1.25Gbps 1550nmOptical Transceiver up to 120km Reach with DDM

Ordering information:

TS-G88-05LC	1.25G SFP MM 850nm VCSEL 550m LC for (CISCO low bit date)
TS-G39-20LC	1.25G SFP SM 1310nm FP 20KM LC(double port LC) with DDM for (CISCO low bit date)
TS-G39-40LC	1.25G SFP SM 1310nm FP **40KM** LC(double port LC) with DDM for (CISCO low bit date)
TS-G59-80LC	1.25G SFP SM 1550nm FP **80KM** LC(double port LC) with DDM for (CISCO low bit date)
TS-G59-120LC	1.25G SFP SM 1550nm FP **120KM** LC(double port LC) with DDM for (CISCO low bit date)

Product Features:

1. Supports 1.25Gbps/1.0625Gbps bit rates
2. Duplex LC connector
3. Hot pluggable SFP footprint
4. 1550nm DFB laser transmitter and APD photo-detector
5. Applicable for 120Km SMF connection
6. Low power consumption, < 1.0W
7. Digital Diagnostic Monitor Interface
8. Compliant with SFP MSA and SFF-8472
9. Very low EMI and excellent ESD protection

Operating case temperature:

Commerical:0 to 70 °C
Industrial:-40 to 85 °C

Applications:

1. Gigabit Ethernet
2. Fiber Channel
3. Switch to Switch interface
4. Switched backplane applications
5. Router/Server interface
6. Other optical transmission systems

Product Descriptions:

SFP transceivers are high performance, cost effective modules supporting dual data-rate of 1.25Gbps/1.0625Gbps and 120km transmission distance with SMF.The transceiver consists of three

sections: a DFB laser transmitter, a APD photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.

SPECIFICATION :

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	Ts	-40	85	℃	
Relative Humidity	RH	0	85	%	

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate	DR	1.0625	1.25		Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc_s			300	mA	
Operating Case Temp.	Tc	0		70	℃	
	TI	-40		85		
Parameter	**Symbol**	**Min.**	**Typ**	**Max.**	**Unit**	**Note**
Transmitter						
Differential data input swing	$V_{IN,PP}$	300		1800	mVpp	1
Tx Disable Input-High	V_{IH}	2.0		Vcc+0.3	V	
Tx Disable Input-Low	V_{IL}	0		0.8	V	
Tx Fault Output-High	V_{OH}	2.0		Vcc+0.3	V	2
Tx Fault Output-Low	V_{OL}	0		0.8	V	2
Input differential impedance	Rin		100		Ω	
Receiver						
Differential data output swing	$V_{out,pp}$	400		1000	mV_{pp}	3
Rx LOS Output-High	V_{ROH}	2.0		Vcc+0.3	V	2
Rx LOS Output-Low	V_{ROL}	0		0.8	V	2
Parameter	**Symbol**	**Min.**	**Typ**	**Max.**	**Unit**	**Note**
Transmitter						
Operating Wavelength	λ	1530	1550	1565	nm	
Ave. output power (Enabled)	P_{AVE}	0		5	dBm	1
Extinction Ratio	ER	9			dB	1
RMS spectral width	Δλ			1	nm	
Rise/Fall time (20%~80%)	Tr/Tf			0.26	ns	2
Dispersion penalty	T_{DP}			3.2	dB	
Output Optical Eye	Compliant with IEEE802.3 z (class 1 aser safety)					
Receiver						
Operating Wavelength	λ	1260		1610	nm	
Receiver Sensitivity	P_{SEN1}			-32	dBm	3
Overload	P_{AVE}	-7			dBm	3
LOS Assert	Pa	-45			dBm	
LOS De-assert	Pd			-34	dBm	

LOS Hysteresis	Pd-Pa	0.5			dB	

Pin	Symbol	Name/Description	Notes
1	VeeT	Tx ground	
2	Tx Fault	Tx fault indication, Open Collector Output, active “H”	1
3	Tx Disable	LVTTL Input, internal pull-up, Tx disabled on “H”	2
4	MOD-DEF2	2 wire serial interface data input/output (SDA)	3
5	MOD-DEF1	2 wire serial interface clock input (SCL)	3
6	MOD-DEF0	Model present indication	3
7	Rate select	No connection	
8	LOS	Rx loss of signal, Open Collector Output, active “H”	4
9	VeeR	Rx ground	
10	VeeR	Rx ground	
11	VeeR	Rx ground	
12	RD-	Inverse received data out	5
13	RD+	Received data out	5
14	VeeR	Rx ground	
15	VccR	Rx power supply	
16	VccT	Tx power supply	
17	VeeT	Tx ground	
18	TD+	Transmit data in	6
19	TD-	Inverse transmit data in	6
20	VeeT	Tx ground	

Parameter	Symbol	Units	Min.	Max.	Accuracy	Note
Transceiver temperature	D_{Temp-E}	ºC	-45	+90	±5ºC	1
Transceiver supply voltage	$D_{Voltage}$	V	2.8	4.0	±3%	
Transmitter bias current	D_{Bias}	mA	2	80	±10%	2
Transmitter output power	$D_{Tx-Power}$	dBm	-3	8	±3dB	
Receiver average input power	$D_{Rx-Power}$	dBm	-35	0	±3dB