

10G SFP+ SR Optical Engine

Product Specification Data

Product Name: QM_10G_SFP+_SR_OE

Part Number: 10000014

Record Number: TS09016

Version: A4

Date: 2025.02.24

Features

- Support 10GBASE-SR/10G Fiber Channel application
- Transmission distance up to 300m (OM3)
- LC optical cable connection
- +3.3V single power supply
- Low power consumption
- Operating case temperature
Commercial: 0°C~70°C
- RoHS compliant



Applications

- 10 Gigabit Ethernet
- InfiniBand QDR, DDR, SDR
- High-performance computing clusters
- Servers, switches, storage and host card adapters

Standards

- Compliant to SFP+ Electrical MSA SFF-8431
- Compliant to SFP+ Mechanical MSA SFF-8432
- Specifications compliant with SFF-8472

ESD

- ESD compatible with MIL-STD-883 method 3015

Laser Safety

- Laser eye safety compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2

Absolute Maximum Ratings

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	T_s	-40		+85	°C	
Supply Voltage	V_{CC}	-0.5		+3.6	V	
Operating Humidity	RH	+5		+85	%	1

Note: 1 No condensation

Recommended Operating Condition

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Power Supply Current	I_{CC}			260	mA	
Power Consumption	P_c			1	W	
Operating Case Temperature	T_c	0		70	°C	
Bit Rate	BR		10.3125		Gb/s	

Transceiver Optical and Electrical Specification

Module Specification

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Bit Rate	BR		10.3125		Gb/s	
Link Length on (OM3) MMF	L			300	m	

Transmitter Specification

Unless specified else, the specifications below are defined at $T_c=25\pm3^\circ\text{C}$

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Center Wavelength Range	λ_c	840	850	860	nm	
RMS spectral width	$\Delta\lambda$			0.6	nm	
Launch Optical Power	P_o	-6.5		-1	dBm	
Extinction Ratio	ER	3			dB	
Crossing	-	40		60	%	
Power Supply	V_{CC}	3.135	3.3	3.465	V	
Input Differential Impedance	Z_{in}	90	100	110	Ω	
Differential Data Input Swing	V_{ppin}	200		1000	mV	

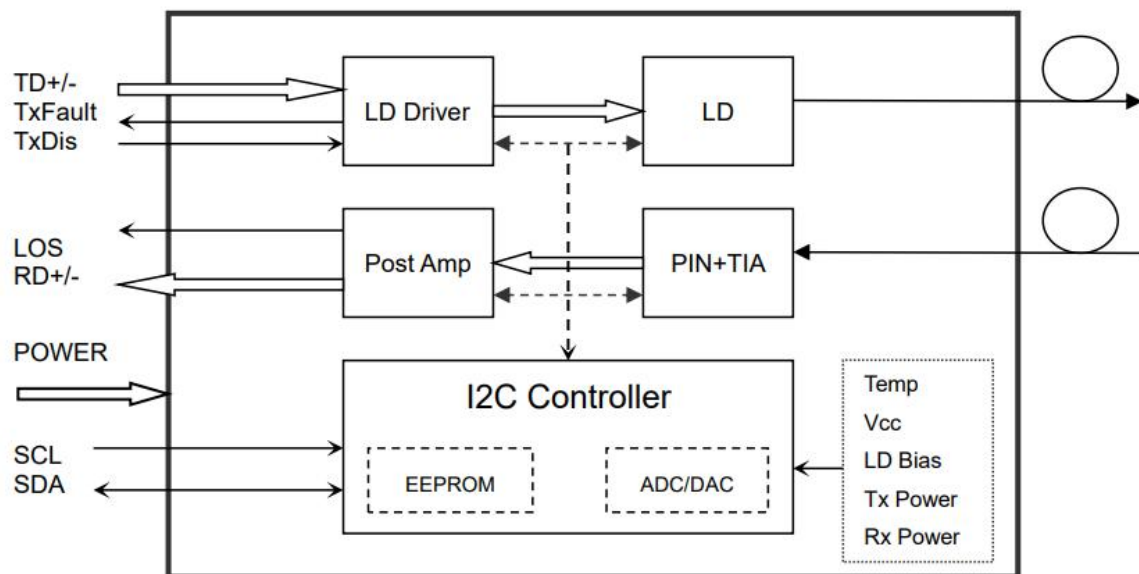
Receiver Specification

Unless specified else, the specifications below are defined at TC=25±3°C

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Center Wavelength Range	λ_c	840	850	860	nm	
Sensitivity	Sen			-10.3	dBm	1
Overload Input Optical Power	P_{in}	-1			dBm	
LOS De-Assert	$LOSD$			-12.5	dBm	
LOS Assert	$LOSA$	-22			dBm	
LOS Hysteresis	$LOSH$	0.5			dB	
Output Differential Impedance	Z_{out}	90	100	110	Ω	
Differential Data Output Swing	$V_{pp_{out}}$	200		1000	mV	
LOS Output Voltage-Low	V_{OL}	$V_{EE}-0.3$		0.4	V	
LOS Output Voltage-High	V_{OH}	2.0		$V_{CC}+0.3$	V	

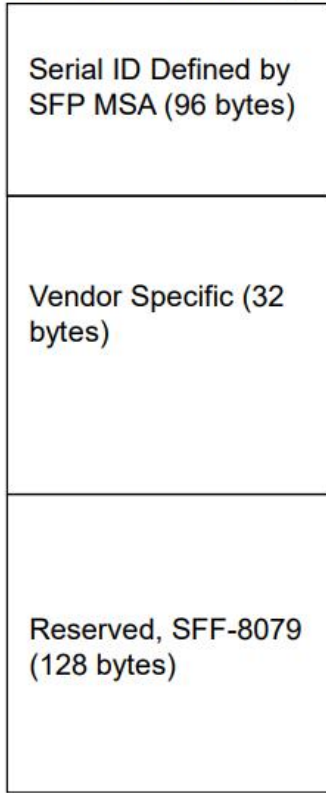
Note: 1 Measured with PRBS 2³¹-1 test pattern @10.3125Gb/s and BER=1E-12.

RECOMMENDED HOST BOARD SCHEMATIC

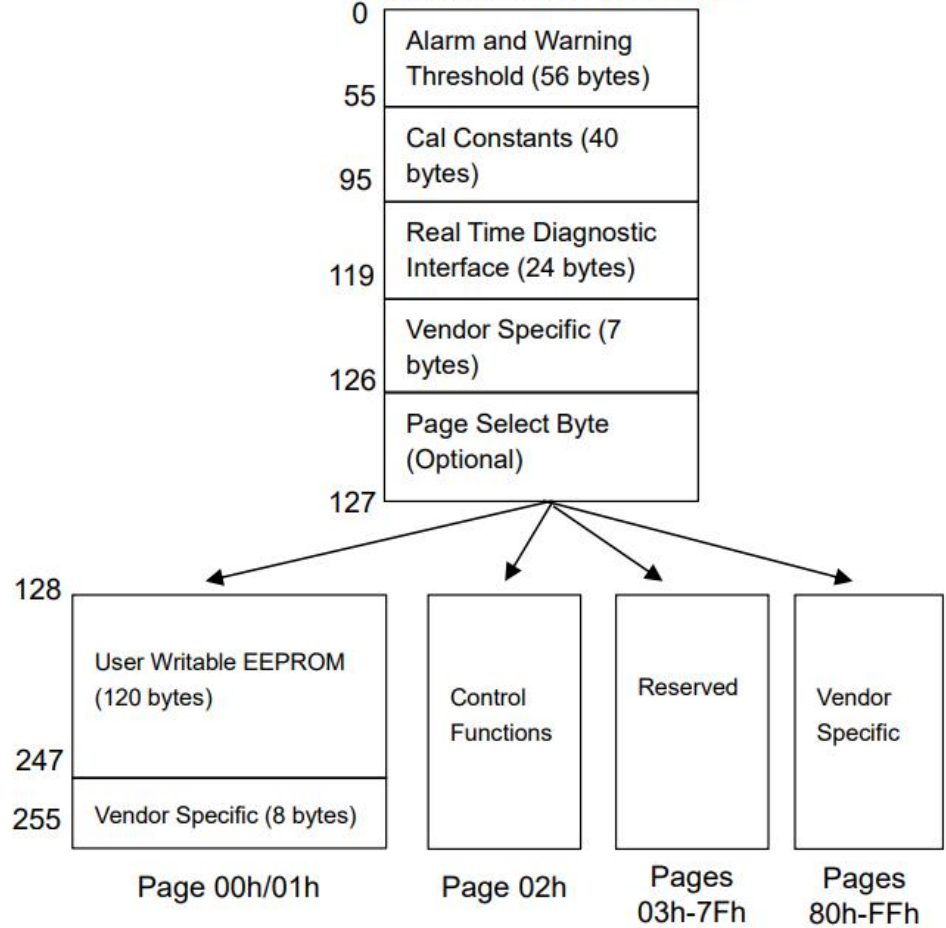


Monitoring Specification

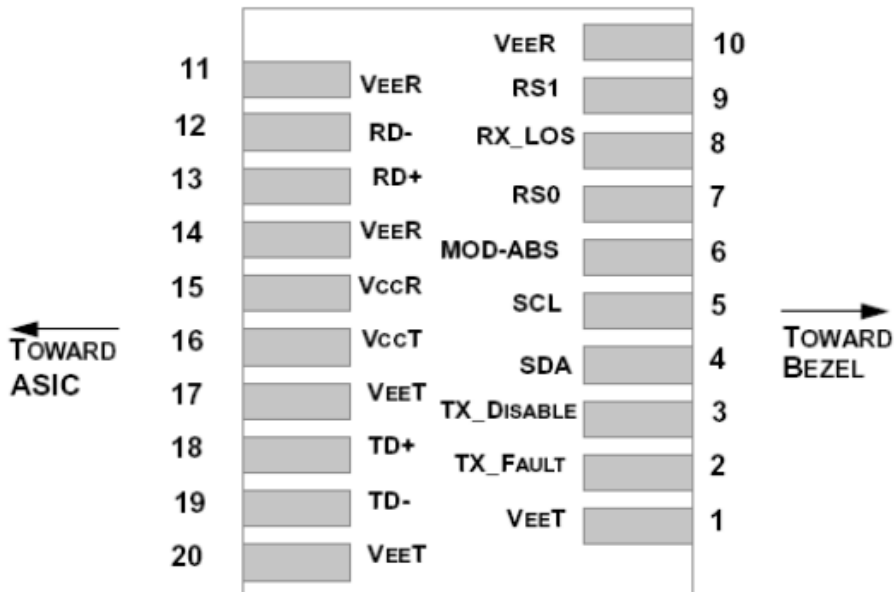
2wire address 1010000x (A0h)



2wire address 1010001x (A2h)



Electrical Connections

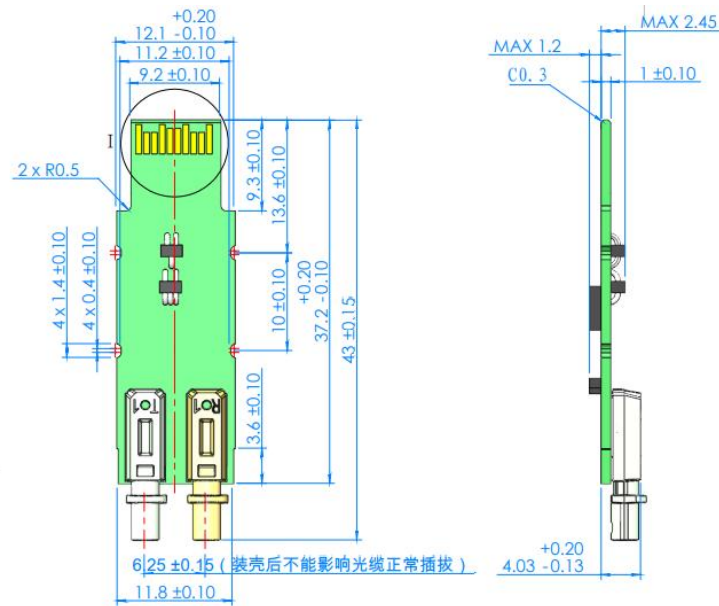


PIN Description

Pin	Symbol	Name/Description
1	V _{EE} T	Module Transmitter Ground
2	TX_FAULT	Module Transmitter Fault
3	TX_DISABLE	Transmitter Disable; Turns off transmitter laser output
4	SDA	2-Wire Serial Interface Data Line (MOD-DEF2)
5	SCL	2-Wire Serial Interface Clock (MOD-DEF1)
6	MOD_ABS	Module Absent, connected to VEET or VEER in the module
7	RS0	Rate Select 0, optionally controls SFP+ module receiver
8	RX_LOS	Receiver Loss of Signal Indication (In FC designated as Rx_LOS and in Ethernet designated as NOT Signal Detect)
9	RS1	Rate Select 1, optionally controls SFP+ module transmitter
10	V _{EE} R	Module Receiver Ground
11	V _{EE} R	Module Receiver Ground
12	RD-	Receiver Inverted Data Output
13	RD+	Receiver Non-Inverted Data Output
14	V _{EE} R	Module Receiver Ground
15	V _{CC} R	Module Receiver 3.3 V Supply
16	V _{CC} T	Module Transmitter 3.3 V Supply
17	V _{EE} T	Module Transmitter Ground
18	TD+	Transmitter Non-Inverted Data Input
19	TD-	Transmitter Inverted Data Input
20	V _{EE} T	Module Transmitter Ground

Mechanical Outline Dimensions

10000014:



(Unit:mm)

Product list

Part Number	Product Name
10000014	光引擎_850nm_10G_SFP+_SR_300m_LC_1*1_J97