

LC-TOSA8TRExx5GCO-CHxxxJ

10Gb/s Cooled EML-TOSA



Features

- ◆ Coaxial package
- ◆ Ultra small form factor 8pin
- ◆ Data rates up to 10.7Gb/s
- ◆ For use up to 40km at 10Gb/s
- ◆ Temperature stabilized
- ◆ RoHS compliant products available
- ◆ Very low TEC power consumption
- ◆ 50Ω single - ended data input
- ◆ Case operating temperature range:-5 to +75°C

Applications

- ◆ SFP+,XFP,X2,XENPAK and other transceivers,300 pin Transponders for SONET/SDH and 10GbE interfaces
- ◆ Line cards

General

LC-TOSA8TRExx5GCO-CHxxxJ Series 10G/s transmitter Optical subassembly (TOSA) integrates a high-speed electro absorption (EML) laser, a micro-TEC and monitor PD in a small form-factor coaxial package. It is designed for use in small form-factor pluggable transceivers and other types of optical modules for high-speed Telecommunication and data applications including SONET OC-192,SDH STM-64 and 10Gigabit Ethernet.

Ordering information (Standard version ^{*Note1})

Part No.	Connector Type	Power	Signal channel
LC-TOSA8TRE155GCO-CH600J	Metal Insulated	15	600
LC-TOSA8TRE155GCO-CH370J	Metal Insulated	15	370
LC-TOSA8TRE155GCO-J	Metal Insulated	15	TDM

*Note1: For more ordering information, please refer the nomenclature and contact EPOTOLINK sales.

Absolute maximum ratings

Parameter	Symbol	Ratings	Unit	Conditions
Storage temperature	-	-40~+85	°C	
Operation temperature	-	-5~+75	°C	
Laser diode forward current	I _f	125	mA	CW
Laser diode reverse voltage	V _{rl}	2	V	CW
EA modulator reverse bias	V _{rm}	2.5	V	
Forward current for PD	I _{fd}	2	mA	-
Reverse voltage for PD	V _{rd}	10	V	-
TEC voltage	I _{pe}	0.9	V	T _c =95°C
TEC current	V _{pe}	0.6	A	T _c =95°C
Flex pad soldering temperature (<5s)		350*Note2	°C	
Electro static discharge	ESD	500 V	V	1.5kΩ,100pF(HBM)

*Note2: Local heating only

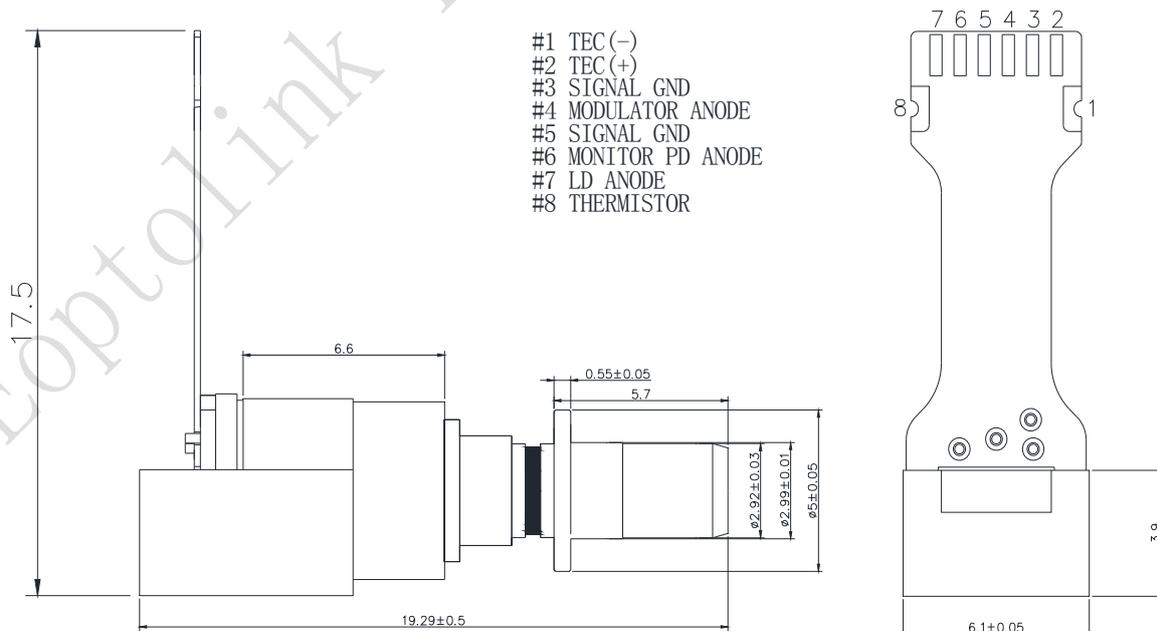
Electrical and optical characteristics

(SMF 9.5/125μm, T_c=+25°C, unless otherwise noted.) I_{op}:70mA, P_O 1~2.99mW, V_{ea}=0V, T_{EC} 45°C

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Laser operating temperature	Top	40	45	50	°C	T _{case} =-5 to +75°C
Threshold current (BOL)	I _{TH}	--	14	30	mA	Top=45°C, V _{EA} =-0.5V
Laser forward voltage	V _F	--	1.06	1.6	V	I _F =I _{op} @ Top
Operating current (EOL)	I _{op}	--	--	110	mA	--
Threshold power	P _{TH}	-	--	80	uW	I _F =I _{th} Top=45°C, V _{EA} =-0.5V
Relative intensity noise	RIN	-	-140	-135	dB/Hz	0-10GHz
Fiber output power(average)	P _{avg}	0	0.6	1	dBm	I _{op} , V _{ea} , Top, V _{pp} (40Km BOL)
		-1	0	2	dBm	I _{op} , V _{ea} , Top, V _{pp} (40Km EOL)
	P _o	1	--	3	mW	I _{op} :70mA, V _{ea} =0V, Top=45°C
EA center-point bias voltage	V _{EA}	-1	-4	0	V	I _{op} =80mA, Top=45°C
P-P modulation voltage(EA section)	V _{pp}	--	1.35	2.5	V	
Monitor current	I _m	50	200	800	uA	I _{op} , V _{ea} , Top, V _{pp}
Monitor dark current	I _d	--	50	100	nA	I _{op} =0mA, V _{bias} =-5.0V
Center wavelength(TDM) (BOL)	λ _c	1529	--	1565	nm	CW, I _{op} =80mA, Top=45°C
Center wavelength (DWDM versions)	λ _C	See Table“CENTRAL WAVELENGTH”				CW, TOP
Center wavelength tuning coefficient		--	0.08	0.13	nm/C	
Side-mode suppression ratio	SMSR	35	40	--	dB	CW, I _{op} =80mA, Top=45°C, V _{ea} =V _{inf} +0.15V
Line width(3dBm FWHM)	Δλ _{3dB}	--	0.02	0.06	nm	CW
Line width(20dBm FWHM)	Δλ _{20dB}	--	0.15	0.3	nm	CW
Rise/fall time	T _r , T _f	--	32	40	ps	20-80%, filtered eye

Extinction ration (BOL)	ER	9.5	10	--	dB	VEA,VPP
Mask margin	MM	15	20	--	%	Vea, Vxing, Vpp 10.7Gb/s, PRBS31
Dispersion penalty at 10.7Gb/s	DP	--	1	2	dB	10.7Gb/s, ER,IF=IOP@TOP, BER=1*10-12
RF characteristics						
Input impedance	ZIN	45	50	55	Ω	
EA modulator						
EA modulator current	IEAM	6	26	40	mA	IF=80mA,VEA=Vinf+0.15V, Top=45°C
Dark current	Id		4	10	uA	IF=0mA,VEA=-0.5V
Tracking error	TE	-0.5	0	0.5	dB	IF=80maA,VEA=Vinf+0.15V, TLD=45C,Tcase=-5C~75°C
Thermistor						
Resistance(standard 10KΩ@25°C)	R THERM	4.2	4.3	4.6	KΩ	Top=45°C
Thermistor B-constant	B	3800	3900	4000	K	
Thermistor current	ITC	10	28	100	uA	
Thermoelectric cooler (TEC)						
TEC						
TEC current	Itec		0.35	0.5	A	Tcase=-5~75°C, Top,lop,Vpp
TEC heating current			0.3	0.5		-5~45°C

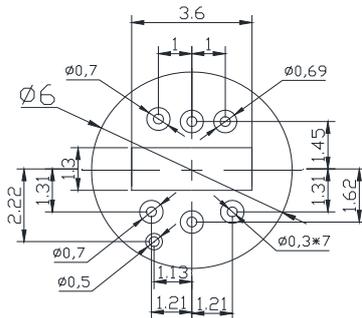
TOSA package series



Receptacle ALL metal

Pin assignment

TYPE: 12



CY LD-pin-12 / TYPE:R

Ordering information

LC—TOSA —CHxxxJ
 A B C D E F G H I

No	Parameter	Detailed description
A	Connector type	8=Insulated single fastener
B	Data rate	T=10Gb/s
C	Pin type	R=LD-pin-12
D	LD type	E=EML
E	Power	15=1-2.99mW
F	Wavelength	5=1527-1565
G	Isolator	G= Single stage
H	Receptacle	BLANK= all metal
I	Chip type	CO

xxx: central wavelength

Products with * channels are new sizes.

Channel	Center WL(nm)	ITU frequency (THz)	Channel	Center WL(nm)	ITU frequency (THz)
*200	1561.42	192	420	1543.73	194.2
*210	1560.61	192.1	430	1542.94	194.3
*220	1559.79	192.2	440	1542.14	194.4
*230	1558.98	192.3	460	1540.56	194.6
*240	1558.17	192.4	470	1539.77	194.7
260	1556.55	192.6	480	1538.98	194.8
270	1555.75	192.7	490	1538.19	194.9
280	1554.94	192.8	500	1537.4	195
290	1554.13	192.9	510	1536.61	195.1
300	1553.33	193	520	1535.82	195.2
310	1552.52	193.1	530	1535.04	195.3
320	1551.72	193.2	540	1534.25	195.4
330	1550.92	193.3	550	1533.47	195.5
340	1550.12	193.4	560	1532.68	195.6
360	1548.51	193.6	570	1531.9	195.7
370	1547.72	193.7	*580	1531.12	195.8
380	1546.92	193.8	*590	1530.33	195.9
390	1546.12	193.9	*600	1529.55	196
400	1545.32	194	*610	1528.77	196.1
410	1544.53	194.1	*620	1527.99	196.2

Precaution

- (1) The modules should be handled in the same manner as ordinary semiconductor devices to prevent the electro-static damages. For safe keeping and carrying, the modules should be packaged with ESD proof material. To assemble the modules on PCB, the workbench, the soldering iron and the human body should be grounded.
- (2) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.
- (3) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

Obtaining document

You can visit our website:

<http://www.eoptolink.com>

Or contact Eoptolink Technology Inc., Ltd. listed at the end of the documentation to get the latest documentation.

Revision history

Verision	Initiated	Reviewed	Approved	Revision history	Release date
Va-1	George.zhong	Kelly.Cao Zore.Zhao		The initial version	2017-07-06
Va-2	George.zhong	Kelly.Cao Zore.Zhao		Update output power, delete PEI structure & half channel	2019-05-29

Notice:

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