

40G QSFP+ SR4 Optical Engine

Product Specification Data

Product Name: QM_40G_QSFP+_SR4_OE

Part Number: 10000033

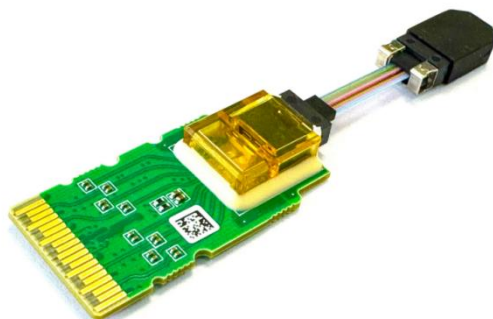
Record Number: TS09037

Version: A1

Date: 2025.02.24

Features

- Multi rate of up to 10.3125Gbps
- Maximum link length of 100m on OM3 MMF and 150m on OM4 MMF
- MPO optical cable connection
- Hot pluggable QSFP+ form factor
- QSFP+ mechanical specification compliant with SFF-8661
- Operating case temperature
Commercial: 0°C~70°C
- 3.3V single power supply
- Low power consumption



Applications

- 40GBASE-SR4 at 10.3125Gbps per lane
- InfiniBand QDR
- Other optical links

Standards

- Compliant with SFF-8436
- Compliant with IEEE 802.3ba 40GBASE-SR4 standard

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

Order Information

Table 1-Order Information

Part No.	Bit Rate (Gbps)	Laser (nm)	Distance	Fiber Type	DDMI	Connector	Temp ^{note1}
10000033	10.3125	850	150m	MMF	YES	MPO 1x12	0°C~+70°C

Note: 1 Case Temperature

Absolute Maximum Ratings

Table2- 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
Receiver Damage Threshold per Lane	P_{IND}	+3.4			dBm	

Note: 1 No condensation

Recommended Operating Condition

Table 3- Recommended operating Conditions

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Power Consumption	P_c			1.5	W	
Operating Case Temperature	T_c	0		70	°C	
Bit Rate	BR		10.3125		Gbps	Per lane

Electrical Characteristics

Table 4- Electrical Characteristics

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Input Logic Level High	V_{IH}	2.0		$V_{CC}+0.3$	V	
Input Logic Level Low	V_{IL}	$V_{EE}-0.3$		0.8	V	
Output Logic Level High	V_{OH}	2.0		$V_{CC}+0.3$	V	
Output Logic Level Low	V_{OL}	0		0.4	V	
Transmitter						
Differential Data Input Swing	$V_{in,p-p}$	200		1000	mV	
Input Differential Impedance	Z_D	90	100	110	Ω	
Receiver						
Differential Date Output Swing	V_{out}	200		1000	mV	

Output Differential Impedance	Z_D	90	100	110	Ω	
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Optical Characteristics

Table 5-Optical Characteristics

Parameters	Symbol	Min.	Typical	Max.	Unit	Notes
Optical transmitter Characteristics						
Bit Rate	BR		10.3125		Gb/s	Per lane
Link Length on (OM3) MMF	L		100	150	m	
Link Length on (OM4) MMF	L		150	200	m	
Center Wavelength Range	λ_c	840	850	860	nm	
RMS spectral width	$\Delta\lambda$			0.6	nm	
Average Launch power Tx_off	P_{off}			-30	dBm	
Average launch power, Each Lane	P_o	-6.0		2.4	dBm	1
Extinction Ratio	ER	3			dB	
Optical Receiver Characteristics						
Bit Rate	BR		10.3125		Gb/s	Per lane
Center Wavelength Range	λ_c	840	850	860	nm	
Sensitivity@BER=E-12	Sen			-10.3	dBm	
Overload Input Optical Power	P_{in}	2.4			dBm	2
LOS De-Assert	$LOSD$			-13	dBm	
LOS Assert	$LOSA$	-30			dBm	
LOS Hysteresis	$LOSH$	0.5			dB	

Note:

1. Coupled into 50/125 MMF.
2. Measured with PRBS 231-1 test pattern @10.3125Gbps.BER=1E-12

Recommended Interface Circuit

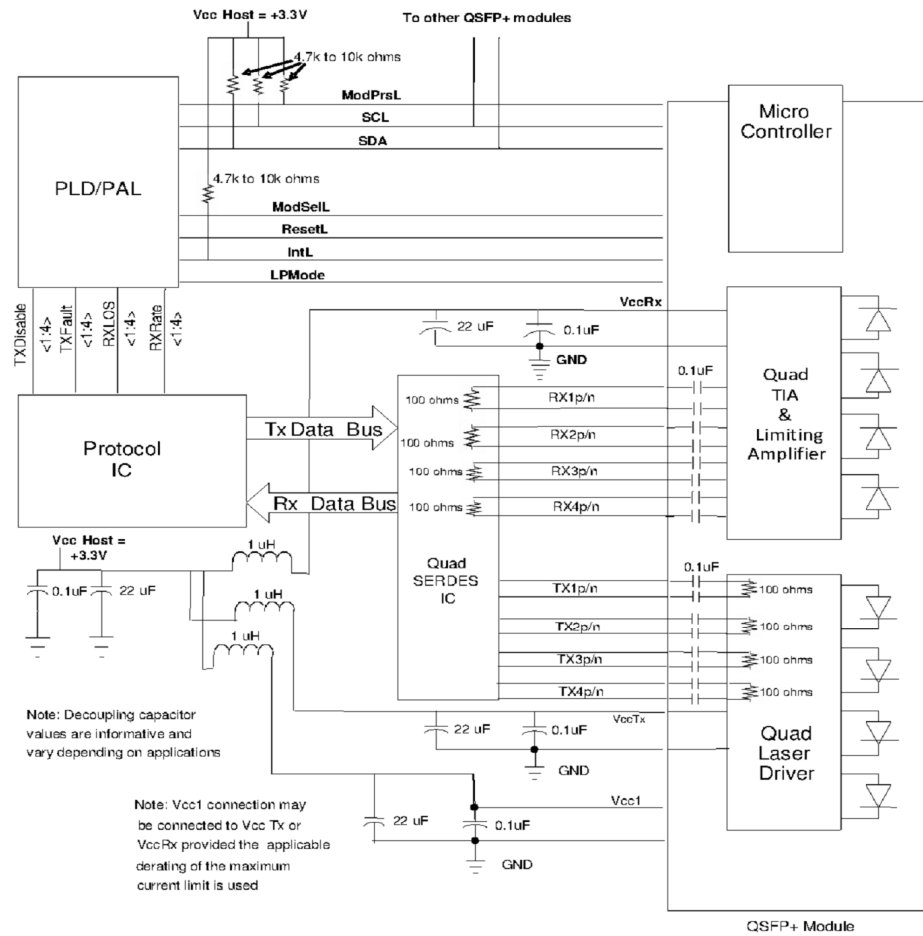


Figure 1, Recommended Interface Circuit

Pin arrangement

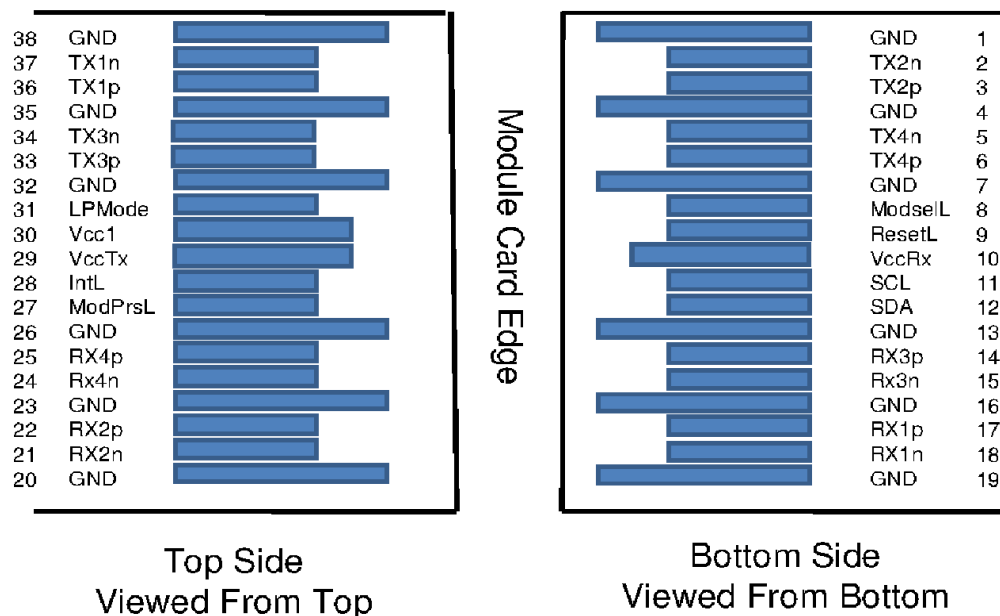


Figure 2, Pin View

Pin Function Definitions

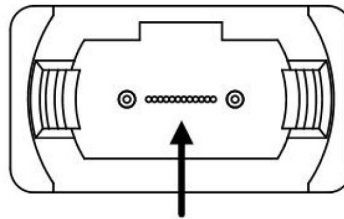
Table 6-Pin Function Definitions

Pin	Logic	Symbol	Name/Description	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		V _{CC} Rx	+3.3V Power Supply Receiver	
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Inverted Data Output	
15	CML-O	Rx3n	Receiver Non-Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Inverted Data Output	
18	CML-O	Rx1n	Receiver Non-Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		V _{CC} Tx	+3.3V Power Supply Transmitter	
30		V _{CC} 1	+3.3V Power Supply	

31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Inverted Data Input	
34	CML-I	Tx3n	Transmitter Non-Inverted Data Input	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Inverted Data Input	
37	CML-I	Tx1n	Transmitter Non-Inverted Data Input	
38		GND	Ground	1

Note: 1. Circuit ground is internally isolated from chassis ground

Optical interface arrangement



Fiber Number: 12 11 10 9 4 3 2 1

Transmit Channels: 1 2 3 4

Receive Channels: 4 3 2 1

Figure 3, QSFP+ Optical Receptacle and Channel Orientation.

Monitoring Specification

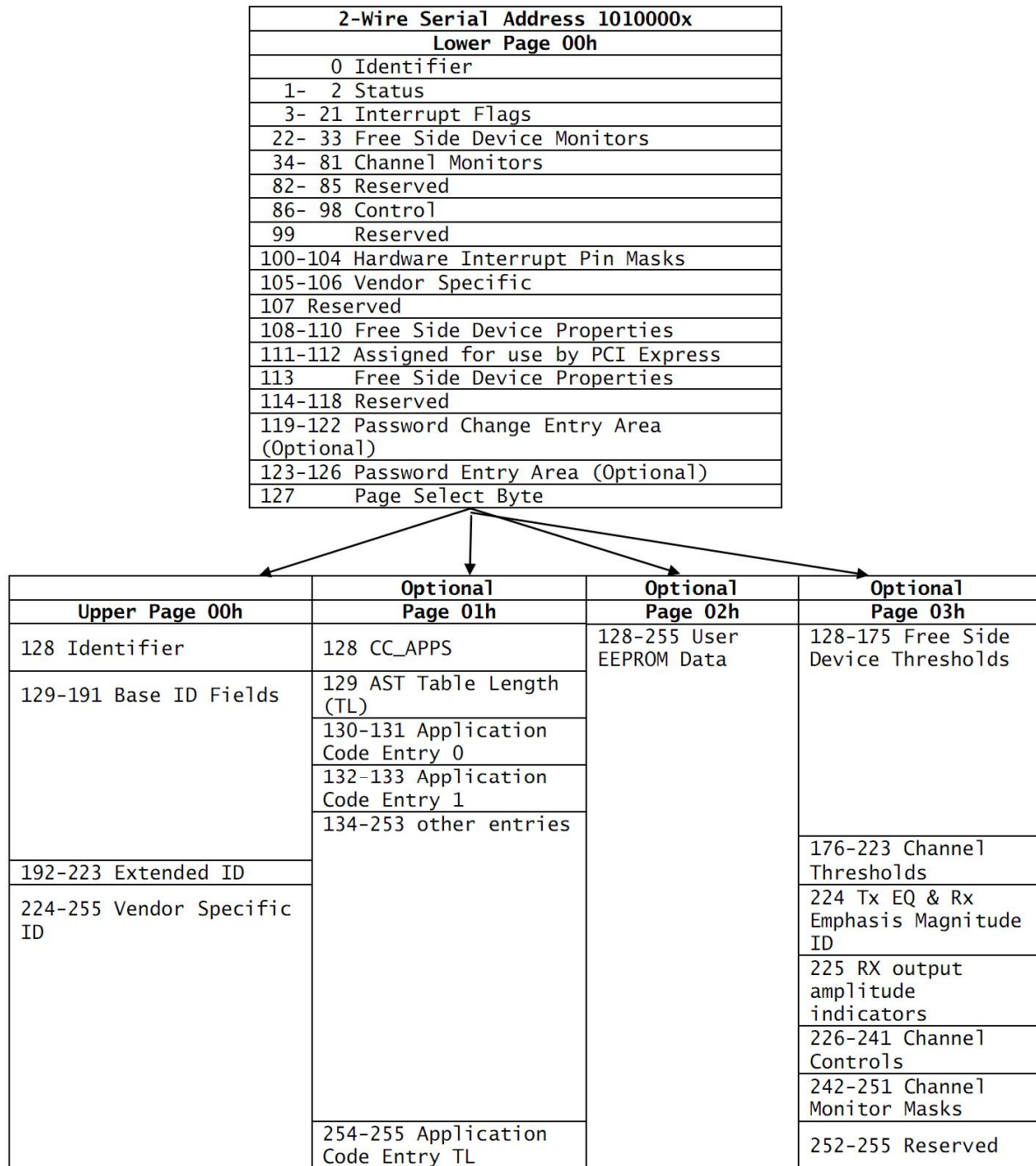
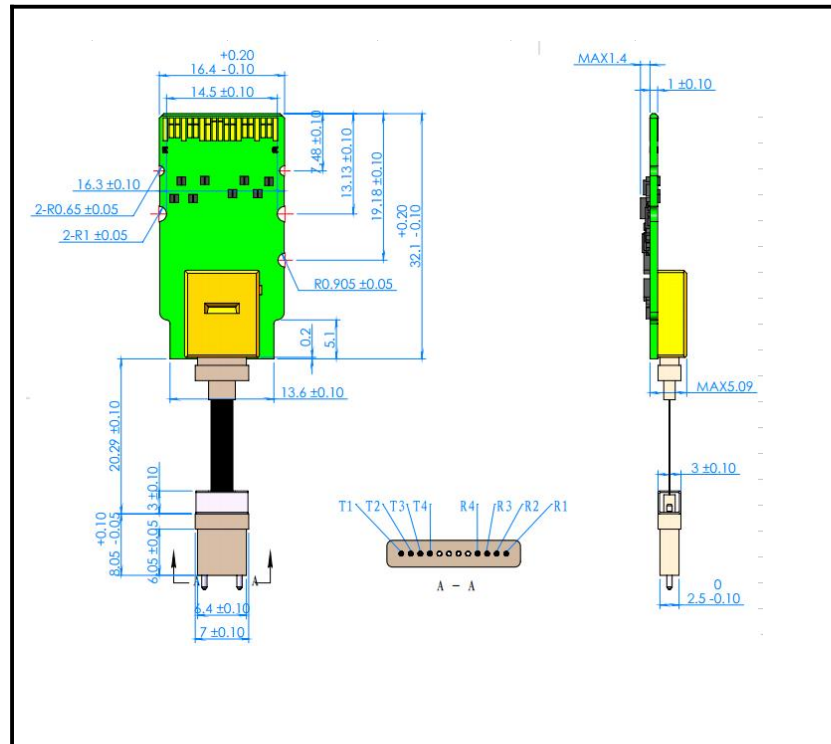


Figure 4, Memory Map

Mechanical Outline Dimensions

10000033:



(Unit:mm)

Product list

Part Number	Product Name
10000033	光引擎_850nm_40G_QSFP+_SR4_150m_MPO_1*4_J97