

# QSFP-40G-ER4-SY

40GBASE-ER4 QSFP+, 1271/1291/1311/1331 nm, 40 km SMF TRANSCEIVER

## 1. FEATURES AND SPECIFICATIONS

- ▶ Form Factor: **QSFP+**
- ▶ Operating Data Rate: **40G**
- ▶ Protocol(s): **40GE**
- ▶ Fiber Type: **SMF**
- ▶ Technique: **ER4**
- ▶ Lane Count: **4**
- ▶ Wavelength(s)/Channel(s): **1271/1291/1311/1331 nm**
- ▶ Nominal Distance: **40 km**
- ▶ Nominal Power Budget: **18.5 dB**
- ▶ Connector: **LC duplex**
- ▶ Temperature Range: **0 to +70°C, -40 to +85°C**
- ▶ Compliance: **QSFP+ MSA, SFF-8436, IEEE 802.3ba**
- ▶ Monitoring: **Digital diagnostic monitor interface**
- ▶ Laser Type: **DFB**
- ▶ Receiver Type: **PIN/APD**
- ▶ Power Dissipation: **3.5 W**

## 2. ABSOLUTE CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
SIGNAL INPUT VOLTAGE	$V_{IN}$	0.1	-	1.2	V
POWER SUPPLY VOLTAGE	$V_{CC}$	-0.5	-	3.6	V
OPERATING TEMPERATURE	$T_{CASE}$	0	-	+70	°C
STORAGE TEMPERATURE	$T_S$	-40	-	+85	°C

### 3. ELECTRICAL OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
SUPPLY CURRENT	$I_{CC}$	-	-	1.1	A
SUPPLY VOLTAGE	$V_{CC}$	3.13	3.3	3.47	V

### 4. OPTICAL CHARACTERISTICS

#### RECEIVER

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
OPTICAL WAVELENGTH	$\lambda_C$	1264.5/1284.5/ 1304.5/1324.5	1271/1291/ 1311/1331	1277.5/1297.5/ 1317.5/1337.5	nm
LOS HYSTERESIS	$LOS_H$	0	1	0	dB
LOS ASSERT	$LOS_A$	-35	-	-	dBm
LOS DE-ASSERT	$LOS_D$	-	-	-19	dBm
RX MAX. SENSITIVITY	$P_{MIN}$	-	-	-21.2	dBm
DAMAGE THRESHOLD	$P_{MAX}$	-4.5	-	-	dBm

#### TRANSMITTER

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
OPTICAL WAVELENGTH	$\lambda_C$	1264.5/1284.5/ 1304.5/1324.5	1271/1291/ 1311/1331	1277.5/1297.5/ 1317.5/1337.5	nm
OPTICAL EXTINCTION RATIO	ER	5.5	-	-	dB
SIDE MODE SUPPRESSION RATIO	SMSR	30	-	-	dBm
SPECTRAL WIDTH	$\Delta\lambda$	-	-	1	dBm
OPTICAL TRANSMIT POWER	$P_{OUT}$	-2.7	-	4.5	dBm

## 5. ORDERING INFORMATION

PART NAME	DESCRIPTION
QSFP-40G-ER4-SY	40GBase ER4 QSFP+, 1271/1291/1311/1331 nm, 40 km over SMF, LC duplex, speedy
QSFP-40G-ER4-I-SY	40GBase ER4 QSFP+, 1271/1291/1311/1331 nm, 40 km over SMF, LC duplex, Industrial temperature -40 to +85°C, speedy

## 6. COMPATIBILITY

ALCATEL-LUCENT ENT. (QSFP-40G-LR), ARISTA NETWORKS (QSFP-40G-ER4), ARUBA NETWORKS (JH232A), AVAYA/NORTEL (AA1404003-E6), BROCADE (40G-QSFP-ER4), CISCO SYSTEMS (QSFP-40G-ER4), CUMULUS NETWORKS (QSFP+-ER4), DELL (407-BBVI), EDGE CORE (QSFP+-ER4), EXTREME (10335), HP H3C (JG661A), HUAWEI (QSFP-40G-ER4), JUNIPER (JNP-QSFP-40GE-ER4, SRX-40G-QSFP-ER4), MIKROTIK (Q+85MP01D), MSA (QSFP-40G-ER4), NETOPTICS (QSFP+KT-LR), NOKIA/ALCATEL-LUCENT (3HE11240AA), NOVIFLOW (400000514), NVIDIA/MELLANOX (MC2210511-LR4), PACKETLIGHT (QSFP+-LR-1102), PALO ALTO NETWORKS (PAN-QSFP-40GBASE-ER4), SOLARFLARE (QSFP+-ER4)

## 7. WARNINGS AND SECURITY INFORMATION



CAUTION: Class 1 visible laser radiation present. Long term viewing of the laser can be harmful to the human eye.



This equipment has been tested according to European legislation and has been found safe, non-intervening with other electronic devices and is not subject to interference from other electronic devices



Hazardous Goods; our products are fully compliant with Directive 2011/65/EU (RoHS II) and 2002/95 EC (RoHS I)

**Laser Class 1**

Our products comply with 21 CFR 1040.10 and 1040.11, except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007



Only (dis)connect the transceivers in an ESD Protected Area while using certified equipment and taking all necessary precautions as specified in IEC 61340-5-1.

## 8. DISCLAIMER AND LEGAL NOTICES

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