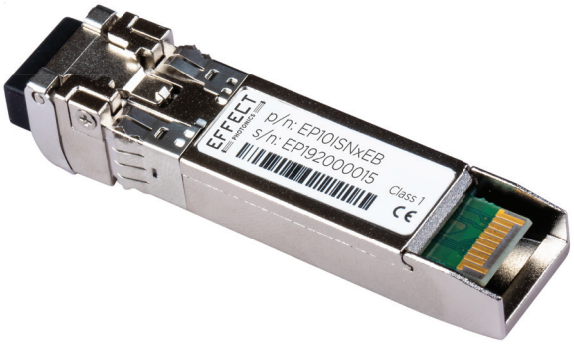
EFFECT PHOTONICS

10Gbps C-band Narrow Tunable SFP+

Mobile Fronthaul Industrial temperature range Operation



Key Features

- 5-part codes to cover the complete C-band – simplified sparing and configuration (100GHz spacing)
- Up to 40km link length single mode fibre point-to-point and multi-point passive networks
- Supports Data Rates between 1Gbps 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
- Limiting receiver electrical interface, power dissipation (<2W)

Overview

EFFECT Photonics' 10Gbps Narrow Tunable SFP+ optical transceiver module is designed to operate at transmission rates from 1Gbps to 11.3Gbps, compatible with multiple network applications and transmission formats: CPRI, OTN, Fibre Channel, etc. Hot pluggable, and with narrow band tunability, significantly reduces sparing and configuring costs in optical networks. The module is optimised for Local Area Networks (LAN), Mobile Fronthaul and 10G Ethernet (10GbE), over single-mode fibre (SMF) optical links, P2P and passive networks.

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 connector and enters the modulator driver. The modulator driver accurately biases and efficiently modulates EFFECT's Optical System-on-Chip which contains the tunable 1550nm 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, DC balanced serial NRZ data is efficiently converted into the electrical domain through the Receiver Optical Sub-Assembly (ROSA) which contains a PhotoDiode Receiver and Trans-Impedance Linear Amplifier with limiting output to the host.

Typical Applications

- 10G DWDM Point-to-Point links
- Multi-point networks
- Local area networks (LAN)
- Mobile Fronthaul, CPRI 2 - 8
- 10Gb Ethernet (10GBase-ER) switches and applications
- 1G FC to 10G FC
- 10G OTN
- Storage area networks (SAN)

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	EP10ISN1EB
Module Band 2	1554.94 to 1549.32	192.80 to 193.50	100GHz spacing	EP10ISN2EB
Module Band 3	1548.51 to 1542.94	193.60 to 194.30	100GHz spacing	EP10ISN3EB
Module Band 4	1542.14 to 1536.61	194.40 to 195.10	100GHz spacing	EP10ISN4EB
Module Band 5	1535.82 to 1530.33	195.20 to 195.90	100GHz spacing	EP10ISN5EB

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

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