Multiplex, Inc.
Photonics for Communications

T620 & T62E Series

2.67Gb/s 1550nm TDM Uncooled Directly Modulated Lasers (DML)
4 Pin TO-Can Package
Commercial and Industrial Operating Temperatures

The Multiplex T620 & T62E series DML TO module consists of an uncooled directly modulated DFB laser in a hermetically sealed metalized TO-56 package. The laser module also contains an integral monitor photodiode for optical output power monitoring.

The T620G & T62EG series modules are optimized to operate at bit-rates of 2.67Gbps transmission. It's designed to be fully compliant with Telcordia GR-253-CORE OC-48. The modules use a high performance DML platform operating at 1550nm, where fiber loss is at a minimum.

The tightly controlled design allows the device to operate over a case temperature range of -5°C to +80°C (or -40°C to +85°C for the extended temperature version).

Applications:

- T620G & T62EG series is designed for high-speed telecom and datacom transmissions in accordance with SONET/SDH OC-3/STM-1, OC-12/STM-4, OC48/STM-16, Gigabit Ethernet and Fiber Channel.

Features:

- Low threshold current.
- High output power
- Low cost TO-56 package.
- Extended temperature -40°C to +85°C option available.
- High-speed design optimized for modulation up to 2.67Gbps.

Compliance:

- Conforms to the requirements of the European Union Directive 2002/95/EC for the Restriction of Hazardous Substance (RoHS)

Optical and Electrical Characteristics (T=25°C, unless otherwise noted)					
PARAMETER	**SYMBOL**	**CONDITION**	**MIN**	**MAX**	**UNIT**
DFB Laser:					
Threshold Current	I_{th}	CW	8.0	15.0	mA
Operating Current	I_{op}		35	45	mA
Laser Forward Bias Voltage	V_{op}	CW, P_O=2mW		1.6	V
Peak Wavelength	λo	$I_{op,}$ 2.67Gb/s, 2^{31} - 1 PRBS NRZ modulated	1530.33	1564.68	nm
Side Mode Suppression Ratio	SMSR	CW, P_O=2mW, 2.67Gb/s, 2^{31} - 1 PRBS NRZ modulated	30	-	dB
Spectral Width (-20dB)	Δλ	P_f=1.0mW		0.12	nm
Slope Efficiency	η	CW	0.20	0.25	W/A
Farfield (Vertical)	θ_v	P_f=3mW		40	degrees
Farfield (Horizontal)	θ_h	P_f=3mW		35	degrees
Bandwidth	BW	P_o=5mW; at -3dB	2.0		GHz
Wavelength Stability Over Temperature	dλo/dTc			+0.1	nm/°C
Module:					
Operating Case Temperature	T_{case}	Standard Temperature Extended Temperature	-5 -40	80 85	°C
RF Dynamic Extinction Ratio	E_r	At 2.67Gb/s, 2^{31} - 1 PRBS NRZ modulated	8.2	-	dB
Rise/Fall Times	t_R/t_F	$I_F=I_{th,}$ P_o=2mW, 20%~80%		150	ps
Monitor Photodiode Current	I_m	$I_f=I_{th}$+20mA, V_R=5V	0.1	1.0	mA
Monitor Dark Current	I_d	V_R=5V		0.1	μA
Monitor Capacitance	C	V_R=5V, f=1MHz		10	pF
Tracking Error	ΔP_f	I_m=const, ΔP_f=10log(Pf/1mW)(dB)	-1.5	1.5	dB
Optical Output Power	P_f	CW, $I_f=I_{th}$+20mA		4.0	mW
Optical Isolation	-		30	-	dB

Table Notes:

1. All modules are tested to pass the SONET OC-48 eye-mask criteria.
2. Optimal thermal contact between the TO-56 package and the application heat-sink is required.

Absolute Maximum Operating Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device.
Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

PARAMETER	SYMBOL	CONDITION	MIN	MAX	UNIT
Laser Diode Reverse Voltage	V_{RL}	CW	-	2	V
Laser Diode Forward Current	I_{FL}	CW	-	150	mA
Optical Output Power	P	CW	-	10	mW
Photodiode Reverse Voltage	V_{RPD}		-	20	V
Photodiode Forward Current	I_{FPD}		-	2	mA
Operating Case Temperature Range[1]	T_{Opr}	Standard Temperature Extended Temperature	-10 -45	+85 +95	°C
Storage Case Temperature Range	T_{stg}		-50	+100	°C
Storage Relative Humidity	RH			85	%
Lead Solder Temp. and Time	T	Soldering temperature 260℃		10	s

Table Notes: 1. Optimal thermal contact between the TO-56 package and the application heat-sink is required.

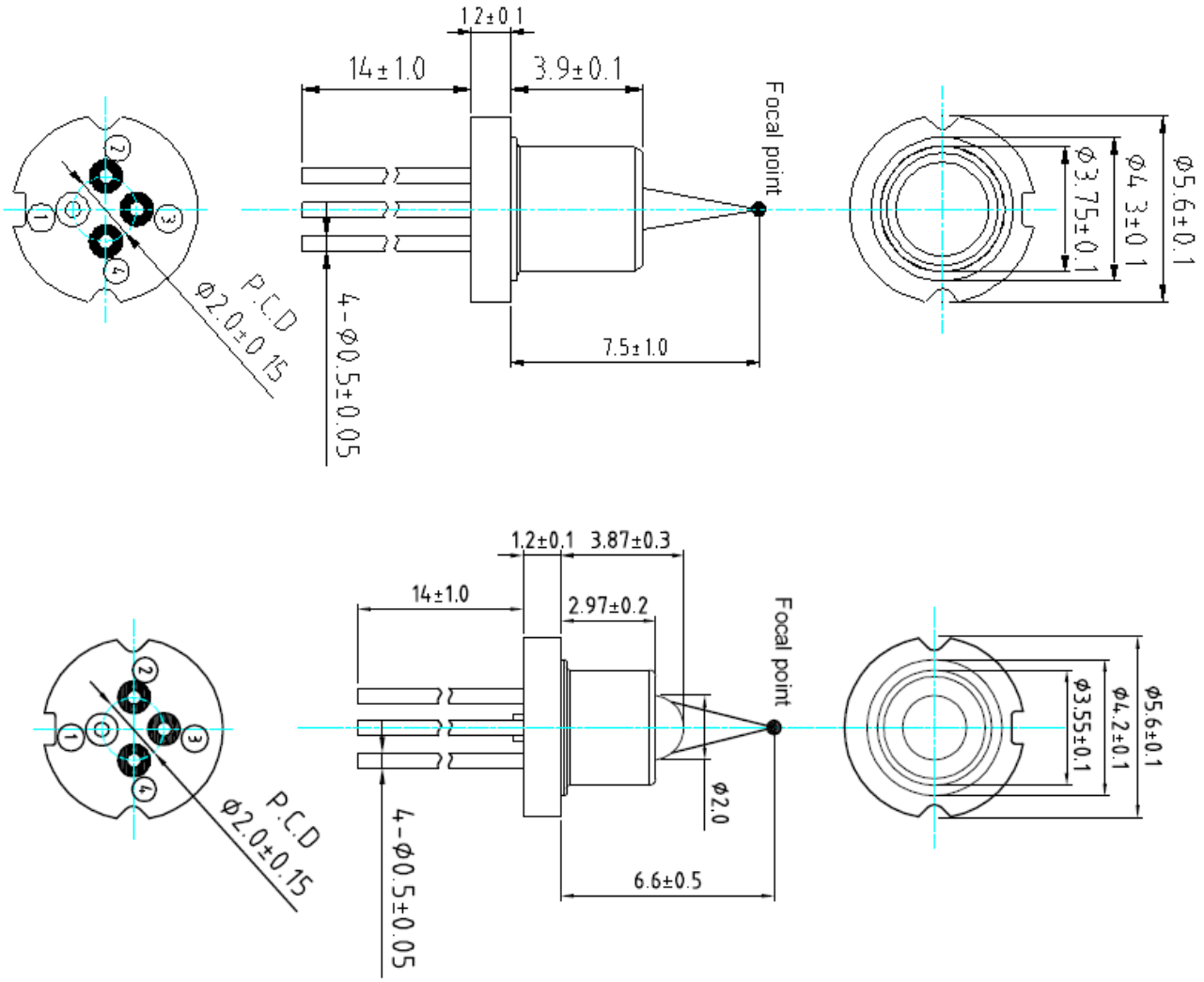
Ordering information:

T62	X	G		X
	Temp Range: 0= -5°C to + 80°C E= -40°C to +85°C	**Data Rate:** G= 2.67Gb/s	**Lens Type:** X= Aspherical (7.5mm FP) Z= Ball (6.6mm FP) See p.4	**Customized Information:** A= Bare Lead (pin Type A) B= Bare Lead (pin Type B) See pp. 4-5

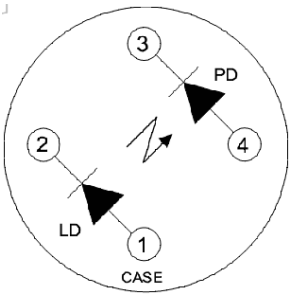
E.g. T620GXA uses an uncooled DFB in a TO-56 bare-lead package with aspherical lens (7.5mm focal-point), has an operating range of -5°C to + 80°C, data rate 2.67Gb/s, type A pin configuration,

Note – actual ordering codes may change depending on the device configuration selected as per the table above.

Mechanical

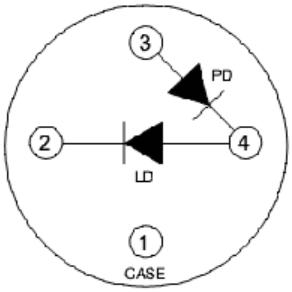


Pin Configuration



Type A

Pin Number	Pin Function (Type A)
1	LD Anode (CASE)
2	LD Cathode
3	PD Cathode
4	PD Anode



Type B

Pin Number	Pin Function (Type B)
1	CASE
2	LD Cathode
3	PD Anode
4	LD Anode / PD Cathode

WARRANTY

Multiplex warrants all standard laser products, when used within the operating limits, against defects in material and workmanship for a period of one year from date of shipment.

QUALITY

Multiplex is qualified to International Standard ISO 9001:2008.

ISO 9001:2008
EQA
QUALITY ASSURED COMPANY

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