GL28-MM850SRC

25Gbps 850nm SFP28 Transceiver

Features

- Hot-pluggable SFP+ footprint
- Support 25.78Gbps bit rate
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 100m on OM4 MMF
- Power Dissipation <1W
- Single +3.3V power supply
- LC duplex connector
- Operating Case temperature range
  0°C to 70°C
- RoHS-6 compliant
- Compliant with SFF-8431
- Compliant with SFF-8472
- Compliant with IEEE 802.3by 25GBASE-SR

Applications

- 25GBASE-SR Ethernet
- Other Optical Links

Ordering information

Part No.	Data Rate	Laser	Temp.	Optical Interface	DDMI
GL28-MM850SRC	25.78Gbps	VCSEL	0°C to 70°C	Duplex LC	YES

Description

GL28-MM850SRC transceivers is designed for using in 25Gb/s data rate over multimode fiber. The transceiver is compliant with SFF-8431, and the mechanical SFP28 plug is compatible with SFF-8432. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0		3.6	V	
Storage Temperature	Ts	-40		+85	°C	
Relative Humidity	RH	5		85	%	Non-condensing
Operating Case Temperature	Tc	0		+70	°C	

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Power Dissipation	P_D			1	W	
Power Supply Current	Icc			300	mA	
Data Rate			25.78		Gbps	
Clock Rate-I2C				400	kHz	
Transmitter						
Input Differential impedance	Z_{IN}		100		ohm	
Differential data input swing	V_{IN}	250		900	mV	
Transmit Disable Voltage	V_{DIS}	2		V_{CC}+0.3	V	
Transmit Enable Voltage	V_{EN}	0		0.8	V	
Transmit Fault Assert Voltage		2		V_{CC}+0.3	V	
Transmit Fault De-Assert Voltage		0		0.8	V	
Receiver						
Output Differential impedance	Zout		100		ohm	
Differential data Output Swing	Vout	300		850	mV	
Rx_LOS Output Voltage-High		2		V_{CC}+0.3	V	
Rx_LOS Output Voltage-Low		0		0.8	V	

Optical Parameters

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power budget (for max TEDC)		8.2			dB	
Data Rate			25.78		Gbps	
Transmitter						
Center Wavelength	λ	840	850	860	nm	
RMS spectral width	$\Delta\lambda_{RMS}$			0.6	nm	
Average Optical Power	P_{AVG}	-8.4		2.4	dBm	

Laser Off Power	P_{OFF}			-30	dBm	
Extinction Ratio	ER	2	4		dB	
Transmitter and dispersion eye closure	TDEC			4.3	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Receiver						
Center Wavelength	λ	840	850	860	nm	
Receiver Sensitivity (OMA)	R_{SENSE1}			-10	dBm	1
Maximum Input Power	Pmax	3.4			dBm	
Los Assert	LOS_A	-30			dBm	
Los Dessert	LOS_D			-12	dBm	
Los Hysteresis	LOS_H	0.5			dB	
Receiver Reflectance	R_{REFL}			-12	dB	

Note1:Sensitivity for 25.78Gb/s PRBS31 and BER better than or equal to 5E-5.

General Specifications

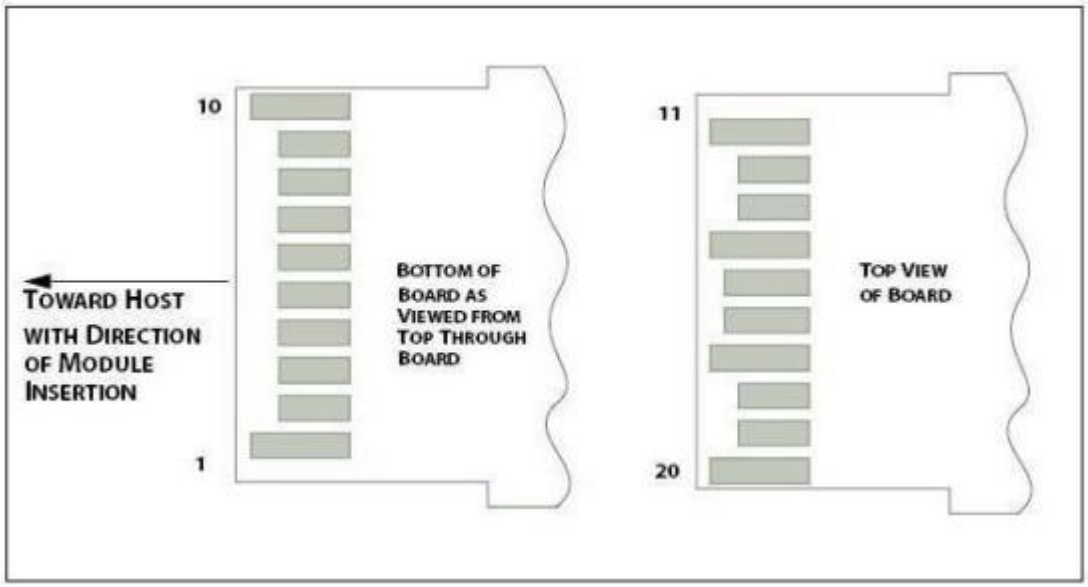
Parameter		Symbol	Min.	Typical	Max.	Unit	Note
Bit Rate		BR		25.78		Gbps	
Bit Error Ratio		BER			5E-5		PRBS31
Maximum Supported Distances							
Fiber Type	Bandwidth (850nm)						
50um	2000MHz*km				70	m	OM3
50um	4700MHz*km				100	m	OM4

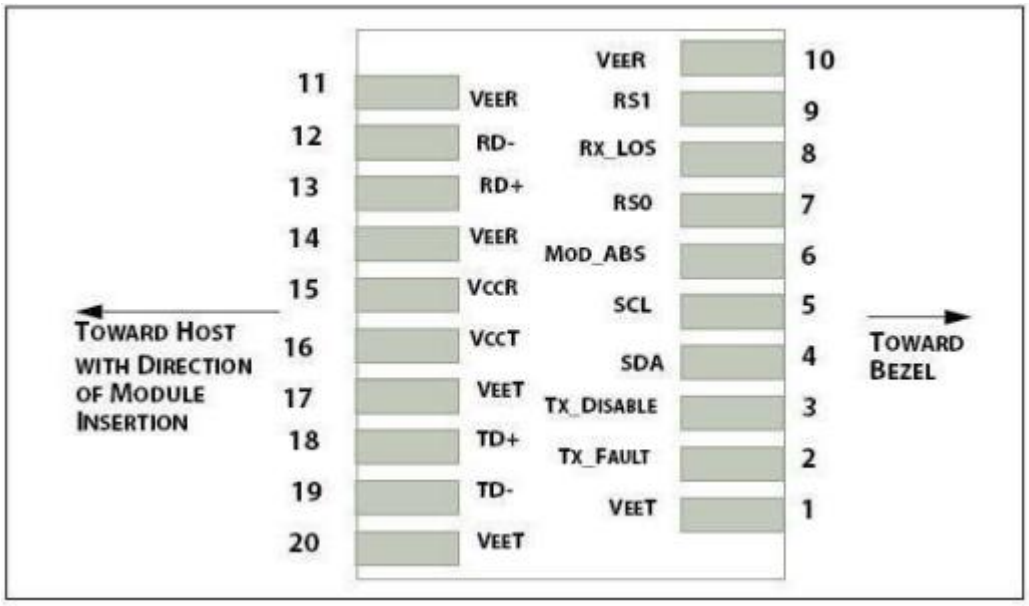
Digital Diagnostic Functions

GL28-MM850SRCtransceivers can be used in host systems that require either internally or externally calibrated digital diagnostics.

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Temperature monitor absolute error		-3		3	℃	
Laser power monitor absolute error		-3		3	dB	
RX power monitor absolute error		-3		3	dB	
Supply voltage monitor absolute error		-100		100	mV	
Bias current monitor		-10%		10%	mA	

Pin Assignment:





Pin Descriptions

PIN	Symbol	Name / Description	Note
1	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1

2	TX_Fault	Transmitter Fault	2
3	TX_Dis	Transmitter Disable	3
4	SDA	2-Wire Serial Interface Data Line	4
5	SCL	2-Wire Serial Interface Clock	4
6	MOD_ABS	Module Definition, Grounded in the module	4
7	RS0	Receiver Rate Select (Low=≤10.3 Gbps,High=25.78Gbps)	5
8	RX_LOS	Receiver Loss of Signal Indication	6
9	RS1	Transmitter Rate Select (Low=≤10.3 Gbps,High=25.78Gbps)	5
10	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted Data Output	7
13	RD+	Receiver Data Output	7
14	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V_{CCR}	Receiver Power	8
16	V_{CCT}	Transmitter Power	8
17	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted Data Input	7
19	TD-	Transmitter Inverted Data Input	7
20	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1

Note1: Module ground pins GND are isolated from the module case.

Note2: The Tx_Fault output is an open collector/drain output, which should be pulled up with a 4.7k to 10k ohms resistor on the host board. Pull up voltage should be between 2.0V to Vcc + 0.3V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.

Note3: Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

Note4: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

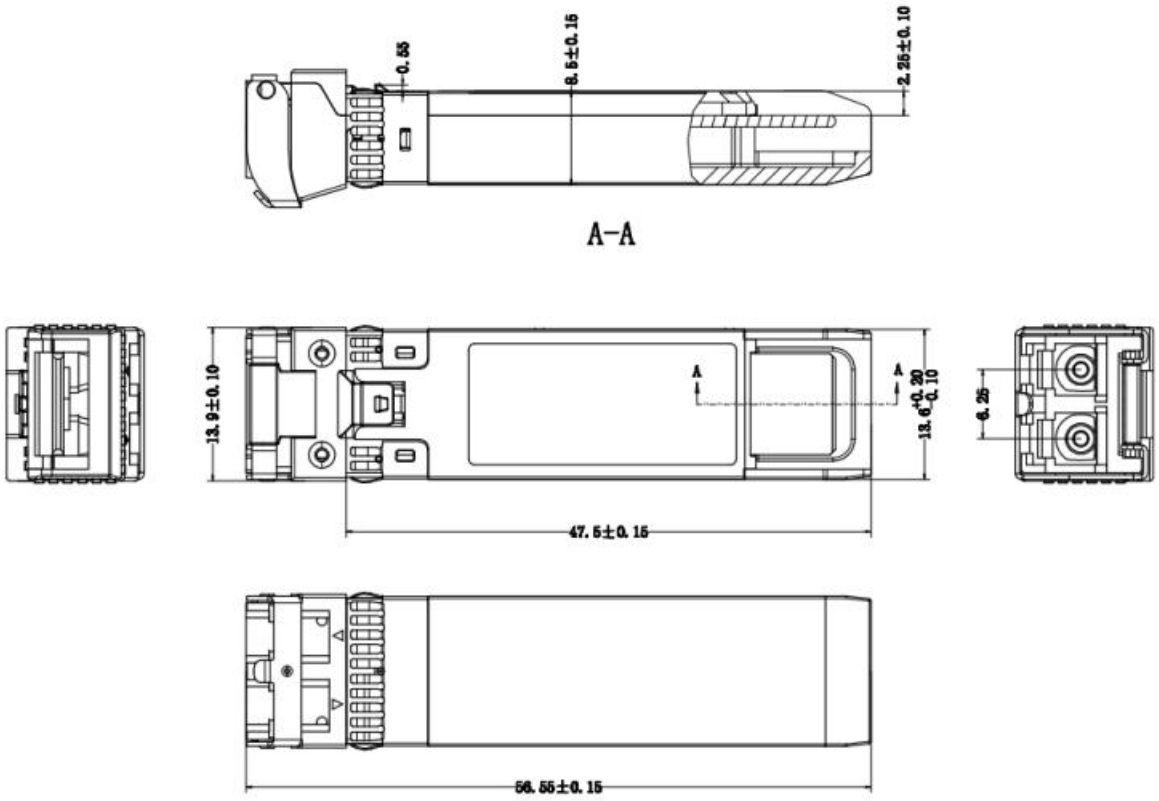
Note5: Rate select can also be set through the 2-wire bus in accordance with SFF-8472. Rx Rate select at Bit3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.

Note6: LOS is open collector output. Should be pulled up with 4.7 – 10k ohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

Note7: They are AC-coupled, differential lines with 100Ω differential termination inside the module.

Note8: VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V ±5% at the SFP+ connector pin.

Mechanical Dimensions



Revision History

Revision	Initiated	Reviewed	Approved	DCN	Release Date
V1.0	Feynman	XX	XX	Released.	July 16, 2022

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