
Phone: 1-310-986-2889
Fax: 1-310-579-6582

Outline Drawing - Unit: in (mm)



Safety Information

This product is a Class 3R Laser Product as defined by International Standard IEC 60825-1:2015 and EN60825-1:2014+A11:2021. Invisible Laser radiation is emitted from the end of the fiber or connector. Avoid direct eye exposure to the beam. Laser safety labels are not attached to the module due to space limitations but instead are affixed to the outside of the shipping carton.