ExOptronics, Inc
www.exoptronics.com
Phone: 1-310-928-6368
Fax: 1-310-579-6582

EX-Q754-X-X
1550nm DWDM Quadrature Amplitude Modulated (QAM)Laser Module
Version 05

Description

The EX-Q754-X-X laser module is a for radio frequency (RF), analog wireless and distributed antenna system (DAS) as well as analog DOCSIS 3.1 applications. It features low adiabatic chirp and excellent inherent linearity to maximize signal quality in long distance transmission and minimizes the distortion caused by quadrature amplitude modulated (QAM) channels in the broadcast signals.

Key features

- ITU Grid covers C-band
- High linearity
- Low adiabatic chirp
- Internal TEC, thermistor & monitor PD
- Telcordia GR-468 compliant
- RoHS compliancy

Applications

- Wireless Networks
- Distributed Antenna (DAS)
- QAM broadcasting

Absolute Maximum Ratings:

Parameter	Symbol	Condition	Min	Max	Unit
Operating Case Temperature	T_c	$I=I_{op}$	-40	70	°C
Storage Temperature	T_{stg}	--	-40	85	°C
Laser Forward Current	CW	--	--	150	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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Threshold Current	I_{th}	25° C	-	20	35	mA
Slope Efficiency	η	Ith+20 to 60mA	0.13			mW/mA
Laser Drive Current	I_{op}	Po (10mW) Po (16mW)	-	-	100 150	mA
Laser Drive Voltage	V_{op}	Po (10mW) Po (16mW)	-	-	2.0 2.5	V
Center Wavelength	λ_c	$I=I_{op}$	See ordering options			nm
Side-mode Suppression ratio	SMSR	$I=I_{op}$	30	45	-	dB
Monitor Current response	I_m/P_{LD}	-	5		200	μA/mW
Relative intensity noise	RIN	20-1000MHz		-	-155	dB/Hz
TEC Current	I_{TEC}	$-20^oC<T_C<70^oC$	-1.5		+1.7	A
TEC Voltage	V_{TEC}	$-20^oC<T_C<70^oC$	-2.0		3.0	V
Wavelength Dependence on Laser Chip Temp	λ	$-20^oC<T_C<70^oC$	-	-	0.094	nm/°C
Wavelength Set Temperature	Tset		15		35	°C
Thermistor Resistance	R_{TH}	Top=25° C	9.5	10	10.5	KOhm
Optical return loss	ORL	-	40	-	-	dB
Optical Isolation	ISO	-	30	40	-	dB
RF Impedance	Z	-		25		Ω
Frequency Response Flatness	S_{21}	0.4-0.89 GHz, Iop	-	-	1	dBp-p
		0.4-3.5 GHz, Iop	-	-	4	dBp-p
Electrical Back reflection	S_{11}	0.4-3.5Ghz, Iop	10			dB
Adiabatic Chirp	FM	I_f=Ith+60mA @500MHz	-	-	150	MHz/mA
Carrier to Noise Ratio	CNR	79 NTSC(or 59 PAL) channel loading, 3.3% OMI 15 km fiber distance, I_f = Iop	50			dB
Composite Second Order Distortion	CSO				-45(10mW) -40(16mW)	dBc
Composite Triple Beat	CTB				-65	dBc

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Ordering Options:

EX-Q754-X–X

Power
10: 10 mW
16: 16 mW

ITU Option
55N: Non-ITU (1535-1565nm)
ITU: 1530nm - 1563nm
X=18: 1563.05nm (191.8THz)
X=59: 1530.33nm (195.9THz)

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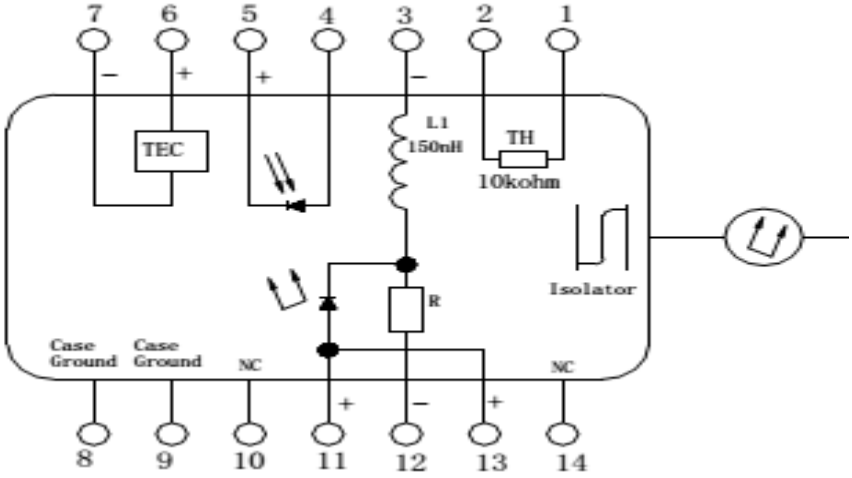
- 1 meter single mode fiber with default FC/APC connector

Electric Schematics



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

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Outline Drawing (unit: mm)