

**100G 40km CFP2 Optical Transceiver, Hot Pluggable
Duplex LC, +3.3V, LAN-WDM EML & PIN, Single mode
(KWC2E40)**



Features

- ✧ Supports multi-rate (100GBASE-ER4 and OTU4) from 103.1Gb/s to 111.8Gb/s aggregate; Lane bit rate 25.78 Gb/s GbE, 27.95 Gb/s OTU4
- ✧ Up to 40km transmission on SMF
- ✧ LAN WDM EML laser and PIN receiver with SOA

- ✧ High speed I/O electrical interface (CAUI-4)
- ✧ MDIO interface with integrated Digital Diagnostic monitoring
- ✧ CFP2 MSA package with duplex LC connector
- ✧ Single +3.3V power supply
- ✧ Maximum power consumption 9 W
- ✧ Operating case temperature: -5 to +70 °C
- ✧ ROHs compliant

Application

- ✧ 100GBASE-ER4

Order Information

Part No.	Data Rate	Laser	Fiber Type	Distance	Optical Interface	Temp	DDMI
KWC2E40	103.1Gbps 111.8Gbps	LAN WDM EML	SMF	40km	LC	5~70C	Y

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	TS	-40	-	+85	°C	
Supply Voltage	VCC	-0.5	-	+4.0	V	
Operating Relative Humidity	RH	-	-	+85	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	TC	-5	-	+70	°C	
Power Supply Voltage	VCC	3.2	3.3	3.4	V	
Power Supply Current	ICC	-	-	2.81	A	
Maximum Power Dissipation	PD	-	-	9	W	
Aggregate Bit Rate	BRAVE	-	103.125	-	Gb/s	
Lane Bit Rate	BRLANE	-	25.78	-	Gb/s	
Transmission Distance	TD		-	40	km	Over SMF

Optical Characteristics

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Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength Lane 0	λ_0	1294.53	1295.56	1296.59	nm	
Center Wavelength Lane 1	λ_1	1299.02	1300.05	1301.09	nm	
Center Wavelength Lane 2	λ_2	1303.54	1304.58	1305.63	nm	
Center Wavelength Lane 3	λ_3	1308.09	1309.14	1310.19	nm	
Total Launch Power, 100GE	PALL	-	-	8.9	dBm	1
Average Launch Power per Lane, 100GE	PTX_LANE	-2.9	-	2.9	dBm	1
OMA per Lane, 100GE	OMA	0.1	-	4.5	dBm	1
OMA–TDP per Lane, 100GE	OMA_TDP	-	-	-	dBm	
Difference in launch power between lanes	PTX_DELTA_LANE	-	-	3.6	dB	
Total Launch Output Power, OTU4	PALL	-	-	8.9	dBm	1
Average Launch Power per Lane, OTU4	PTX_LANE	-2.9	-	2.9	dBm	1
Average Output Power (Laser Turn off)	P0UT-OFF	-	-	-30	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio, 100GE	ER	8	-	-	dB	
Transmitter and Dispersion Penalty	TDP	-	-	2.5	dB	2
Optical Return Loss Tolerance	ORLT	-	-	20	dB	
Optical Eye Mask, 100GE	Compliant with IEEE 802.3ba					2
Optical Eye Mask, OTU4	Compliant with ITU-T G.695					2
Receiver						
Center Wavelength Lane 0	λ_0	1294.53	1295.56	1296.59	nm	
Center Wavelength Lane 1	λ_1	1299.02	1300.05	1301.09	nm	
Center Wavelength Lane 2	λ_2	1303.54	1304.58	1305.63	nm	
Center Wavelength Lane 3	λ_3	1308.09	1309.14	1310.19	nm	
Average Rx Power per Lane, 100GE	P _{RX_LANE}	-20.9		4.5	dBm	2
OMA Sensitivity per Lane, 100GE	P _{OMA_LANE}	-	-	-21.4	dBm	2
Average Rx Power per Lane, OTU4	P _{RX_AVE_LANE}	-20.9		4.5	dBm	3
Sensitivity per Lane, OTU4	P _{OMA_LANE}	-	-	-21.4	dBm	3
Receiver Overload	P _{IN-OL}	4.5	-	-	dBm	
Reflectance	Ref	-	-	-26	dB	
LOS Assert per lane	LOSA	-40	-	-	dBm	
LOS De-assert	LOSD	-	-	-25	dBm	
LOS Hysteresis	LOSH	0.5	-	6.0	dB	

Notes:

1. The optical power is launched into SMF.
2. Measured with a PRBS 2³¹-1 test pattern @25.78125 Gb/s.

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3. Measured with a PRBS 2³¹-1 test pattern @27.952 Gb/s

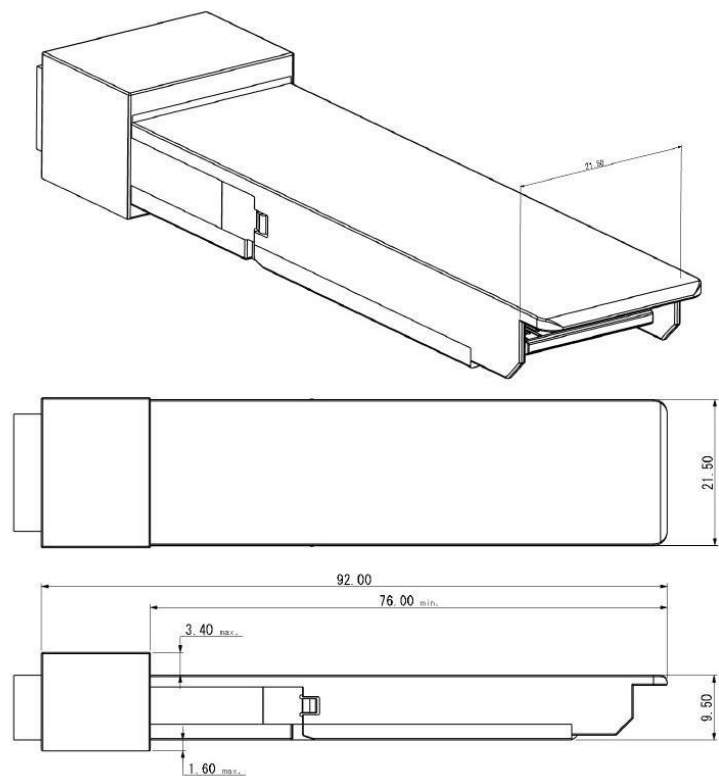
Electrical Characteristics

High-Speed Signal: Compliant to CAUI-4 (IEEE 802.3bm)

Low-Speed Signal: Compliant to CFP MSA Hardware Specification v1.4

Parameter		Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)							
Differential Data Input Amplitude		VIN,P-P	95	-	900	mVpp	
Differential Termination Mismatch			-	-	10	%	
Tx_Disable	Normal Operation	VIL	-0.3	-	0.8	V	
	Laser Disable	VIH	2.0	-	VCC+0.3	V	
Receiver (Module Output)							
Differential Data Output Amplitude		VOUT,P-P	228	-	900	mVpp	
Differential Termination Mismatch			-	-	10	%	
Output Rise/Fall Time, 20%~80%		TR	12	-	-	ps	
Rx_LOS	Normal Operation	VOL	-	-	0.2	V	
	Lose Signal	VOH	VCC- 0.2	-	-	V	

Mechanical Dimension



Digital Diagnostics

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Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 to 70	±3	°C	Internal
Voltage	0 to VCC	0.1	V	Internal
Tx Bias Current Per Lane	0 to 100	10%	mA	Internal
Tx Output Power Per Lane	-2.9 to 2.9	±3	dBm	Internal
Rx Power (Each Lane)	-21 to 5	±3	dBm	Internal

Warnings

Handling Precautions: This device is susceptible damaged as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

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