

SO-SFP-8GFC-ER

SFP+, 8/4/2/1 Gbps FC/FICON, 1550nm, SM, DDM, 15.8dB, 40km

OVERVIEW

The SO-SFP-8GFC-ER series single mode transceiver is small form factor pluggable module for duplex optical data communications such as 8G fiber channel. It is with the SFP+ 20-pin connector to allow hot plug capability. This module is designed for single mode fiber and operates at a nominal wavelength of 1550 nm. The transmitter section uses a 1550nm EML, which is class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated InGaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.

PRODUCT FEATURES

- Operating data rate up to 8.5Gbps
- 1550nm EML Transmitter
- Distance up to 40km over SMF
- Single 3.3V Power supply and TTL logic interface
- Duplex LC connector interface
- Hot-Pluggable
- Power dissipation < 1.5 W
- Dispersion tolerance 800ps/nm
- Operating case temperature, standard: -5°C to +70°C.
- Compliant with SFP+ MSA specification SFF-8431
- Compliant with SFF-8472

APPLICATIONS

- 8 X fiber channel
- Other optical links

ORDERING INFORMATION

Part Number	Description
SO-SFP-8GFC-ER	SFP+, 8/4/2/1 Gbps FC/FICON, 1550nm, SM, DDM, 15.8dB, 40km

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Storage Temperature	TS	-40	+85	°C
Operating Case Temperature	Tcase	0	70	°C
Supply Voltage	VCC	-0.5	3.6	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	TA	-5		+70	°C
Power Supply Voltage	Vcc	3.15	3.3	3.45	V
Power Supply Current	Icc			430	mA
Surge Current	ISurge			+30	mA
Baud Rate	8GFC		8.5		Gbps

PERFORMANCE SPECIFICATIONS – ELECTRICAL TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
CML Inputs(Differential)	V _{IN}	150		1200	mVpp	AC coupled inputs
Input Impedance (Differential)	Z _{IN}	85	100	115	ohms	R _{in} > 100 kohms @ DC
TX Disable	Disable	2		Vcc+0.3	V	
	Enable	0		0.8		
TX FAULT	Fault	2		Vcc+0.3	V	Io=400µA; Host Vcc
	Normal	0		0.5		Io = -4.0mA

PERFORMANCE SPECIFICATIONS – ELECTRICAL RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
CML Outputs (Differential)	V _{out}	350		700	mVpp	AC coupled outputs
Output Impedance (Differential)	Z _{out}	85	100	115	ohms	
Rx_LOS Output Voltage – High		2		Vcc+0.3	V	Io=400µA; Host Vcc
Rx_LOS Output Voltage – Low		0		0.8	V	Io = -4.0mA
MOD_DEF (2:0)	VoH	2.5			V	With Serial ID
	VoL	0		0.5	V	

PERFORMANCE SPECIFICATIONS – OPTICAL

Parameter	Symbol	Min	Typ	Max	Unit
9µm Core Diameter SMF			40		km
Data Rate			8.5		Gbps

PERFORMANCE SPECIFICATIONS – OPTICAL TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	λ _c	1480	1550	1600	nm
Spectral Width (-20dB)	Δλ			1	nm

Subject to change without notice.

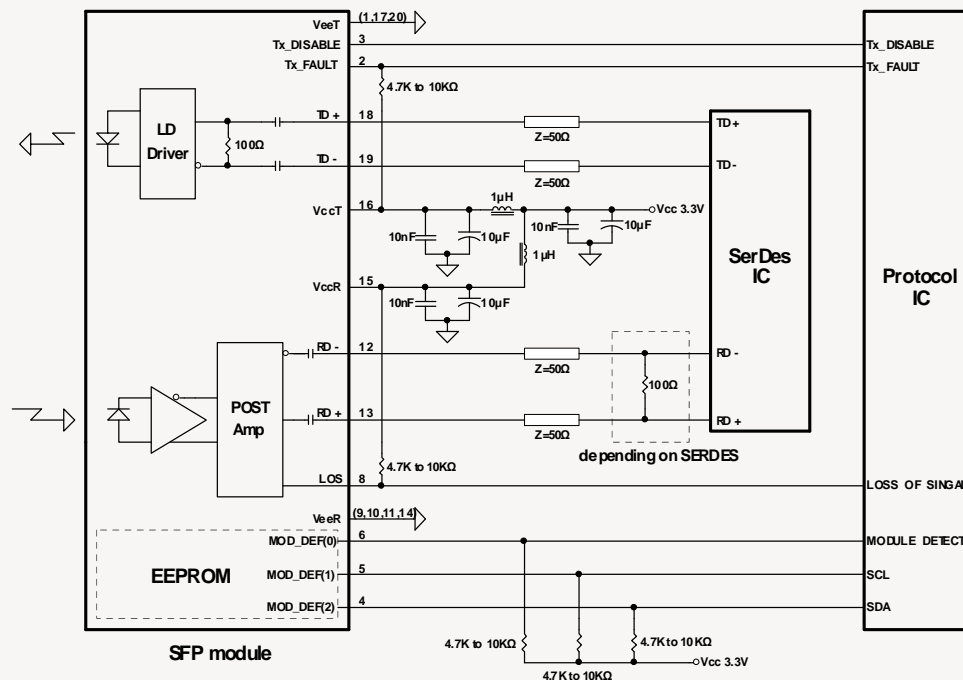
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Average Output Power	P_{out}	0	4	dBm	
Optical Modulation Amplitude	$P_{out,OMA}$	1		dBm	
Extinction Ratio	ER	3.5		dB	
Side Mode Suppression Ratio	$SMSR$	30		dB	
Transmitter and Dispersion Penalty	TDP		2	dB	
Average Power of OFF Transmitter			-30	dBm	
Relative Intensity Noise	RIN		-128	dB/Hz	
Input Differential Impedance	Z_{IN}	90	100	110	Ω
TX Disable	Disable	2.0		$V_{cc}+0.3$	V
	Enable	0		0.8	
TX_Fault	Fault	2.0		$V_{cc}+0.3$	V
	Normal	0		0.8	
TX_Disable Assert Time	t_{off}		10		us

PERFORMANCE SPECIFICATIONS – OPTICAL RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	λ_c	1260		1600	nm
Sensitivity @ 8.5Gbps	P_{min}			-15.8	dBm
Receiver Overload	P_{max}	0			dBm
Output Differential Impedance	P_{in}	90	100	110	Ω
LOS De-Assert	$LOSD$			-16	dBm
LOS Assert	$LOSA$	-30			dBm
LOS	High	2.0		$V_{cc}+0.3$	V
	Low	0		0.8	

RECOMMENDED CIRCUIT SCHEMATIC



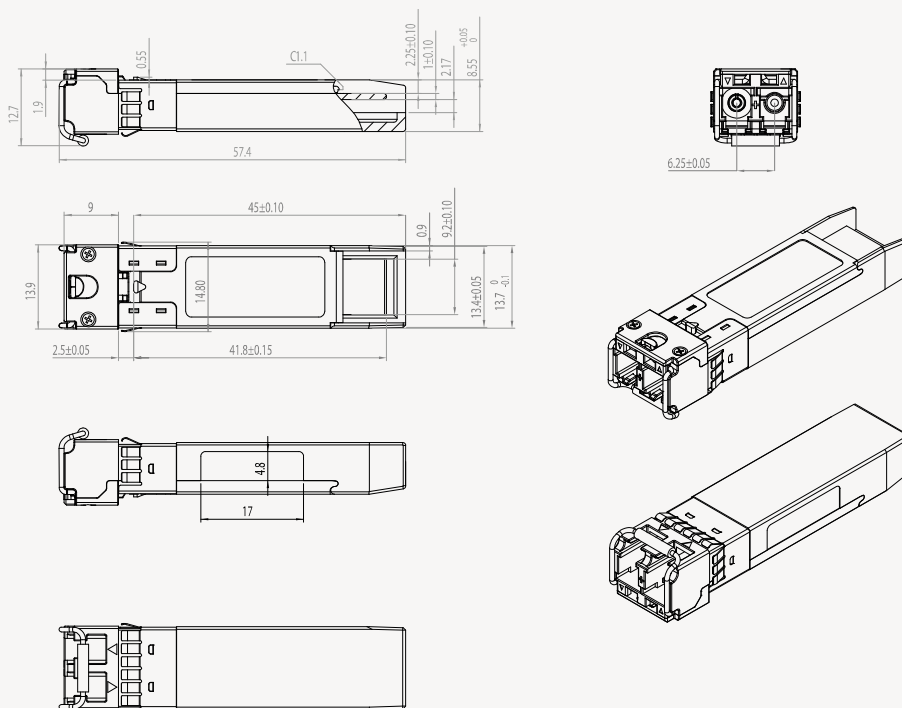
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PIN FUNCTION DEFINITIONS

PIN	Signal Name	Description	PIN	Signal Name	Description
1	V _{EE} T	Transmitter Signal Ground	11	V _{EE} R	Receiver Signal Ground
2	TX_Fault	Transmitter Fault Indication. Logic "1" Output = Laser Fault. Logic "0" Output = Normal Operation	12	RD-	Inverse Receiver Data Out
3	TX_Disable	Logic "1" Input (or no connection) = Laser off, Logic "0" = Laser on.	13	RD+	Receiver Data Out
4	SDA	Modulation Definition 2 – Two wires serial ID Interface	14	V _{EE} R	Receiver Signal Ground
5	SDL	Modulation Definition 1 – Two wires serial ID Interface	15	V _{CC} R	Receiver Power – 3.3V±5%
6	MOD-ABS	Modulation Definition 0 – Ground in Module	16	V _{CC} T	Transmitter Power – 3.3V±5%
7	RS0	RX Rate Select (LVTTTL). This pin has an internal 30k pulldown to ground. A signal on this pin will not affect module performance.	17	V _{EE} T	Transmitter Signal Ground
8	RX_LOS	Loss of Signal Out (OC).	18	TD+	Transmitter Data In
9	RS1	TX Rate Select (LVTTTL). This pin has an internal 30k pulldown to ground. A signal on this pin will not affect module performance.	19	TD-	Inverse Transmitter Data In
10	V _{EE} R	Receiver Signal Ground	20	V _{EE} T	Transmitter Signal Ground

MECHANICAL DRAWING



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