Datasheet

QuantumWave™ 25G Tunable SFP

OVERVIEW

The QuantumWave 25G Tunable SFP is a hot-pluggable SFP28 transceiver for DWDM transport in cable operator networks. It runs dual mode, 10G NRZ or 25G NRZ, and tunes across 48 ITU channels on the 100 GHz grid, so one part number covers core, hub, and distributed access links on the single mode fiber already in the ground. Operators deploy at 10G today and move to 25G when interconnect traffic requires it, with no change to the DWDM plan and no second optic to qualify.

A narrow line width C-band tunable laser, a TFLN MZM transmitter, and an APD receiver with clock and data recovery plus electronic dispersion compensation support up to 40 km at 25G NRZ and up to 80 km at 10G NRZ. Operating case temperature of -20 to 85 °C with -40 °C cold start support and power consumption under 4.5 W keep the module inside hub and outside plant limits.

Dual mode 25G/10G NRZ operation: One module runs 25.78125 GBd or 10.3125 GBd NRZ.

- *Benefit:* the step from 10G to 25G transport becomes a configuration event on hardware already in the plant, not another optics qualification and swap cycle.

48 channel C-band tuning, ITU-T 100 GHz grid: Tunes 1527.22 to 1564.68 nm across ITU channels 16 to 63, meeting ITU-T DWDM 100 GHz channel spacing.

- *Benefit:* replaces a wavelength-specific spares inventory across core, hub, and node links.

Up to 40 km at 25G, up to 80 km at 10G on single mode fiber: Reach is published for both rates on SMF with a duplex LC/UPC connector.

- *Benefit:* link budgets for existing 10G routes and new 25G routes can be verified from one document before any fiber is committed.

Plant temperature range and power under 4.5 W: Operating case temperature of -20 to 85 °C, with -40 °C cold start support, on a single 3.3 V supply.

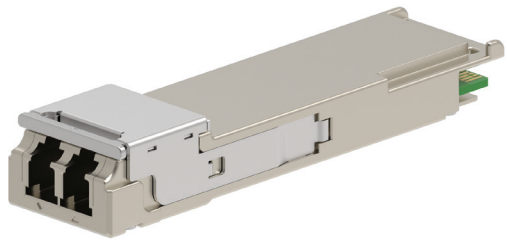
- *Benefit:* the module fits hub and outside plant thermal and power envelopes, including winter installs where equipment starts cold.

Standard SFP28 install and digital diagnostics: Hot-pluggable SFP28 form factor with standard MSA pinout, digital diagnostics over I2C, and references to SFF-8431, SFF-8432, and SFF-8472. Dual image firmware supports upgrades.

- *Benefit:* crews install it with the tools and procedures they already use, and existing monitoring systems read optical power and module health without new integration work.

APD receiver with dispersion compensation: High performance APD photodetector with CDR and electronic dispersion compensation. Receiver sensitivity below -18.5 dBm at 25G and -21 dBm at 10G back to back.

- *Benefit:* usable margin on longer spans without adding dispersion compensation modules to the link.



Specifications		
Parameter	**Units**	
Form factor	-	SFP28, hot-pluggable, dual fiber
Data rate, dual mode	GBd	25.78125 (25G NRZ) / 10.3125 (10G NRZ), +/- 100 ppm
Modulation format	-	NRZ
Wavelength, tunable	nm	1527.22 to 1564.68; ITU channels 16 to 63; 100 GHz spacing; 48 channels
Max distance	km	40 at 25G NRZ; 80 at 10G NRZ
Transmitter	-	Narrow line width C-band tunable laser, TFLN MZM
Transmitter power (average, EOL)	dBm	0 to 4
Receiver	-	APD photodetector; CDR with electronic dispersion compensation

Specifications		
Parameter	**Units**	
Receiver sensitivity, 25G	dBm	-18.5 max, BER 5E-5, OSNR above 35 dB
Receiver sensitivity, 10G	dBm	-21 back to back; -22 with dispersion; BER 1E-12
Fiber type	-	SMF
Connector type	-	Duplex LC/UPC
Operating case temperature	°C	-20 to 85; -40 cold start supported
Voltage	V	3.3 (3.135 to 3.465)
Power consumption	W	Under 4.5
Monitoring	-	Digital diagnostics via I2C; dual image firmware upgrade
Thermal design	-	Pure copper upper cover
Compliance	-	SFF-8431, SFF-8432, SFF-8472; RoHS 2011/65/EU; FCC Part 15 Class B; Class 1 laser per IEC/EN 60825-1

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