

# RIO15xx/160xx 10Gbps 1550nm Directly Modulated TOSA

## PLANEX™ External Cavity Laser (ECL)

RIO (Redfern Integrated Optics) 150xx/16xx TOSA series are high performance cost effective directly modulated 10 Gbps External Cavity Laser (ECL) TOSA TDM and DWDM devices for **SONET/SDH and 10 GbE** applications. The design is based on RIO's proprietary planar technology - **PLANEX** - and consists of a high speed gain chip and a planar waveguide circuit (PLC) with Bragg grating, forming a laser cavity with significant advantages, such as:

- ✓ Low chirp or negative chirp, resulting in long reach
- ✓ Low wavelength sensitivity to temperature and bias current
- ✓ High output optical power
- ✓ Low power consumption
- ✓ Low cost direct-modulated laser in small form factor

**The RIO ECL TOSAs combine high performance, comparable with externally modulated lasers, with the low cost and simplicity of directly modulated lasers, offering significant advantages over EML.**

The TOSA is designed in a miniature hermetically sealed package compliant with the XMD TOSA MSA which meets the XFP transceiver MSA requirements, providing low dispersion power penalty for 40 km and 80 km at low cost.

The wavelength stability is provided by design, eliminating the need for wavelength lockers for DWDM application.

### Performance Highlights

Performance	Device	Min	Typ	Max	Unit
Output Power	RIO1501 RIO1511 / RIO16xx	-1 0		2 4	dBm
Threshold Current	all		10	15	mA
Modulation Current	all	30		50	mA, p-p
Operation Case Temperature	all	-5		75	°C
Extinction Ratio	RIO1501 RIO1511 / RIO16xx	8.2 9			dB
Input Impedance	all		50		Ω
Dispersion penalty 40 km ( 800 ps/nm ) 80 km (1600 ps/nm )	RIO150x / RIO160x RIO151x / RIO161x			2	dB
Center Wavelength DWDM ITU	all RIO16xx	1530		1565	nm
Side Mode Suppression Ratio	all	35	45		dB
Power Dissipation	all		0.7	0.9	W



### FEATURES

- Direct modulation at 10GbE and OC-192/STM64 data rates
- Long Reach 40 km and 80 km
- Wavelength 1530nm - 1565nm ITU-T DWDM C-band
- Standard LC and SC connector receptacle
- -5 to 75C Operating case temperature
- 700 mW power consumption
- XMD MSA form factor compatible with XFP requirements

### APPLICATIONS

- SONET/SDH OC-192/STM64  
40 km – IR-2 / S64.2a,b  
80 km – P1L1-2D2 / L64.2c
- 10 Gigabit Ethernet  
10GBASE-ER  
10GBASE-ZR  
10GBASE-DWDM
- Telecom & Datacom
- Video transport
- XFP, X2/XPAK, XENPAK and 300-pin Transceivers