

EOL9-03-DR Series

Single-Mode 155Mbps
1 x 9 Dual Receiver
RoHS6 Compliant

Features

- ◆ Single-Mode Dual Receiver
- ◆ Industry Standard 1 x 9 Footprint
- ◆ 3.3V/5V Single Power Supply
- ◆ PECL Signal Output ^{*note1}
- ◆ Signal Detect Indicator (TTL version) ^{*note1}
- ◆ Wave Solderable and Aqueous Washable with Process Plug Inserted
- ◆ Class 1 FDA and IEC60825-1 Laser Safety Compliant
- ◆ Operating Case Temperature:
 Standard: 0°C~+70°C
 Industrial:-40°C~+85°C



Applications

- ◆ SONET/SDH
- ◆ Fast Ethernet
- ◆ Switch to Switch Interface
- ◆ Digital Video Transmission System
- ◆ Other Optical Links

Ordering Information

Part No.	Output	Voltage	Interface	Temp.
EOL9-03-DR-xJ ^{*note2}	DC	3.3V/5V	Note2	Standard
EOL9-03-DR-lxJ	DC	3.3V/5V	Note2	Industrial
EOL9-03-DR-xJV ^{*note2}	DC	3.3V	Note2	Standard
EOL9-03-DR-lxJV	DC	3.3V	Note2	Industrial
EOL9-03-DR-xJH ^{*note2}	DC	5V	Note2	Standard
EOL9-03-DR-lxJH	DC	5V	Note2	Industrial

Note1: 5V for PECL or TTL, 3.3V for LVPECL or LVTTTL, refer the nomenclature.

Note2: x refers to interface type, Blank=SC; T=ST Plastics; M = ST Metal; F=FC; N=FC Plastics; P=Pigtail/SC/PC; PF=Pigtail/FC/PC; PT=Pigtail/ST/PC

Regulatory Compliance

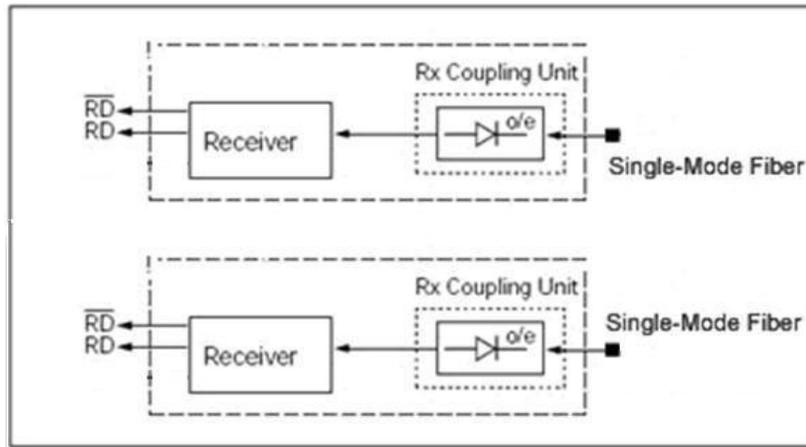
Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883G Method 3015.7	Class 1C (>1000 V)
Electrostatic Discharge to the enclosure	EN 55024:1998+A1+A2 IEC-61000-4-2 GR-1089-CORE	Compliant with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN55022:2006 CISPR 22B :2006 VCCI Class B	Compliant with standards Noise frequency range: 30MHz to 6GHz. Good system EMI design practice required to achieve Class B margins. System margins are dependent on customer host board and chassis design.
Immunity	EN 55024:1998+A1+A2 IEC 61000-4-3	Compliant with standards. 1KHz sine-wave, 80% AM, from 80 MHz to 1 GHz. No effect on transmitter/receiver performance is detectable between these limits.
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1:2007 EN (IEC) 60825-2:2004+A1	CDRH compliant and Class I laser product. TüV Certificate No. 50135086
Component Recognition	UL and CUL EN60950-1:2006	UL file E317337 TüV Certificate No. 50135086 (CB scheme)
RoHS6	2002/95/EC 4.1&4.2 2005/747/EC 5&7&13	Compliant with standards ^{*note3}

Note3: For update of the equipments and strict control of raw materials, EOPTOLINK has the ability to supply the customized products since Jan 1st, 2007, which meet the requirements of RoHS6 (Restrictions on use of certain Hazardous Substances) of European Union.

In light of item 5 in RoHS exemption list of RoHS Directive 2002/95/EC, Item 5: Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.

In light of item 13 in RoHS exemption list of RoHS Directive 2005/747/EC, Item 13: Lead and cadmium in optical and filter glass. The three exemptions are being concerned for Eoptolink's transceivers, because Eoptolink's transceivers use glass, which may contain Pb, for optical components such as lenses, isolators, and other electronic components.

Functional Diagram



Product Description

The EOL9-03-DR-X series is high performance module for Fast Ethernet and SDH/SONET fiber communications. The receivers section uses two integrated detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.

A PECL logic interface simplifies interface to the external circuitry.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	
Storage Temperature	T_s	-40	+85	°C	
Supply Voltage	V_{CC}	5V	-0.5	7.0	V
		3.3V	-0.5	5.5	
Operating Relative Humidity	-		95	%	
Soldering Conditions Temp/Time			260/10	°C/S	

*Exceeding any one of these values may destroy the device immediately.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T_A	0		+70	°C
		-40		+85	
Power Supply Voltage	V_{CC}	4.75	5	5.25	V
		3.15	3.3	3.45	
Power Supply Current ^(note4)	I_{CC}			300	mA
Data Rate			155		Mbps

Note4: Maximum current is specified at V_{CC} equaling to Maximum @ maximum temperature.

Optical and Electrical Performance

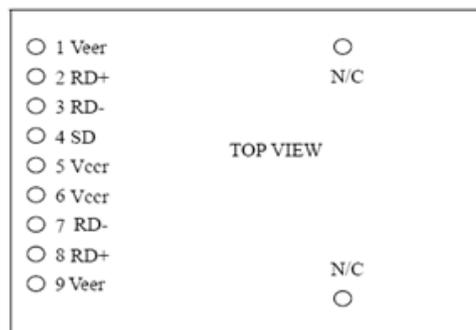
Parameter	Symbol	Min.	Typical	Max.	Unit
Receiver					
Receiver Rate		155			Mbps
Input center wavelength	λ_C	1260		1620	nm
Receiver Sensitivity ^{*(note5)}	Pmin			-24	dBm
Receiver Overload	Pmax	-3			dBm
Output High Voltage	V_H	-1165		-880	mV
Output Low Voltage	V_L	-1810		-1475	mV
Data Output		PECL ^{*(note1)}			

Note5: Minimum average optical power at which the BER is less than 1E-12 or lower. Measured with a 2⁷-1 NRZ PRBS and ER=9 dB.

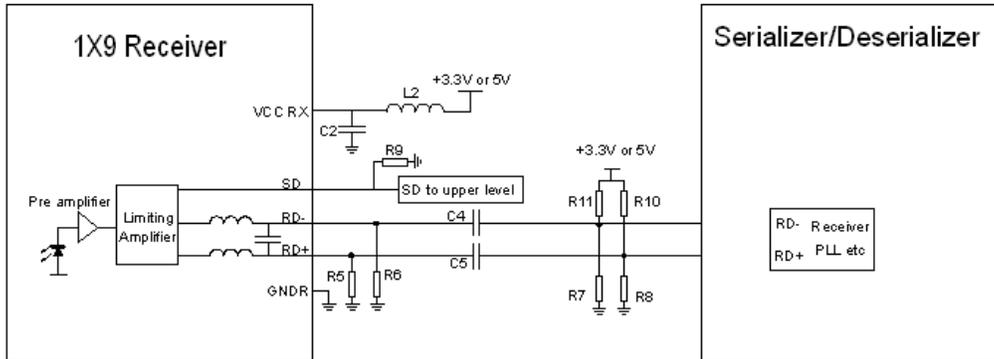
Pin Description

Pin	Name	Level	Description
1	Veer		Receiver Signal Ground, connect to receiver signal ground plane directly
2	RD+	PECL ^{*(note1)}	Receiver data out
3	RD-	PECL ^{*(note1)}	Inverted receiver data out
4	SD		Not Connect
5	Vccr		Receiver Power Supply, provide +5V (+3.3V) the recommended receiver power supply filter circuit. Locate the power filter circuit as close as possible to the Vccr pin
6	Vccr		Receiver Power Supply, provide +5V (+3.3V) the recommended receiver power supply filter circuit. Locate the power filter circuit as close as possible to the Vccr pin
7	RD-	PECL ^{*(note1)}	Inverted receiver data out
8	RD+	PECL ^{*(note1)}	Receiver data out
9	Veer		Receiver Signal Ground, connect to receiver signal ground plane directly

Pin Definitions



Recommended Circuit

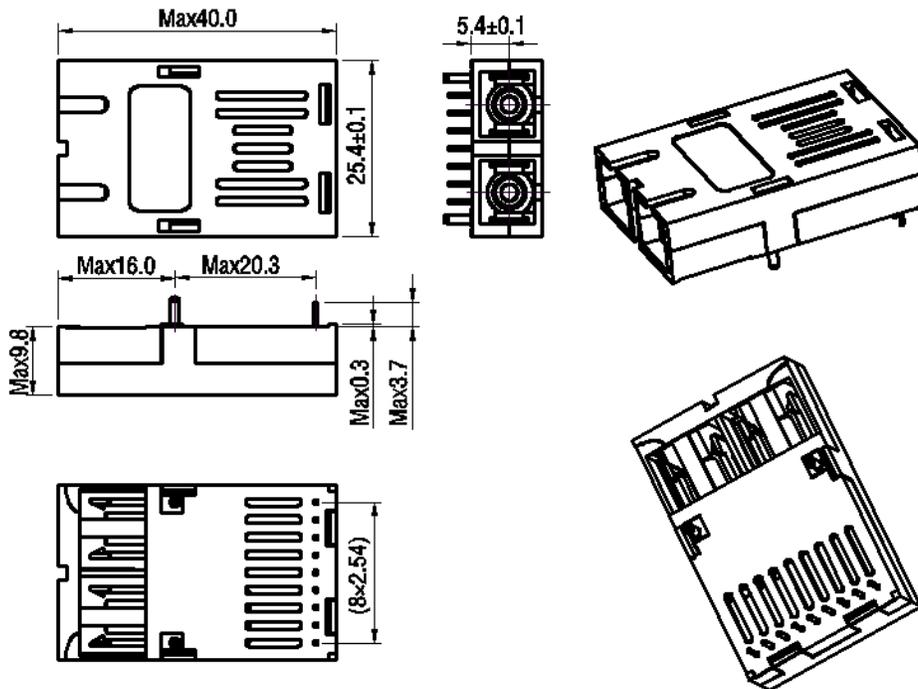


C2 =4.7uF
 C4 C5 =100nF
 L2=1uH
 R5 R8=270Ω(5V)/150Ω(3.3V)
 R7 R8=127Ω(5V)/82Ω(3.3V)
 (Depends on serdes chips used)
 R9=510Ω(5V)/270Ω(3.3V)
 R10 R11=82Ω(5V)/127Ω(3.3V)
 (Depends on serdes chips used)

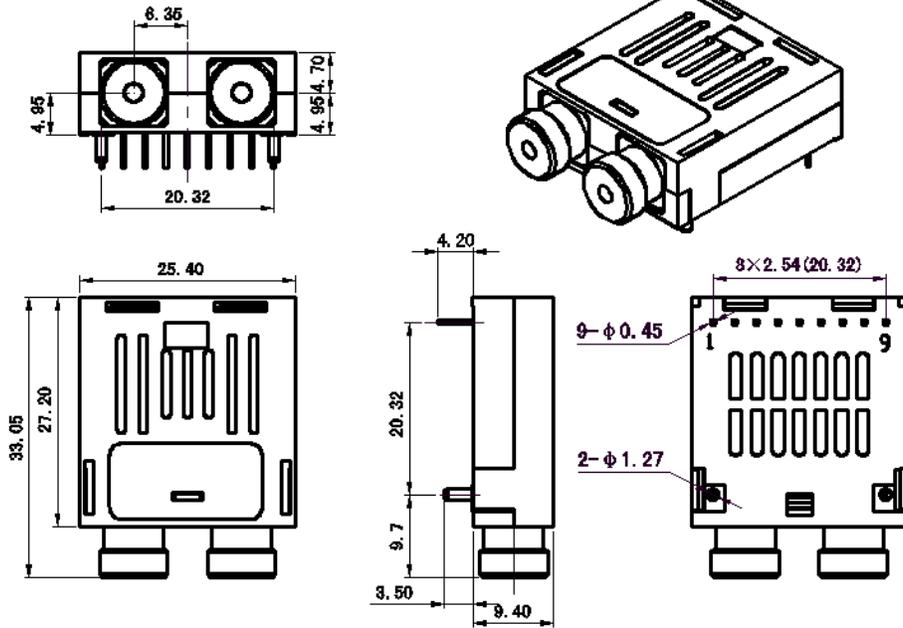
DC couple

DC Coupling Inside

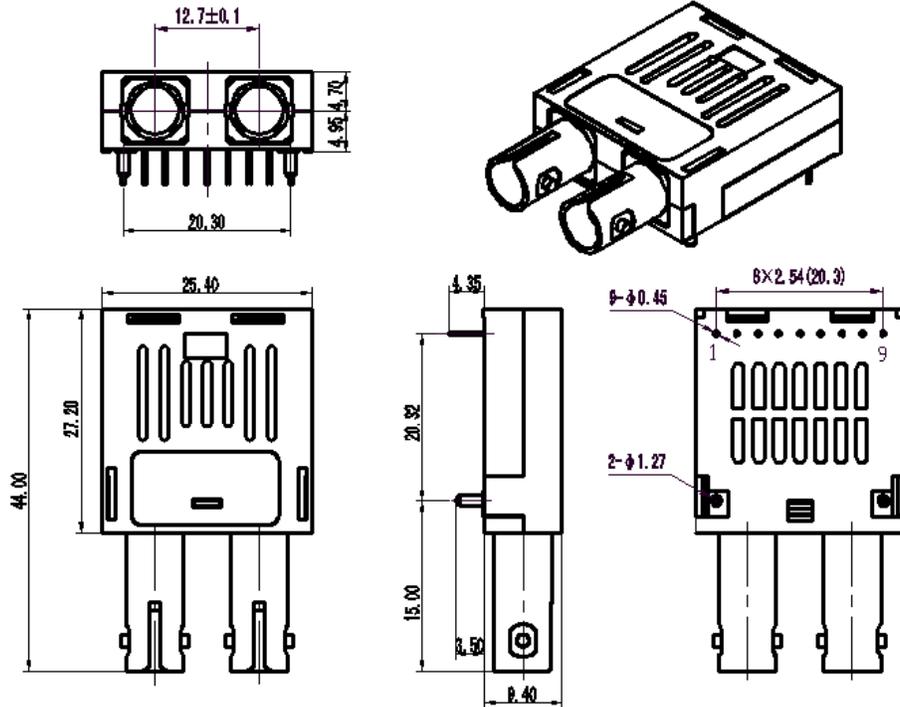
Package Outline (Unit: mm)



SC receptacle



FC receptacle



ST receptacle

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

Revision	Initiated	Reviewed	Approved	Revision History	Release Date
V1.a	Alex	Kelly		Released.	Sep 14, 2012

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Contact:

Add: Floor 5, Building 2, No. 21 Gaopeng Avenue, High-Tech District, CHENGDU, SICHUAN
610041 P.R. CHINA

Tel: (+86) 028-85124308 ext 801

Fax: (+86) 028-85121912

Postal: 610041

E-mail:sales@eoptolink.com

<http://www.eoptolink.com>