

Technical Specifications

TL-10GSFP-MM300

Features at a Glance

- Hot-pluggable SFP+ footprint
- Supports 9.95 to 10.5 Gb/s bit rates
- Power dissipation < 1W
- RoHS-6 compliant (lead-free)
- Commercial temperature range 0 to 70°C
- Single 3.3V power supply
- Maximum link length of 300m on 2000 MHZ-km OM3 MMF
- Heated 850nm VCSEL laser
- Receiver limiting electrical interface
- Duplex LC connector
- Built-in digital diagnostic functions



The 10GSFP-MM300 transceivers are designed for use in 10-Gigabit Ethernet links over multimode fiber. They are compliant with SFF-8431, SFF-8432, IEEE 802.3ae 10GBASE-SR/SW and 10G Fibre Channel 1200-Mx-SN-I. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

The transceiver is a “limiting module”, i.e., it employs a limiting receiver. Host board designers using an EDC PHY IC should follow the IC manufacturer's recommended settings for interoperating the host-board EDC PHY with a limiting receiver SFP+ module. The optical transceivers are compliant per the RoHS Directive 2011/65/EU.

Basic Specifications	
Form Type	SFP+
Max Data Rate	10.3125 Gbps
Wavelength	850nm
Max Cable Distance	300m over OM3 MMF
Interface	LC duplex
Optical Components	VCSEL 850nm
Cable Type	MMF
DOM Support	Yes
TX Power	-7.3~-1dBm
Receiver Sensitivity	< -11.1dBm
Commercial Temperature Range	0 to 70°C (32 to 158°F)

Specifications

General Product Characteristics					
Parameter	Symbol	Min	Typ.	Max	Unit
Bit Rate	BR	9.95		10.5	Gbps
Bit Error Ratio	BER			10^{-12}	
Max. Supported Link Length on 50 μ m Fiber OM2	L _{MAX}			82	m
Max. Supported Link Length on 50 μ m Fiber OM3	L _{MAX}			300	m
Max. Supported Link Length on 50 μ m Fiber OM4	L _{MAX}			400	m
Absolute Maximum Ratings					
Parameter	Symbol	Min	Typ.	Max	Unit
Storage Temperature	T _S	-40		+85	°C
Case Operating Temperature	T _A	-40		+85	°C
Supply Voltage	V _{CC}	-0.5		4.0	V
Operating Relative Humidity	RH	0		85	%
Electrical Characteristics (TOP = 0 to 70°C, V _{CC} = 3.14 to 3.46 V)					
Parameter	Symbol	Min	Typ.	Max	Unit
Power Supply Voltage	V _{CC}	3.15	3.3	3.45	V
Power Supply Current	I _{CC}			300	Ma
Transmitter					
Parameter	Symbol	Min	Typ.	Max	Unit
Input Differential Impedance	R _{in}		100		Ω
Differential Data Input Swing	V _{in,pp}	180		700	mV
Transmit Disable Voltage	V _D	2		V _{CC}	V
Transmit Enable Voltage	V _{EN}	V _{ee}		V _{ee} + 0.8	V
Receiver					
Parameter	Symbol	Min	Typ.	Max	Unit
Differential Data Output Swing	V _{out,pp}	300		850	mV
Output Rise Time and Fall Time	t _r	28			ps
LOS De-Assert	V _{LOS norm}	V _{ee}		V _{ee} + 0.8	V
LOS Assert	V _{LOS fault}	2		V _{CCHOST}	V
Power Supply Noise Tolerance	V _{cc T/V_{cc R}}	Per SFF-8431 Rev 4.1			mV _{pp}
Optical Characteristics (TOP = 0 to 70°C, V _{CC} = 3.14 to 3.46 V)					
Transmitter					
Parameter	Symbol	Min	Typ.	Max	Unit
Optical Modulation Amplitude	P _{OMA}		-1.5		dBm
Average Launch Power	P _{AVE}	-5		-1	dBm
Optical Wavelength	λ	840	850	860	nm
RMS Spectral Width	$\Delta\lambda_{rms}$			0.45	dB
Optical Extinction Ratio	ER	3.0	5.5		dB
Transmitter and Dispersion Penalty	TDP			3.9	dB
Average Launch Power of OFF Transmitter	P _{OFF}			-30	dBm
Tx Jitter	Tx _j	Per IEEE 802.3ae requirements			
Encircled Flux	<4.5 μ m <19 μ m	86		30	%
Relative Intensity Noise	RIN ₁₂ OMA			-128	dB/Hz
Receiver					
Parameter	Symbol	Min	Typ.	Max	Unit
Receiver Sensitivity (OMA) @ 10.3 Gbps	R _{SENS1}			-11.1	dBm
Stressed Receiver Sensitivity (OMA) @ 10.3 Gbps	R _{SENS2}			-7.5	dBm
Maximum Input Power	P _{MAX}	+0.5			dBm
Wavelength Range	λ_C	840		860	Nm
Receiver Reflectance	LOS _D			-12	dB
LOS De-Assert	LOS _A			-14	dBm
LOS Assert	LOS _A	-30	-23		dBm
LOS Hysteresis		0.5			dB

Dimensional Drawings

