

### **AA1404031-E6-OPC**

Avaya/Nortel® AA1404031-E6 Compatible TAA Compliant 40GBase-CU QSFP+ Direct Attach Cable (Active Twinax, 3m)

#### **Features**

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



#### **Applications:**

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

#### **Product Description**

This is an Avaya/Nortel® AA1404031-E6 compatible 40GBase-CU QSFP+ to QSFP+ direct attach cable that operates over active copper with a maximum reach of 3.0m (9.8ft). 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 TAA (Trade Agreements Act) compliant, and 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.

## 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 <sub>DISS</sub>			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 <sup>-12</sup>		
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<sup>-12</sup> and PRBS 2<sup>31</sup>-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 <sup>-12</sup>	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	$\lambda_C$	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	$\lambda_C$	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 =  $5 \times 10^{-5}$ .
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

