S25G-SR2

10/25GBASE-SR SFP28 | 850 nm | 70 m OM3 / 100 m OM4 | 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 70 m OM3 / 100 m OM4. The receiver uses a high-sensitivity PIN photodiode and TIA. Automatic 25G-to-10G rate selection is supported; 70/100 m reach applies at both rates. 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 <1 W in features
- Hot-pluggable 20-pin connector; all-metal housing; automatic rate selection
- Digital diagnostic monitoring via SFF-8472 Rev 12.2

3. Applications

25G Ethernet and 10G Ethernet.

4. Technical data

Parameter	Specification
Form factor / fiber	SFP28 / OM3 or OM4 multimode fiber
Bit rate	25.78 Gb/s typical; 10/25G operation described
Absolute supply voltage	-0.5 to 4.0 V
Storage temperature	0 to +70°C (
Relative humidity	0-95%
Supply current / module power	1 W

Electrical characteristics

Parameter	Specification
Input differential impedance	80-120 ohm
Data input swing	150-1200 mVp-p, differential
TX disable / enable	2 V to VccHOST / Vee to Vee+0.8 V
TX fault assert / de-assert	2 V to VccHOST / Vee to Vee+0.4 V
Data output swing	350-700 mVp-p, differential
LOS fault / normal	2 V to VccHOST / Vee to Vee+0.4 V
Output rise / fall time	25 / 25 ps max

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	70 m OM3 / 100 m OM4

S25G-SR2

6. Optical characteristics

Parameter	Specification
TX / RX wavelength	850 nm typical
Optical output power	-5 to +2.4 dBm
Extinction ratio	2 dB min
Optical modulation amplitude	-8.4 to +2.4 dBm
Relative intensity noise	-128 dB/Hz max
Receiver sensitivity at 25.78 Gb/s	-10.3 dBm max
Average receiver power	-10 to +2.4 dBm
Optical return loss	12 dB typical
LOS Assert / De-assert	-30 dBm min / -13 dBm max
LOS hysteresis	0.5 dB typical

Optical conditions: case 0-70°C, Vcc 3.14-3.46 V. Sensitivity measured at ER >2 dBm (source unit), PRBS 2^31-1 and BER ≤5E-5. General BER field is blank.

7. Digital diagnostics and management

SFF-8472 diagnostics via two-wire serial interface. Monitors temperature, laser bias, TX power, RX power and supply voltage, with factory-set alarms/warnings. DDTC reports operating/diagnostic data. Host SCL positive edge writes non-protected memory; negative edge reads. Bidirectional SDA and SCL delimit transfers. Memory comprises individually/sequentially addressed 8-bit words from 0x00h; random and sequential access supported.

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): LVTTL; internal 30 kohm pull-downs, no performance effect. 8 LOS: open collector, host 10 kohm pull-up; sufficient signal=0, insufficient=1. 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

SFP28 MSA; SFF-8431; SFF-8472 Rev 12.2; IEEE 802.3by; fully RoHS compliant. All-metal housing for EMI performance. The source does not specify laser safety class or numerical ESD limits.

9. Ordering information

Parameter	Specification
S25G-SR2	10/25GBASE-SR SFP28, 850 nm, 70 m OM3 / 100 m OM4, duplex LC