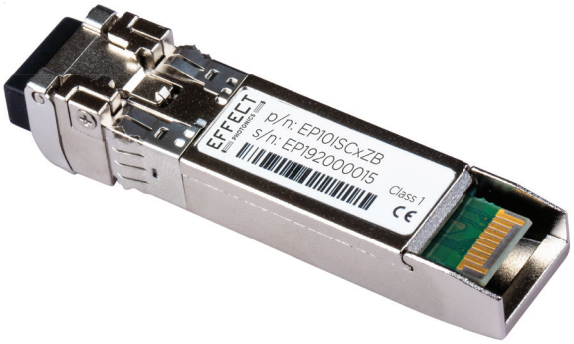
EFFECT PHOTONICS

10Gbps C-band Narrow Tunable SFP+

Remote-Phy Industrial Temperature Range Operation



Key Features

- 5-part codes to cover the complete C-band – simplified sparing and configuration (100GHz spacing)
- Up to 80km link length single mode fibre point-to-point and multi-point passive networks
- Supports Data Rates between 9.95Gbps and 11.3Gbps
- Operating temperature range -40°C to 85°C
- SFP+ Multi-Source Agreement compliant (SFF-8431, rev.4.1)
- Serial ID functionality supported (SFF-8472, rev. 12.2)
- SFF Tunability Interface (SFF-8690, rev. 1.4)
- Dual LC connector, hot pluggable with SFP+ footprint
- EFFECT's Optical System-on-Chip and packaging technology
- Integrated wavelength locking and power control
- Support for digital diagnostics and monitoring
- Retimed receiver electrical interface, power dissipation: <2.2W

Overview

EFFECT Photonics' 10Gbps C-band Narrow Tunable SFP+ optical transceiver module efficiently is designed to operate from 9.95Gbps to 11.3Gbps. It significantly reduces sparing and configuring costs in optical networks.
Optimised for Lineside and Enterprise 10Gb Ethernet (10GbE) over high bandwidth optical links up to 80km with LC duplex connector for connection to standard single-mode fibre (SMF).
EFFECT Photonics' Optical System-on-Chip and novel packaging technology ensures reliable operation over life.
On the transmit side, the serial data path from the host enters the module through the electrical SFP connector and enters the modulator driver. The modulator driver accurately biases and efficiently modulates EFFECT Photonics' Optical System--on-Chip which contains the tunable C-band cooled laser and Mach-Zehnder Interferometer (MZI) modulator and transmits the optical signal through an industry standard LC connector. Wavelength control to 100GHz ITU grid and optical power monitoring over life is also integrated within EFFECT Photonics' Optical System-on-Chip and packaging technology.
On the receive path, the DC balanced serial NRZ data is efficiently converted from the optical to the electrical domain through the Receiver Optical Sub-Assembly (ROSA) which contains an Avalanche Photo-Diode, Trans-Impedance Amplifier (TIA), and then fed into post-TIA CDR with retimed, limiting output to the host.

Typical Applications

- 10G DWDM Point-to-Point links
- Optical Transport Networks (OTN)
- Wide Area Networks (WAN)
- Local area networks (LAN)
- Storage Area Networks (SAN)
- 10Gb Ethernet (10GBase-ZR) switches and applications

Compliance

- SFF-8431, rev 4.1
- SFF-8432, rev 5.1
- SFF-8472, rev 12.2
- SFF-8690, rev 1.4
- Tested in accordance with Telcordia GR-468-CORE
- Telcordia GR-63-CORE, NEBS
- IEC 60825-1 Ed 2 Class 1
- FDA 21 CFR Ch1 Class 1
- RoHS 6/6 Lead Free

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Module Wavelength Assignments and Part Codes

The centre wavelengths of bands 1 to 5 are aligned to DWDM wavelength grid spaced 0.8nm (100 GHz) apart. Individual channels within each module are pre-calibrated and the full list is available from EFFECT Photonics.

Module	Wavelength (nm)	Frequency (GHz)	Notes	Part Code
Module Band 1	1561.42 to 1555.75	192.00 to 192.70	100GHz spacing	EP10ISC1ZB
Module Band 2	1554.94 to 1549.32	192.80 to 193.50	100GHz spacing	EP10ISC2ZB
Module Band 3	1548.51 to 1542.94	193.60 to 194.30	100GHz spacing	EP10ISC3ZB
Module Band 4	1542.14 to 1536.61	194.40 to 195.10	100GHz spacing	EP10ISC4ZB
Module Band 5	1535.82 to 1530.33	195.20 to 195.90	100GHz spacing	EP10ISC5ZB

Optical Characteristics

Transmit Characteristics

Parameter	Min	Typ	Max	Unit
Signalling rate	9.95		11.3	Gbps
Optical output power	-1		+3	dBm
Extinction ratio (10.709Gbps NRZ)[1]	9.0	10		dB
Spectral width -20dB (10.709Gbps NRZ)			0.3	nm
Optical frequency minimum tuning grid	100			GHz

Receive Characteristics

Parameter	Min	Typ	Max	Unit
Receiver wavelength range	191.00 (1569.59)		197.00 (1521.79)	THz(nm)
Receiver power	-23		-7	dBm
Receiver optical reflectance			-27	dB
LOS assert	-35		-30	dBm
LOS assert/de-assert hysteresis	0.5		2.0	dB

Contact information

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