

S28-L10D-CHxx / S28-L10-I-CHxx

SFP28, 25 GbE-LR, DWDM C-band, 10 km, 100 GHz, 10 dB, SM / I-Temp

1. Product overview

DWDM SFP28 transceiver for 25-Gigabit Ethernet links up to 10 km over 9/125 μ m single-mode fiber. An EML transmitter with integrated wavelength locker, PIN receiver and preamplifier provide C-band operation on the 100 GHz ITU grid. CDR, internal automatic power control and two-wire serial ID, diagnostics and module control are supported.

2. Key features

Hot-pluggable SFP28; single +3.3 V supply; real-time digital diagnostics; duplex LC/UPC receptacle; SFF-8472 management. Backward compatible with legacy 10G SFP+; supports SFP+ 28 Gbps; metal enclosure for lower EMI.

3. Applications

High-speed storage area networks; computer-cluster cross-connects; custom high-speed data pipes; inter-rack connections and other optical links.

4. Technical data

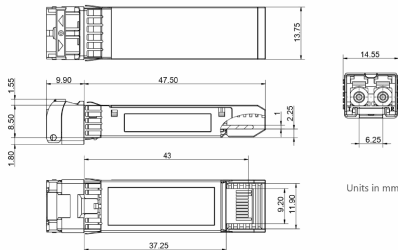
Absolute maximum rating	Specification	Absolute maximum rating	Specification
Storage temperature	-40 to +85°C	Supply voltage	-0.5 to 3.6 V
Humidity	5-95% non-condensing	Damage threshold	3 dBm (minimum column)

Electrical interface

Parameter	Specification	Parameter	Specification
Power / supply current	1.75 W max / 520 mA max	TX/RX single-ended tolerance	-0.3 to 4.0 V
TX differential swing	180-700 mV p-p	RX differential swing	300-900 mV p-p
Input / output impedance	90 / 100 / 110 Ω (min/typ/max)	Common-mode tolerance	15 mV min
TX-disable / LOS assert	Vcc-1.3 to Vcc V	TX-enable / LOS deassert	Vee to Vee+0.8 V
TX-disable assertion	10 μ s max	Output rise/fall, 20-80%	9.5 ps min (unfiltered)

TX input is connected directly to data pins, AC-coupled thereafter; 100 Ω differential termination. Supply filtering is recommended for TX and RX. TX and RX electrical data are PECL/CML. See General notes for conflicting current and control statements.

Mechanical dimensions - original drawing



Simplified functional illustration



Optical RX → PIN + TIA → RX data
MCU / two-wire control: SCL, SDA
Monitor: temperature, voltage, bias, TX/RX power

5. Recommended operating conditions

Parameter	Specification
Case temperature	Commercial 0-70°C; extended -10 to +80°C; industrial -40 to +85°C
Supply voltage, min / typ / max	3.135 / 3.3 / 3.465 V
Supply current / data rate	300 mA max / 25.78 Gbps typ (TX and RX)
Transmission distance / fiber	10 km / 9/125 μ m SMF

Additional source control-input limits: high 2 to Vcc V; low 0-0.8 V.

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6. Optical characteristics

Transmitter	Specification
Wavelength range	λ C-Band
Channel spacing / wavelength selection	100 GHz typ; source note: approximately 0.8 nm
Spectral width	1 nm max
Average optical power	-1 to +4 dBm
SMSR / extinction ratio	30 dB min / 6 dB min
TX-off power	-30 dBm max
TX and dispersion penalty	2.7 dB max
Optical return loss tolerance	20 dB max
Output eye mask	IEEE 802.3ae

Receiver	Specification
Centre wavelength	C-Band
Sensitivity	-11 dBm max
Average receive power	-13 to +2 dBm
Overload	0.5 dBm min
LOS assert / deassert	-30 dBm min / -14 dBm max
LOS hysteresis	0.5 dB min
Damage threshold	3 dBm min (also in absolute ratings)

Sensitivity test: light source 1528.77-1563.86 nm, ER=4 dB, BER $\leq 10^{-12}$, PRBS $2^{31}-1$ NRZ.

7. Digital diagnostics and management

Monitor	Absolute error	Conditions
Temperature	-3 to +3°C	Operating temperature range
Supply voltage	-0.15 to +0.15 V	Full operating range
TX / RX optical power	-3 to +3 dB	Both monitors
Bias current	-10% to +10%	Source unit column: mA

Two-wire SFF-8472 interface provides serial ID, digital diagnostics and module control. Internal APC maintains constant optical output across supply and temperature changes. TX-fault and RX-LOS are open-drain/collector outputs with 4.7-10 k Ω pull-ups to Vcc_Host (or active termination for RX-LOS); TX-disable is pulled up to VccT with 4.7-10 k Ω . High/open TX-disable stops transmission; low enables operation. RX-LOS is a preliminary low-signal indication.

Pin map: TX grounds 1/17/20; RX grounds 10/11/14; TX-fault 2; TX-disable 3; SDA 4; SCL 5; module-absent 6 (grounded in module); RS0 7: RX rate select; RS1 9: TX rate select, not used; LOS 8; RX data +/- 12/13; RX/TX supply 15/16; TX data +/- 18/19. Module grounds are isolated from the case. SDA/SCL (LVCMOS-I/O, MOD-DEF2/1) require 4.7-10 k Ω host pull-ups to 3.15-3.47 V.

8. Safety and regulatory

Class 1 laser per FDA/CDRH and IEC-825-1; RoHS compliant and lead-free; SFF+ MSA and SFF-8472. Source states 8 kV direct-contact ESD resistance; metal enclosure for lower EMI.

9. Ordering information

GLOBALfiber part number	Original product description
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