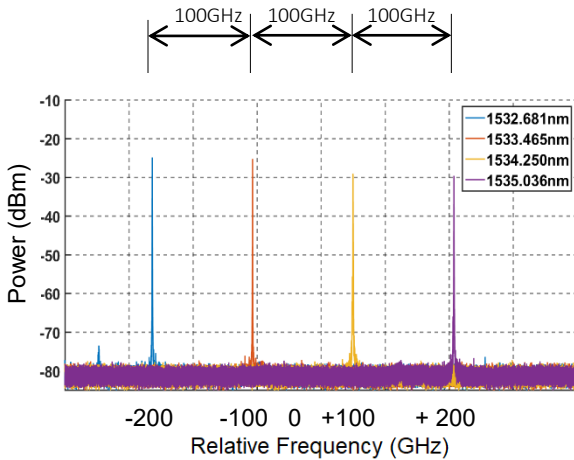
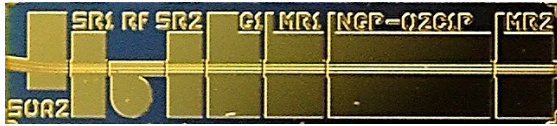


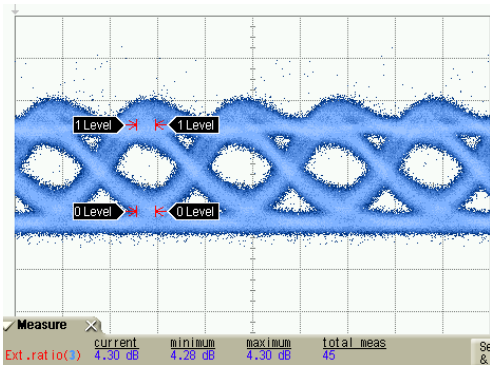


Wavelength Tunable Directly Modulated Laser

Pilot Photonics' wavelength tunable directly modulated laser is based on a multi-section directly modulated laser design with integrated amplifier and proprietary chirp reduction system. It is ITU-T G.989.2 class 1, compliant. Sampling in high-speed butterfly packages, or benchtop unit with driving controllers now available. Qualified, production devices shipping in bare die, or TOSA packaged formats, in Q2 2023.



4 x 100GHz Channels can be selected via current tuning with nanosecond switching speeds



10 Gbit/s OOK

Features

- 4 x 100 GHz ITU NG-PON2 compliant wavelengths
- Side Mode Suppression Ratio > 50 dB
- Simple wavelength selection
- Class 1 wavelength switching
- 10 Gbit/s direct modulation
- Modulated power > 5 dBm, Extinction Ratio > 4 dB
- 50 km DML transmission with chirp control
- Chirp reduction system
- Integrated blanking SOA for burst mode functionality and PSD-WNE < -63 dBm
- Low spectral excursion < 0.5 GHz

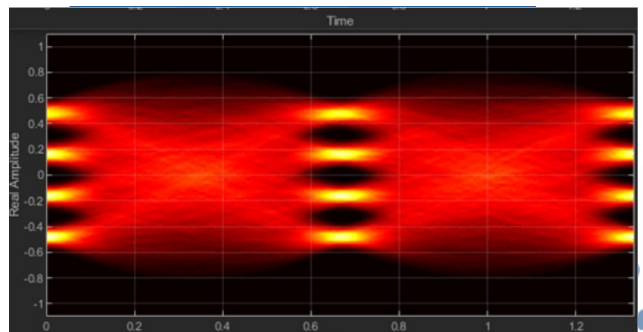
Applications

- NG-PON2
- High Speed Passive Optical Networks (G.9804, HS-PON)
- Long reach direct modulation network architectures

Typical Specifications

| | |
|------------------|---------------------------------------------|
| Frequency | 195.6 THz, 195.5 THz, 195.4 THz, 195.3 THz. |
| Tuning Time | <10 μ s |
| Data Rate | 9.95328 Gbit/s |
| Output Power | 7 dBm (Type B) |
| Extinction Ratio | 4 dB (Type B) |
| Form Factor | Bare die, TOSA, 7pin Butterfly |

30 Gbit/s PAM4





Wavelength Tunable Directly Modulated Laser

| Optical Specifications | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------------|---------|------------------|---------|------------|-----------------------------------------|
| Nominal line rate | - | 9.95328 | - | Gbit/s | |
| Operating wavelength | 1532.68 | - | 1535.03 | nm | 4 ch, 100 GHz spacing |
| Channel spacing | 50 | 100 | - | GHz | |
| Spectral excursion | - | 15 | +/- 20 | GHz | |
| Extinction Ratio | - | 4 | 5 | dB | Type B (P4, ER4) |
| Mean channel launch power | - | 5 | - | dBm | Type B (P4, ER4) |
| Side-mode suppression ratio | 30 | 40 | 60 | dB | |
| Transmission Distance | - | - | 50 | km | |
| Tx channel tuning time | - | 5 | 10 | μs | |
| Tx enable transient time | - | 80 | 128.6 | ns | |
| Power when-not-enabled, WNE-PSD | - | -63.8 | -62.6 | dBm/15 GHz | |
| Out-of-channel optical PSD - OOC1 | - | -41 | -40.5 | dBm/15 GHz | |
| Out-of-channel optical PSD – OOC2 | - | -42 | -41.6 | dBm/15 GHz | |
| Operating Specifications | | | | | |
| Bias Current | - | - | 110 | mA | Total of 8 sections |
| Reverse Voltage (any section) | - | - | 2 | V | |
| Modulator Drive Voltage | - | 2.5 | - | Vpp | |
| TEC Voltage | - | - | 2 | V | |
| TEC Current | -1 | 0 | 1 | A | |
| Chip Temperature | 15 | 20 | 40 | °C | |
| Case Temperature | 10 | 25 | 45 | °C | |
| Storage Temperature (Non-operational) | -40 | - | 60 | °C | |
| Thermistor Resistance at 25 C | - | 10 | - | kΩ | NTC, Beta 3575 k |
| Physical Specifications | | | | | |
| Dimensions | - | 2055 x 375 | - | μm | Bare die |
| Fiber type | - | Corning PANDA PM | - | - | In butterfly package, slow axis aligned |
| Fiber connector | - | FC/APC | - | - | In butterfly package, narrow key |

