

Features:

- Up to 11.3Gbps Data Links
- Up to 40km transmission on SMF
- CWDM EML Laser and PIN receiver
- Metal enclosure, for lower EMI
- 2-wire interface with integrated Digital Diagnostic monitoring
- Hot-pluggable SFP+ footprint
- Specifications compliant with SFF 8472
- Compliant with SFP+ MSA with LC connector
- Single 3.3V power supply
- Case operating temperature range:
Industrial: -40°C to 85°C
- Without CDR or with CDR supported 9.95 to 11.3Gb/s reference-free



Applications:

- 10GBASE-ER/EW & 10G Ethernet
- 10G SONET/SDH, OTU2/2e

Standard:

- Compliant to 802.3ae 10GBASE-ER/EW
- Compliant to SFF-8431
- RoHS Compliant.

1. Absolute Maximum Ratings

Any stress beyond the maximum ratings can result in permanent damage. The device specifications are guaranteed only under the recommended operating conditions.

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	Ts	-40	-	85	°C
Relative Humidity	RH	5	-	95	%
Power Supply Voltage	VCC	-0.3	-	4	V
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Case Operating Temperature	Tcase	-40	-	85	°C	Without air flow
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Power Supply Current	ICC	-		450	mA	
Data Rate	BR		10.3125		Gbps	
Transmission Distance	TD		-	40	km	
Coupled fiber	Single mode fiber					9/125um SMF

3. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Average Launched Power	Pout	-1		3	dBm	1
Extinction Ratio	ER	6			dB	
Optical Wavelength	λ_c	$\lambda-6.5$		$\lambda+6.5$	nm	2
Spectrum Band Width (-20dB)	σ			1.0	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
RIN	RIN			-128	dB/Hz	
Output Eye Mask	Compliant with IEEE 802.3ae					
Receiver						
Input Optical Wavelength	λ	1270		1610	nm	
Receiver Sensitivity	Psen			-15.8	dBm	2
Input Saturation Power (Overload)	Psat	0.5			dBm	
LOS Assert	LOSA	-30			dBm	
LOS De-assert	LOSD			-17	dBm	
LOS Detect Hysteresis	PHYS	0.5			dB	

Notes:

1. Launched power (avg.) is power coupled into a single mode fiber with master connector. (Before of Life)
2. λ_c refer to wavelength selection.
3. Measured with conformance test signal for BER = 10^{-12} .@10.3125Gbps, PRBS=2³¹-1,NRZ; Optical source with worst ER, Wavelength between 1470nm and 1610nm; back to back

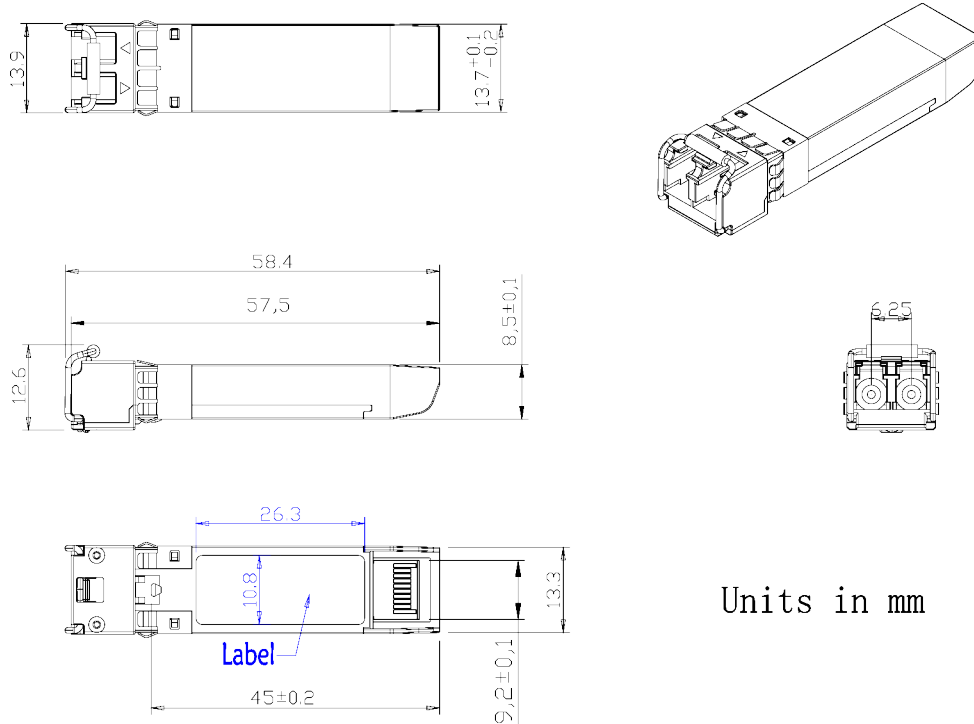
4. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage	Vcc	3.14	3.3	3.46	V	
Supply Current	Icc			450	mA	1
Transmitter						
Input differential impedance	Rin		100		Ω	2
Single ended data input swing	Vin-pp	180		700	mV	
Transmit Disable Voltage	V _{DIS}	2.0		Vcc	V	3
Transmit Enable Voltage	V _{EN}	Vee		Vee+ 0.8	V	
Transmit Disable Assert Time				10	us	
Receiver						
Differential data output swing	Vout-pp	400		800	mV	4
Data output rise time	tr	28			ps	5
Data output fall time	tf	30			ps	5
LOS output high level	V _{LOS-H}	2.0		VccHOST	V	6
LOS output low level	V _{LOS-L}	Vee		Vee+0.8	V	6

Notes:

1. Measured with receive Pin=Psen, Vcc=3.3V, operation temperature range, without air flow
2. Connected directly to TX data input pins. AC coupled.
3. Or open circuit.
4. Into 100 ohms differential termination.
5. 20 – 80 %.
6. Loss Of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

5. Mechanical Diagram



Units in mm

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	1442471F1-40-A	Nokia (Alcatel)	3HE07161CC-A
Adtran	1442471F3-40-A	Nokia (Alcatel)	3HE07161CE-A
Adtran	1442471F5-40-A	Nokia (Alcatel)	3HE07161CH-A
Adtran	1442471F7-40-A	Nokia (Alcatel)	3HE07161CB-A
Adtran	1442471F2-40-A	Nokia (Alcatel)	3HE07161CD-A
Adtran	1442471F4-40-A	Nokia (Alcatel)	3HE07161CG-A
Adtran	1442471F6-40-A	Nokia (Alcatel)	3HE07161CF-A
Adtran	1442471F8-40-A	Juniper	CWDM-SFP-10GE-1430-A
Adva	1061702183-02-A	Juniper	CWDM-SFP-10GE-1470-A
Adva	1061702185-02-A	Juniper	CWDM-SFP-10GE-1510-A
Adva	1061702187-02-A	Juniper	CWDM-SFP-10GE-1550-A
Adva	1061702191-02-A	Juniper	CWDM-SFP-10GE-1590-A
Adva	1061702093-02-A	Juniper	CWDM-SFP-10GE-1290-A

Adva	1061702095-02-A	Juniper	CWDM-SFP-10GE-1330-A
Adva	1061702097-02-A	Juniper	CWDM-SFP-10GE-1370-A
Adva	1061702184-02-A	Juniper	CWDM-SFP-10GE-1410-A
Adva	1061702186-02-A	Juniper	CWDM-SFP-10GE-1450-A
Adva	1061702188-02-A	Juniper	CWDM-SFP-10GE-1490-A
Adva	1061702092-02-A	Juniper	CWDM-SFP-10GE-1530-A
Adva	1061702094-02-A	Juniper	CWDM-SFP-10GE-1570-A
Adva	1061702096-02-A	Juniper	CWDM-SFP-10GE-1610-A
Adva	1061702098-02-A	Juniper	SFPP-10G-CWDM1490-C1
Calix	100-03927-A	MSA Champion ONE	10GSFP+E1XX0CWDM40
Calix	100-03929-A	MSA Champion ONE	10GSFP+E1290CWDM40-H
Calix	100-03931-A	MSA Champion ONE	10GSFP+E1490CWDM40
Calix	100-03933-A	MSA Champion ONE	10GSFP+E1270CWDM40
Calix	100-03928-A	MSA Champion ONE	10GSFP+E1310CWDM40
Calix	100-03930-A	MSA Champion ONE	10GSFP+E1350CWDM40
Calix	100-03932-A	MSA Champion ONE	10GSFP+E1390CWDM40
Calix	100-03934-A	MSA Champion ONE	10GSFP+E1430CWDM30*
Ciena	XCVR-S40V55-CW27-A	MSA Champion ONE	10GSFP+E1270CWDM40-H
Ciena	XCVR-S40V55-CW31-A	MSA Champion ONE	10GSFP+E1310CWDM40-H
Ciena	XCVR-S40V55-CW35-A	MSA Champion ONE	10GSFP+E1290CWDM40
Ciena	XCVR-S40V55-CW39-A	MSA Champion ONE	10GSFP+E1370CWDM40
Ciena	XCVR-S40V55-CW43-A	MSA Champion ONE	10GSFP+E1410CWDM40
Ciena	XCVR-S40V55-CW47-A	MSA Champion ONE	10GSFP+E1450CWDM30*
Ciena	XCVR-S40V55-CW51-A	MSA Champion ONE	10GSFP+E1470CWDM40
Ciena	XCVR-S40V55-CW55-A	MSA Champion ONE	10GSFP+E1470CWDM40-H
Ciena	XCVR-S40V55-CW29-A	MSA Champion ONE	10GSFP+E1490CWDM40
Ciena	XCVR-S40V55-CW33-A	MSA Champion ONE	10GSFP+E1490CWDM40-H
Ciena	XCVR-S40V55-CW37-A	MSA Champion ONE	10GSFP+E1510CWDM40
Ciena	XCVR-S40V55-CW41-A	MSA Champion ONE	10GSFP+E1510CWDM40-H
Ciena	XCVR-S40V55-CW45-A	MSA Champion ONE	10GSFP+E1530CWDM40
Ciena	XCVR-S40V55-CW49-A	MSA Champion ONE	10GSFP+E1530CWDM40-H
Ciena	XCVR-S40V55-CW53-A	MSA Champion ONE	10GSFP+E1550CWDM40
Ciena	XCVR-S40V55-CW57-A	MSA Champion ONE	10GSFP+E1550CWDM40-H
Ciena	XCVR-S40V55-CW59-A	MSA Champion ONE	10GSFP+E1570CWDM40
Ciena	XCVR-S40V55-CW55-C1	MSA Champion ONE	10GSFP+E1570CWDM40-H
Cisco	CWDM-SFP10G-1270-A	MSA Champion ONE	10GSFP+E1590CWDM40
Cisco	CWDM-SFP10G-1310-A	MSA Champion ONE	10GSFP+E1590CWDM40-H

Cisco	CWDM-SFP10G-1350-A	MSA Champion ONE	10GSFP+E1610CWDM40
Cisco	CWDM-SFP10G-1390-A	MSA Champion ONE	10GSFP+E1610CWDM40-H
Cisco	CWDM-SFP10G-1430-A	MSA Champion ONE	10GSFP+E1330CWDM40-H
Cisco	CWDM-SFP10G-1470-A	MSA Champion ONE	10GSFP+CMRD45-ER
Cisco	CWDM-SFP10G-1510-A	MSA Champion ONE	10GSFP+CMRC47-ER
Cisco	CWDM-SFP10G-1550-A	MSA Champion ONE	10GS-C59-40I-INT
Cisco	CWDM-SFP10G-1590-A	MSA Generic	CWDM-SFPP-40-27-A
Cisco	CWDM-SFP10G-1290-A	MSA Generic	CWDM-SFPP-40-31-A
Cisco	CWDM-SFP10G-1330-A	MSA Generic	CWDM-SFPP-40-35-A
Cisco	CWDM-SFP10G-1370-A	MSA Generic	CWDM-SFPP-40-39-A
Cisco	CWDM-SFP10G-1410-A	MSA Generic	CWDM-SFPP-40-43-A
Cisco	CWDM-SFP10G-1450-A	MSA Generic	CWDM-SFPP-40-47-A
Cisco	CWDM-SFP10G-1490-A	MSA Generic	CWDM-SFPP-40-51-A
Cisco	CWDM-SFP10G-1530-A	MSA Generic	CWDM-SFPP-40-55-A
Cisco	CWDM-SFP10G-1570-A	MSA Generic	CWDM-SFPP-40-59-A
Cisco	CWDM-SFP10G-1610-A	MSA Generic	CWDM-SFPP-40-29-A
Cisco	10GS-C29-40-CSC	MSA Generic	CWDM-SFPP-40-33-A
Cisco	10GS-C47-40-CSC	MSA Generic	CWDM-SFPP-40-37-A
Cisco	10GS-C55-40-CSC	MSA Generic	CWDM-SFPP-40-41-A
Cisco	10GS-C57-40-CSC	MSA Generic	CWDM-SFPP-40-45-A
Cisco	10GS-C27-40-CSC	MSA Generic	CWDM-SFPP-40-49-A
Dell/Force10	430-4585-CW27-A	MSA Generic	CWDM-SFPP-40-53-A
Dell/Force10	430-4585-CW31-A	MSA Generic	CWDM-SFPP-40-57-A
Dell/Force10	430-4585-CW35-A	MSA Generic	CWDM-SFPP-40-61-A
Dell/Force10	430-4585-CW39-A	MSA OnePort	OP-CWDM-SFPP-40-27
Dell/Force10	430-4585-CW43-A	MSA OnePort	OP-CWDM-SFPP-40-31
Dell/Force10	430-4585-CW47-A	MSA OnePort	OP-CWDM-SFPP-40-35
Dell/Force10	430-4585-CW51-A	MSA OnePort	OP-CWDM-SFPP-40-39
Dell/Force10	430-4585-CW55-A	MSA OnePort	OP-CWDM-SFPP-40-43
Dell/Force10	430-4585-CW59-A	MSA OnePort	OP-CWDM-SFPP-40-47
Dell/Force10	430-4585-CW29-A	MSA OnePort	OP-CWDM-SFPP-40-51
Dell/Force10	430-4585-CW33-A	MSA OnePort	OP-CWDM-SFPP-40-55
Dell/Force10	430-4585-CW37-A	MSA OnePort	OP-CWDM-SFPP-40-59
Dell/Force10	430-4585-CW41-A	MSA OnePort	OP-CWDM-SFPP-40-29
Dell/Force10	430-4585-CW45-A	MSA OnePort	OP-CWDM-SFPP-40-33
Dell/Force10	430-4585-CW49-A	MSA OnePort	OP-CWDM-SFPP-40-37
Dell/Force10	430-4585-CW53-A	MSA OnePort	OP-CWDM-SFPP-40-41

Dell/Force10	430-4585-CW57-A	MSA OnePort	OP-CWDM-SFPP-40-45
Dell/Force10	430-4585-CW61-A	MSA OnePort	OP-CWDM-SFPP-40-49
Juniper	CWDM-SFP-10GE-1270-A	MSA OnePort	OP-CWDM-SFPP-40-53
Juniper	CWDM-SFP-10GE-1310-A	MSA OnePort	OP-CWDM-SFPP-40-57
Juniper	CWDM-SFP-10GE-1350-A	MSA OnePort	OP-CWDM-SFPP-40-61
Juniper	CWDM-SFP-10GE-1390-A	Nokia (Alcatel)	3HE07161CA-A

*Max. Transmission Distance is 30km for input wavelength 1431nm & 1451nm

7. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>