



DAAQMQ024000000

MSA Compliant 40GBase-CU QSFP+ Direct Attach Cable (Active Twinax, 2m)

Product Description

This is an MSA compliant 40GBase-CU QSFP+ to QSFP+ direct attach cable that operates over active copper with a maximum reach of 2.0m (6.6ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach cable is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- Support for multi-gigabit data rates up to 10Gbps
- Hot-Pluggable SFP 20PIN footprint
- Data rates backward compatible to 1Gbps
- Low Power Consumption 0.2W
- Power Supply 3.3V
- Improved Pluggable form Factor (IPF) compliant for enhanced EMI/EMC performance
- Operating Temperature: 0 to 70 Celsius
- MSA Compatible
- RoHS Compliant and Lead-Free



Applications:

- Data Center: Switches, Storage, Servers and Routers
- High density connections between networking equipment

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Dissipation	P _{DISS}			0.2	W	
Differential Input Impedance	ZIN	90	100	110	Ω	2
Differential Output Impedance	ZOUT	90	100	110	Ω	3
Differential Input Voltage Amplitude	ΔVIN	300		1100	mVp-p	
Differential Output Voltage Amplitude	ΔVOUT	500		800	mVp-p	
Skew	Sw			300	ps	
Bit Error Rate	BR			E ⁻¹²		
Input Logic Level - High	VIH	2.0		Vcc	V	
Input Logic Level - Low	VIL	0		0.8	V	
Output Logic Level - High	VOH	Vcc-0.5		Vcc	V	
Output Logic Level - Low	VOL	0		0.4	V	

Notes:

1. BER=10⁻¹² and PRBS 2³¹-1 @10.3125Gbps.
2. Differential input voltage amplitude is measured between Tx#+ and Tx#-.
3. Differential output voltage amplitude is measured between Rx#+ and Rx#-.

Systems

Parameter	Media	Operating Parameters
10Gbps Line Speed, Full Duplex Bit Error Rate: Better Than 10E ⁻¹²	Hot-Pluggable, Industry-Standard Small Form-Factor Pluggable (SFP+) Copper Cable	Supply Voltage: 3.3V Power Consumption (Per End): Max. 0.2W

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	840	850	860	nm	
RMS Spectral Width	$\Delta\lambda$			0.65	nm	
Average Launch Power Per Channel	POUT	-7.5		-2.5	dBm	
Difference in Launch Power Between Any Two Lanes (OMA)					dB	
Extinction Ratio	ER	3			dB	
Peak Power Per Lane				4	dBm	
Transmitter and Dispersion Penalty (TDP) Per Lane	TDP			3.5	dB	
Average Launch Power of Off Transmitter Per Lane				-30	dB	
Transmitter Eye Mask Definition: (X1, X2, X3, Y1, Y2, Y3)		(0.23, 0.34, 0.43, 0.27, 0.33, 0.4)				1
Receiver						
Center Wavelength	λ_C	840	850	860	nm	
Stressed Receiver Sensitivity in OMA Per Lane				-5.4		2
Maximum Average Power at Receiver Input Per Lane				2.4		
Receiver Reflectance				-12		
Peak Power Per Lane				4		
LOS Assert		-30				
LOS De-Assert – OMA				7.5		
LOS Hysteresis		0.5				

Notes:

1. Hit Ratio = 5×10^{-5} .
2. Measured with conformance test signal at TP3 for BER = $10e^{-12}$.

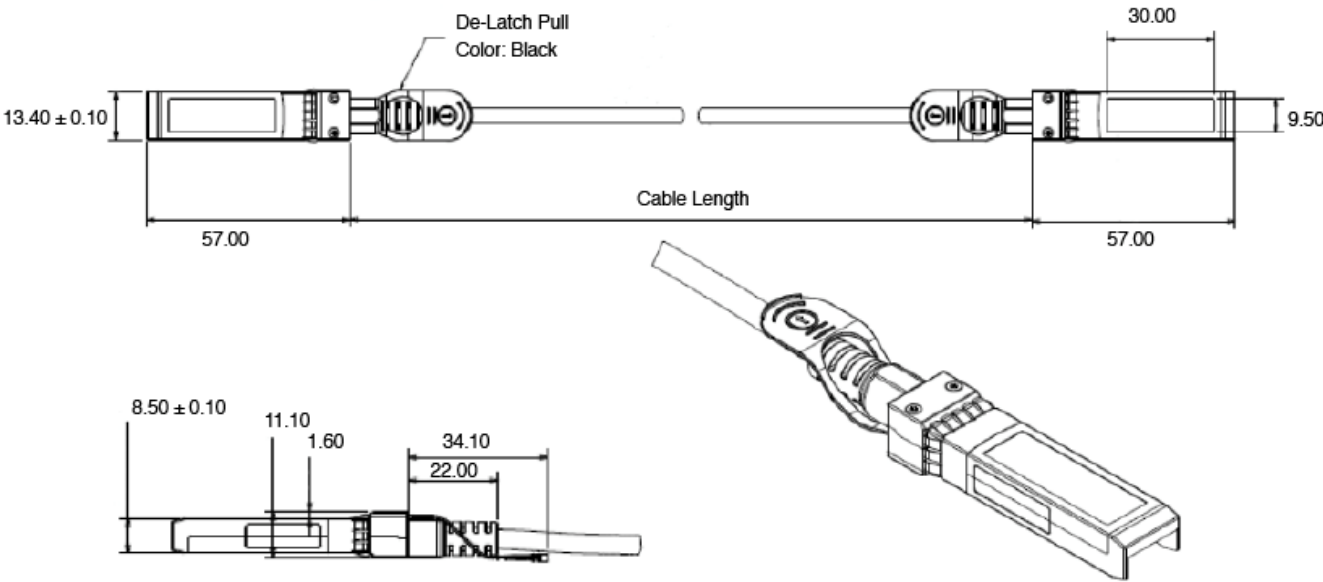
Pin Descriptions

Pin	Logic	Symbol	Name/Description	Notes
1		VeeT	Transmitter Ground.	
2	LVTTL-O	Tx_Fault	N/A.	1
3	LVTTL-I	Tx_Disable	Transmitter Disable.	
4	LVTTL-I/O	SDA	2-Wire Serial Data.	
5	LVTTL-I	SCL	2-Wire Serial Clock.	
6		MOD_DEF0	Module Present. Connected to the VeeT.	
7	LVTTL-I	RS0	N/A.	1
8	LVTTL-O	LOS	Loss of Signal.	
9	LVTTL-I	RS1	N/A.	1
10		VeeR	Receiver Ground.	
11		VeeR	Receiver Ground.	
12	CML-O	RD-	Receiver Data Inverted.	
13	CML-O	RD+	Receiver Data Non-Inverted.	
14		VeeR	Receiver Ground.	
15		VccR	+3.3V Receiver Supply.	
16		VccT	+3.3V Transmitter Supply.	
17		VeeT	Transmitter Ground.	
18	CML-I	TD+	Transmitter Data Non-Inverted.	
19	CML-I	TD-	Transmitter Data Inverted.	
20		VeeT	Transmitter Ground.	

Notes:

1. Signals not supported in SFP+ Copper pulled-down to the VeeT with a 30kΩ resistor.

Mechanical Specifications



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

