S25G-LR2

10/25GBASE-LR SFP28 | 1310 nm | 10 km SMF | Duplex LC

1. Product overview

Dual-rate 10G/25G SFP28 optical transceiver with duplex LC connectivity and up to 25.78 Gb/s operating bit rate. Supports 10 km SMF. The source specifies a 1310 nm DFB transmitter and PIN photodiode receiver. Digital diagnostics are available through the SFF-8472 two-wire serial interface.

2. Key features

- 10G and 25G Ethernet support; duplex LC connector
- Single 3.3 V ±5% supply; operating case temperature 0 to +70°C
- Power consumption <1.5 W; 10 km single-mode transmission
- Digital diagnostic monitoring via SFF-8472

3. Applications

25GBASE-LR and 10G Ethernet.

4. Technical data

Parameter	Specification
Form factor / fiber	SFP28 / single-mode fiber
Bit rate	25.78 Gb/s typical; 10/25G operation described
Absolute supply voltage	-0.3 to 3.6 V
Storage temperature	-45 to +85°C
Relative humidity	0-85%
Supply current / module power	360 mA max at 3.3 V; <1.5 W in features

Electrical characteristics

Parameter	Specification
Input differential impedance	100 ohm typical
Data input swing	90-450 mVp-p, single-ended
TX disable / enable	2 V to VccHOST / Vee to Vee+0.8 V
TX fault assert / de-assert	2.2 V to VccHOST / Vee to Vee+0.4 V
Data output swing	200-450 mVp-p, single-ended
LOS fault / normal	2.2 V to VccHOST / Vee to Vee+0.4 V

5. Recommended operating conditions

Parameter	Specification
Case temperature	0 to +70°C
Supply min / typ / max	3.14 / 3.3 / 3.46 V
Maximum supported link length	10 km SMF

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6. Optical characteristics

Parameter	Specification
TX wavelength min / typ / max	1295 / 1310 / 1325 nm
Spectral width	1 nm max
Optical modulation amplitude	-12 dBm max
Optical output power	-7 to +2.5 dBm
Extinction ratio	3 dB min
Transmitter and dispersion penalty	2.7 dB max
Average TX-off launch power	-30 dBm max
RX wavelength min / typ / max	1260 / 1310 / 1360 nm
Average receiver power	-7 to +2.5 dBm
Stressed sensitivity (OMA)	-8 dBm min / +1 dBm max
Receiver reflectance	-12 dB max
LOS Assert / De-assert	-30 dBm min / -15 dBm max
LOS hysteresis	0.5 dB min

7. Digital diagnostics and management

SFF-8472 diagnostics via two-wire serial interface. Individual monitor values and accuracy are not specified.

Pin map and interface: TX ground 1,17,20; RX ground 10,11,14. 2 TX Fault (open collector; high=fault, low=normal; host 10 kohm pull-up). 3 TX Disable (LVTTL; high/open=off, low=on; internal 10 kohm pull-up). 4 SDA, 5 SCL, 6 MOD_ABS: module definition / diagnostics; host 10 kohm pull-ups. 7 RS0 (RX) / 9 RS1 (TX): NA in source. 8 LOS: NA in pin table. 12 RD- / 13 RD+: CML, AC-coupled, series 50 ohm; light-on logic 0/1. 15 VccR / 16 VccT: filtered 3.3 V. 18 TD+ / 19 TD-: CML, AC-coupled, differential 100 ohm; light-on logic 1/0. Ground pins connect to host signal ground.

8. Safety and regulatory

SFF-8472, SFF-8402, SFF-8432, applicable SFF-8431 portions; CEI-28G-VSR. Electrical-pin ESD: MIL-STD-883C 3015.7, Class 1 (>1500 V). ESD immunity: IEC 61000-4-2 variation, level 4 (15 kV air / 8 kV contact). EMI: CISPR22 ITE Class B, EN55022 Class B, FCC Class B. Immunity: IEC61000-4-3 Class 2 / EN55024; typically no measurable effect at 3 V/m, 80-1000 MHz, without enclosure.

9. Ordering information

Parameter	Specification
S25G-LR2	10/25GBASE-LR SFP28, 1310 nm, 10 km SMF, duplex LC