

155 Mb/s, 1550 nm Single Mode, 20 – 120 km 1x9 Dual SC Package



Description

OptixCom's 1x9 DSC transceiver provides a low cost and compact solution for general data communication links. This single mode transceiver is designed with high performance 1550 nm laser. Dual SC connectors are used as the standard interface.

The transceiver modules use industry standard 1x9 pluggable package. These transceivers operate at 155 Mb/s for 20 - 120 km transmission distance with single mode fibers. The products are RoHS compliant.



Lead-Free

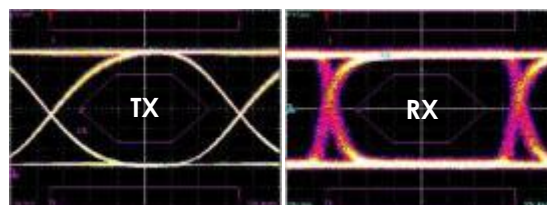
DSC-155EX-DPXXK
(XX = 20, 100, 120)



Key Features

- 1550 nm single mode, 155 Mb/s
- 20 – 120 km reach, 19 – 35 dB power budget
- Duplex SC connector optical interface
- Industry standard 1x9 pluggable package
- DC coupling LVPECL differential I/O logics
- LVPECL Signal detect to monitor optical signals
- Single 3.3V power supply
- -40–85 °C operating temperatures available
- RoHS compliant

155 Mb/s, 2²³-1 NRZ Data Eye Pattern



Applications

- ✓ FTTH, FTTX, ATM/SONET OC-3, SDH STM-1
- ✓ Fast Ethernet
- ✓ High speed I/O for file server
- ✓ Video over fiber links
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Industrial Control Link
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

Ordering Information

Part Number: DSC-155EX-DPXXK

Description:

1550 nm 155 Mb/s, single mode, 1x9 DSC Fiber Optics Transceiver, XX km reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., DSC-155EX-DP20K-T.

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-40	25	85	°C
Data Rate	---	155	200	Mb/s
Supply Voltage	3.1	3.3	3.5	V

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_{st}	-40	85	°C
Supply Voltage	V_{CC}	-0.5	4.0	V
Input Voltage	V_{IN}	-0.5	V_{CC}	V
Operating Current	I_{OP}	---	400	mA
Output Current	I_O	---	50	mA
Soldering Temperature (10 sec. on leads)	T_{sd}	---	260	°C

General Transmitter Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.3	---	1.6	V
Differential Input Impedance ²	Z	---	100	---	ohm
Relative Intensity Noise	RIN	---	---	-120	dB/Hz
Rise/Fall Time (10% - 90%)	T_r/T_f	---	1	2	ns
Data Input Current - High	I_{IH}	---	---	350	μA
Data Input Current - Low	I_{IL}	-350	---	---	μA
Data Input Voltage – High	V_{IH}	$V_{CC} - 1.1$	---	$V_{CC} - 0.7$	V
Data Input Voltage - Low	V_{IL}	$V_{CC} - 2.0$	---	$V_{CC} - 1.6$	V

General Receiver Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Output Voltage ¹	ΔV_o	0.3	---	1.6	V
Differential Input Impedance ²	Z	---	100	---	Ohm
Optical Return Loss	OL	14	---	---	dB
Rise/Fall Time (10% - 90%)	T_r/T_f	---	1	2	ns
Signal Detect Hysteresis	$P_{SD+} - P_{SD}$	1	---	---	dB
Signal Detect Output - Low	V_{SD-}	$V_{CC} - 2.0$	---	$V_{CC} - 1.6$	V
Signal Detect Output - High	V_{SD+}	$V_{CC} - 1.1$	---	$V_{CC} - 0.7$	V
Data Output Voltage – Low	V_{OL}	$V_{CC} - 2.0$	---	$V_{CC} - 1.6$	V
Data Output Voltage – High	V_{OH}	$V_{CC} - 1.1$	---	$V_{CC} - 0.7$	V

Notes:

1. Module is designed for DC LVPECL coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power ¹	P_o	0	---	+5	dBm
Optical Wavelength	λ_o	1530	1550	1570	nm
Extinction Ratio	ET	10	---	---	dB
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_c	1260	---	1610	nm
Receiver Overload	P_{max}	0	---	---	dBm
Receiver Sensitivity ²	P_I	---	---	-35	dBm
Signal Detect– Asserted	P_{SD+}	---	---	-35	dBm
Signal Detect– Deasserted	P_{SD-}	-45	---	---	dBm

Notes:

1. Output of coupling optical power into 9/125 μm SMF.
2. Test at 155 Mb/s, $2^{23} - 1$ PRBS data pattern, and $> 1 \times 10^{-10}$ of Bit-Error-Rate (BER).
3. Optical eye diagram is compliant with Telcordia GR-253-CORE and ITU-T G-957 standard.
4. Maximum supply current for the transceiver from V_{cc} is 280 mA.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

