

## Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Duplex LC connector
- Up to 40km on 9/125µm SMF
- 1470nm~1610nm DFB laser transmitter
- PIN Receiver
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Low power dissipation <1W typically
- Industrial operating temperature range: -40°C to 85°C
- RoHS compliant and Lead Free



## Applications

- Metro/Access Networks
- 1.25 Gb/s 1000Base-EX Ethernet
- 1×Fibre Channel
- CWDM Networks

## 1. Absolute Maximum Ratings

Operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Typ	Max	Units
Storage Temperature	TS	-40		+85	°C
Power Supply Voltage	VCC	-0.5		4	V
Relative Humidity	RH	0		85	%

## 2. Recommended Operating Environment

Parameter	Symbol	Min	Typ	Max	Unit
Case operating Temperature	TC	-40		85	°C
Supply Voltage	VCC	3.135		3.465	V
Supply Current	Icc			300	mA

Inrush Current	I <sub>surge</sub>			I <sub>cc+30</sub>	mA
Maximum Power	P <sub>max</sub>			1	W

### 3. Electrical Characteristics

(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Note
<b>Transmitter Section:</b>						
Input differential impedance	R <sub>in</sub>	90	100	110	Ohm	1
Single ended data input swing	V <sub>in PP</sub>	250		1200	mVpp	
Transmit Disable Voltage	VD	V <sub>cc</sub> -1.3		V <sub>cc</sub>	V	2
Transmit Enable Voltage	VEN	V <sub>ee</sub>		V <sub>ee</sub> +0.8	V	
Transmit Disable Assert Time	T <sub>dessert</sub>			10	us	
Parameter	Symbol	Min	Typ	Max	Unit	Note
<b>Receiver Section:</b>						
Single ended data output swing	V <sub>out,pp</sub>	250		800	mv	3
LOS Fault	V <sub>losfault</sub>	V <sub>cc</sub> -0.5		V <sub>CC_host</sub>	V	5
LOS Normal	V <sub>losnorm</sub>	V <sub>ee</sub>		V <sub>ee</sub> +0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

#### Notes:

1. AC coupled.
2. Or open circuit.
3. Into 100 ohm differential termination.
4. 20 – 80 %
5. LOS is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5MHz up to specified value applied through the power supply filtering network shown on page 23 of the Small Form-factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 14, 2000.

## 4. Optical Parameters

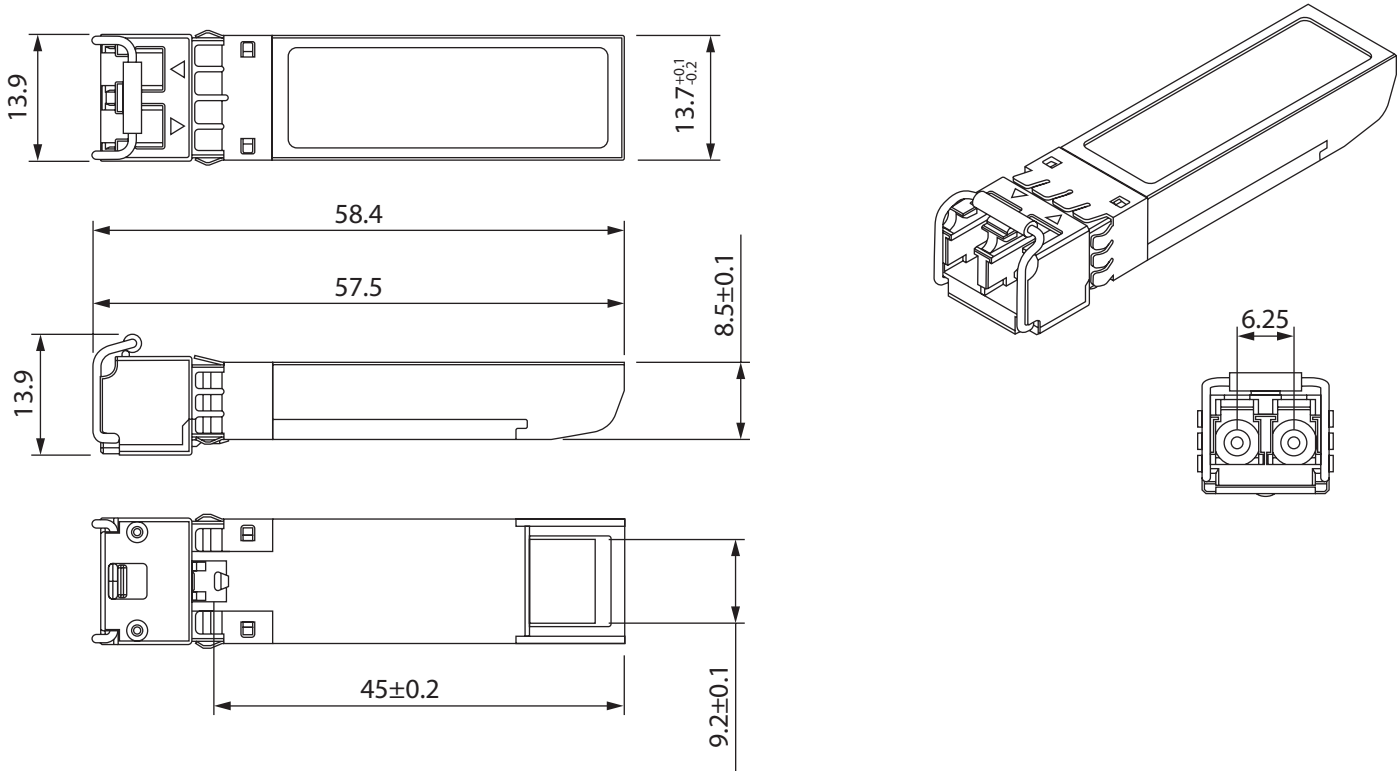
(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
<b>Transmitter Section:</b>						
Center Wavelength	$\lambda_c$	$\lambda-3$	$\lambda$	$\lambda+3$	nm	
Spectral Width	$\sigma$			1	nm	
Side Mode Supression Ratio	SSRmin	30			dB	
Optical Output Power	Pout	-5		0	dBm	1
Extinction Ratio	ER	9			dB	
Optical Rise/Fall Time	tr / tf			260	ps	2
Relative Intensity Noise	RIN			-120	dB/Hz	
Total Jitter Contribution	TX $\Delta$ TJ			0.284	UI	3
Output Eye Mask	Compliant with IEEE802.3 z (class 1 laser safety)					
<b>Receiver Section:</b>						
Optical Input Wavelength	$\lambda_c$	1270		1610	nm	
Receiver Overload	Pol	-7			dBm	4
RX Sensitivity	Sen			-24	dBm	4
RX_LOS Assert	LOS A	-40			dBm	
RX_LOS De-assert	LOS D			-25	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	
<b>General Specifications:</b>						
Data Rate	BR		1.25		Gb/s	
Bit Error Rate	BER			$10^{-12}$		
Max. Supported Link Length on 9/125 $\mu$ m SMF@1.25Gb/s	LMAX		40		Km	
Total System Budget	LB	19			dB	

### Notes:

1. The optical power is launched into SMF.
2. 20-80%.
3. Jitter measurements taken using Agilent OMNIBERT 718 in accordance with GR-253.
4. Measured with PRBS 2<sup>7-1</sup> at 10<sup>-12</sup> BER

## 5. Mechanical Diagram



**Note:** External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

## 6. Ordering Information

OEM	Part Number	OEM	Part Number
Adtran	1000SFP1470CWDM40R2-ADN	Juniper	SFP-GE40KCW1330-A
Adtran	1000SFP1490CWDM40R2-ADN	Juniper	EX-SFP-GE40KCW1430-C1
Adtran	1000SFP1530CWDM40R2-ADN	Juniper	SFP-GE40KCW1350-A
Adtran	1000SFP1550CWDM40R2-ADN	Juniper	SFP-GE40KCW1370-A
Adtran	1000SFP1570CWDM40R2-ADN	Juniper	SFP-GE40KCW1390-A
Adtran	1000SFP1590CWDM40R2-ADN	Juniper	SFP-GE40KCW1410-A
Alcatel-Lucent	GES-C31-40-ALU	Juniper	SFP-GE40KCW1430-A
Alcatel-Lucent	GES-C47-40-ALU	Juniper	SFP-GE40KCW1450-A
Ciena	NTK59127-A	Juniper	SFP-GE40KCW1470-A
Ciena	NTK59129-A	Juniper	SFP-GE40KCW1490-A
Ciena	NTK59131-A	Juniper	SFP-GE40KCW1510-A
Ciena	NTK59133-A	Juniper	SFP-GE40KCW1530-A

Ciena	NTK59135-A	Juniper	SFP-GE40KCW1550-A
Ciena	NTK59137-A	Juniper	SFP-GE40KCW1570-A
Ciena	NTK59139-A	Juniper	SFP-GE40KCW1590-A
Ciena	NTK59141-A	Juniper	SFP-GE40KCW1610-A
Ciena	NTK59143-A	MSA Champion ONE	1000SFP1270CWDM40
Ciena	NTK59145-A	MSA Champion ONE	1000SFP1290CWDM40
Ciena	NTK59147-A	MSA Champion ONE	1000SFP1310CWDM40
Ciena	NTK59149-A	MSA Champion ONE	1000SFP1330CWDM40
Ciena	NTK59151-A	MSA Champion ONE	1000SFP1350CWDM40
Ciena	NTK59153-A	MSA Champion ONE	1000SFP1370CWDM40
Ciena	NTK59155-A	MSA Champion ONE	1000SFP1430CWDM40
Ciena	NTK59157-A	MSA Champion ONE	1000SFP1450CWDM40
Ciena	NTK59159-A	MSA Champion ONE	1000SFP1470CWDM40
Ciena	NTK59161-A	MSA Champion ONE	1000SFP1470CWDM40R2
Ciena	XCVR-A40D43-C1	MSA Champion ONE	1000SFP1470CWDM40R2-H
Cisco	CWDM-SFP-1270-40-A	MSA Champion ONE	1000SFP1490CWDM40
Cisco	CWDM-SFP-1290-40-A	MSA Champion ONE	1000SFP1490CWDM40R2
Cisco	CWDM-SFP-1310-40-A	MSA Champion ONE	1000SFP1490CWDM40R2-H
Cisco	CWDM-SFP-1330-40-A	MSA Champion ONE	1000SFP1510CWDM40
Cisco	CWDM-SFP-1350-40-A	MSA Champion ONE	1000SFP1510CWDM40R2
Cisco	CWDM-SFP-1370-40-A	MSA Champion ONE	1000SFP1510CWDM40R2-H
Cisco	CWDM-SFP-1390-40-A	MSA Champion ONE	1000SFP1530CWDM40
Cisco	CWDM-SFP-1410-40-A	MSA Champion ONE	1000SFP1530CWDM40R2
Cisco	CWDM-SFP-1430-40-A	MSA Champion ONE	1000SFP1530CWDM40R2-H
Cisco	CWDM-SFP-1450-40-A	MSA Champion ONE	1000SFP1550CWDM40
Cisco	CWDM-SFP-1470-40-A	MSA Champion ONE	1000SFP1550CWDM40R2
Cisco	CWDM-SFP-1490-40-A	MSA Champion ONE	1000SFP1550CWDM40R2-H
Cisco	CWDM-SFP-1510-40-A	MSA Champion ONE	1000SFP1570CWDM40
Cisco	CWDM-SFP-1530-40-A	MSA Champion ONE	1000SFP1570CWDM40R2
Cisco	CWDM-SFP-1550-40-A	MSA Champion ONE	1000SFP1570CWDM40R2-H
Cisco	CWDM-SFP-1570-40-A	MSA Champion ONE	1000SFP1590CWDM40
Cisco	CWDM-SFP-1590-40-A	MSA Champion ONE	1000SFP1590CWDM40R2
Cisco	CWDM-SFP-1610-40-A	MSA Champion ONE	1000SFP1590CWDM40R2-H
Cisco	CWDM-SFP-1290-40KM-C1	MSA Champion ONE	1000SFP1610CWDM40
Cisco	CWDM-SFP-1470-40-C1	MSA Champion ONE	1000SFP1610CWDM40R2
Cisco	CWDM-SFP-1470-40-I-C1	MSA Champion ONE	1000SFP1610CWDM40R2-H
Cisco	CWDM-SFP-1490-40-C1	MSA Champion ONE	1000SFP1XX0CWDM40R2

Cisco	CWDM-SFP-1510-40-C1	MSA Generic	CWDM-SFP-40-27-A
Cisco	CWDM-SFP-1530-40-C1	MSA Generic	CWDM-SFP-40-29-A
Cisco	CWDM-SFP-1550-40-C1	MSA Generic	CWDM-SFP-40-31-A
Cisco	CWDM-SFP-1570-40-C1	MSA Generic	CWDM-SFP-40-33-A
Cisco	CWDM-SFP-1590-40-C1	MSA Generic	CWDM-SFP-40-35-A
Cisco	CWDM-SFP-1610-40-C1	MSA Generic	CWDM-SFP-40-37-A
Cisco	GES-C37-40-CSC	MSA Generic	CWDM-SFP-40-39-A
Cisco	GES-C43-40-CSC	MSA Generic	CWDM-SFP-40-41-A
Cisco	GES-C45-40-CSC	MSA Generic	CWDM-SFP-40-43-A
Cisco	GES-C47-40-CSC	MSA Generic	CWDM-SFP-40-45-A
Cisco	GES-C49-40-CSC	MSA Generic	CWDM-SFP-40-47-A
Cisco	GES-C51-40-CSC	MSA Generic	CWDM-SFP-40-49-A
Cisco	GES-C53-40-CSC	MSA Generic	CWDM-SFP-40-51-A
Cisco	GES-C55-40-CSC	MSA Generic	CWDM-SFP-40-53-A
Cisco	GES-C57-40-CSC	MSA Generic	CWDM-SFP-40-55-A
Cisco	GES-C59-40-CSC	MSA Generic	CWDM-SFP-40-57-A
Extreme	1G-SFP-CWDM40-1270-A	MSA Generic	CWDM-SFP-40-59-A
Extreme	1G-SFP-CWDM40-1290-A	MSA Generic	CWDM-SFP-40-61-A
Extreme	1G-SFP-CWDM40-1310-A	OnePort	OP-CWDM-SFP-40-27
Extreme	1G-SFP-CWDM40-1330-A	OnePort	OP-CWDM-SFP-40-29
Extreme	1G-SFP-CWDM40-1350-A	OnePort	OP-CWDM-SFP-40-31
Extreme	1G-SFP-CWDM40-1370-A	OnePort	OP-CWDM-SFP-40-33
Extreme	1G-SFP-CWDM40-1390-A	OnePort	OP-CWDM-SFP-40-35
Extreme	1G-SFP-CWDM40-1410-A	OnePort	OP-CWDM-SFP-40-37
Extreme	1G-SFP-CWDM40-1430-A	OnePort	OP-CWDM-SFP-40-39
Extreme	1G-SFP-CWDM40-1450-A	OnePort	OP-CWDM-SFP-40-41
Extreme	1G-SFP-CWDM40-1470-A	OnePort	OP-CWDM-SFP-40-43
Extreme	1G-SFP-CWDM40-1490-A	OnePort	OP-CWDM-SFP-40-45
Extreme	1G-SFP-CWDM40-1510-A	OnePort	OP-CWDM-SFP-40-47
Extreme	1G-SFP-CWDM40-1530-A	OnePort	OP-CWDM-SFP-40-49
Extreme	1G-SFP-CWDM40-1550-A	OnePort	OP-CWDM-SFP-40-51
Extreme	1G-SFP-CWDM40-1570-A	OnePort	OP-CWDM-SFP-40-53
Extreme	1G-SFP-CWDM40-1590-A	OnePort	OP-CWDM-SFP-40-55
Extreme	1G-SFP-CWDM40-1610-A	OnePort	OP-CWDM-SFP-40-57
Juniper	SFP-GE40KCW1270-A	OnePort	OP-CWDM-SFP-40-59
Juniper	SFP-GE40KCW1290-A	OnePort	OP-CWDM-SFP-40-61
Juniper	SFP-GE40KCW1310-A		

## 7. Contact Information

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