EFFECT PHOTONICS

10Gbps 40km DWDM Narrow Tunable SFP+

For Mobile Fronthaul Applications

Key Features

- Five part codes to cover 41 channels in the C-band with 100GHz grid 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-8083, rev. 1.7)
- SFF Tunability Interface (SFF-8690, rev. 1.4)
- Support for digital diagnostics and monitoring (SFF-8472, rev. 12.2)
- Dual LC connector, hot pluggable with SFP+ footprint
- Limiting receiver electrical interface
- Power dissipation <2.0W over operating temperature range
- Optional NarroWave support enables Wavelength Auto-Tuning and Remote Diagnostics

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, it 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.

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 Photonics' 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 an Avalanche PhotoDiode Receiver (APD) and Trans-Impedance Amplifier (TIA) with Limiting output to the host.

Optional NarroWave feature enables wavelength auto-tuning and remote diagnostics monitoring over Fibre.

Applications

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

Standards

- SFF-8083, rev 1.7
- SFF-8418, rev 1.4
- SFF 8419, rev 1.3
- SFF-8432, rev 5.1
- SFF-8472, rev 12.2
- SFF-8690, rev 1.4
- IEEE 802.3x
- ITU-T G.709
- ITU-T G.694.1

Compliances

- Telcordia GR-468-CORE
- Telcordia GR-20-CORE
- Telcordia GR-63-CORE, NEBS
- Telcordia GR-326-CORE
- IEC 60825-1 Ed 2 Class 1
- FDA 21 CFR Ch1 Class 1
- RoHS 6/6 Lead Free

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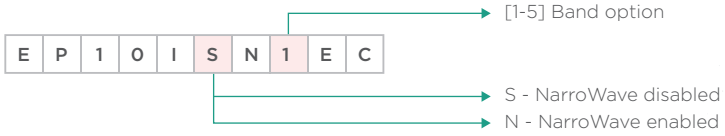
Part Codes

Five part codes to cover the ITU-T C-band frequency range from 192.0THz to 195.9THz with 100GHz grid spacing.

Band	Part Code	Wavelength (nm)	Frequency (THz)	Spacing (GHz)	C-Band	No. of Channels
1	EP10ISN1EC	1561.42 to 1554.94	192.00 to 192.80	100	C20 - C28	9
2	EP10ISN2EC	1554.94 to 1548.51	192.80 to 193.60	100	C28 - C36	9
3	EP10ISN3EC	1548.51 to 1542.14	193.60 to 194.40	100	C36 - C44	9
4	EP10ISN4EC	1542.14 to 1535.82	194.40 to 195.20	100	C44 - C52	9
5	EP10ISN5EC	1535.82 to 1531.12	195.20 to 196.00	100	C52 – C60	9

Part Number Options



Optical Characteristics

Transmit Characteristics

Parameter	Min	Max	Unit
Data rate	1.0	11.3	Gbps
Optical output power	-1	+5	dBm
Extinction ratio (NRZ, filtered)	9.0		dB
Optical Frequency Tuning Range (6 bands)	191.20 (1567.95)	196.00 (1531.12)	THz(nm)

Receive Characteristics[1]

Parameter	Min	Max	Unit
Data rate	1.0	11.3	Gbps
Receiver wavelength range	191.00 (1569.59)	197.00 (1521.79)	THz(nm)
Receiver optical reflectance		-27	dB
LOS assert	-35		dBm
LOS assert/de-assert hysteresis	0.5		dB

1 Measured with minimum ER; PRBS 2^{31}-1; over specified wavelength range; OSNR >30 dB; with external clock and data recovery (CDR) board

Contact information

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All product specifications are subject to change without notice. Last change: CR-002240 PB-00006-02