

## 10Gbps 40km DWDM Narrow Tunable SFP+

For Mobile Fronthaul Applications

1/2



### Key Features

- Five part codes to cover the 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

## 10Gbps 40km DWDM Narrow Tunable SFP+

For Mobile Fronthaul Applications

2/2

### 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 (GHz)	Spacing (GHz)	C-Band	No. of Channels
1	EPI0ISN1EC	1561.42 to 1554.94	192.00 to 192.80	100	C20 - C28	9
2	EPI0ISN2EC	1554.94 to 1548.51	192.80 to 193.60	100	C28 - C36	9
3	EPI0ISN3EC	1548.51 to 1542.14	193.60 to 194.40	100	C36 - C44	9
4	EPI0ISN4EC	1542.14 to 1535.82	194.40 to 195.20	100	C44 - C52	9
5	EPI0ISN5EC	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<sup>1</sup>

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

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

## Contact information

e-mail: [sales@effectphotonics.com](mailto:sales@effectphotonics.com) | website: [www.effectphotonics.com](http://www.effectphotonics.com)

EFFECT Photonics reserves the right to make changes to the product at any time without notice to improve reliability, function or design, in order to provide the best product possible. Whilst every reasonable effort has been made to ensure accuracy, EFFECT Photonics assumes no liability for omissions or errors.

© EFFECT Photonics 2021. All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any licence under patent or other industrial or intellectual property rights. EFFECT Photonics assumes no responsibility or liability whatsoever for any failure or unexpected operation resulting from misuse, neglect, improper installation, repair or improper handling or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified range. EFFECT Photonics' PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORISED OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. INCLUSION OF EFFECT PHOTONICS PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE UNDERTAKEN SOLELY AT THE CUSTOMER'S OWN RISK. Should a customer purchase or use EFFECT Photonics products for any such unauthorised application, the customer shall indemnify and hold EFFECT Photonics and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs damages and attorney fees which could arise. Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.