NTK589FAE6-PRO

Ciena® NTK589FAE6 Compatible TAA Compliant 10GBase-DWDM 50GHz XFP Transceiver (SMF, 1530nm to 1565nm, 80km, DOM, 0 to 70C, LC)

Features

- INF-8077i Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free

Applications:

- 10x Gigabit Ethernet over DWDM
- 8x/10x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Ciena® NTK589FAE6 compatible XFP transceiver provides 10GBase-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1530nm to 1565nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Ciena® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Proline's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products.

TAA COMPLIANT

Rev. 022224

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

Tunable XFP Channel Number and Wavelength

Channel No.	Frequency (THz)	Center Wavelength	Channel No.	Frequency (THz)	Center Wavelength
1	191.35	1566.723	**49**	193.75	1547.316
2	191.40	1566.314	**50**	193.80	1546.917
3	191.45	1565.905	**51**	193.85	1546.518
4	191.50	1565.496	**52**	193.90	1546.119
5	191.55	1565.087	**53**	193.95	1545.720
6	191.60	1564.679	**54**	194.00	1545.322
7	191.65	1564.271	**55**	194.05	1544.924
8	191.70	1563.863	**56**	194.10	1544.526
9	191.75	1563.455	**57**	194.15	1544.128
10	191.80	1563.047	**58**	194.20	1543.730
11	191.85	1562.640	**59**	194.25	1543.333
12	191.90	1562.233	**60**	194.30	1542.936
13	191.95	1561.826	**61**	194.35	1542.539
14	192.00	1561.419	**62**	194.40	1542.142
15	192.05	1561.013	**63**	194.45	1541.746
16	192.10	1560.606	**64**	194.50	1541.349
17	192.15	1560.200	**65**	194.55	1540.953
18	192.20	1559.794	**66**	194.60	1540.557
19	192.25	1559.389	**67**	194.65	1540.162
20	192.30	1558.983	**68**	194.70	1539.766
21	192.35	1558.578	**69**	194.75	1539.371
22	192.40	1558.173	**70**	194.80	1538.976
23	192.45	1557.768	**71**	194.85	1538.581
24	192.50	1557.363	**72**	194.90	1538.186
25	192.55	1556.959	**73**	194.95	1537.792
26	192.60	1556.555	**74**	195.00	1537.397
27	192.65	1556.151	**75**	195.05	1537.003

28	192.70	1555.747	**76**	195.10	1536.609
29	192.75	1555.343	**77**	195.15	1536.216
30	192.80	1554.940	**78**	195.20	1535.822
31	192.85	1554.537	**79**	195.25	1535.429
32	192.90	1554.134	**80**	195.30	1535.036
33	192.95	1553.731	**81**	195.35	1534.643
34	193.00	1553.329	**82**	195.40	1534.250
35	193.05	1552.926	**83**	195.45	1533.858
36	193.10	1552.524	**84**	195.50	1533.465
37	193.15	1552.122	**85**	195.55	1533.073
38	193.20	1551.721	**86**	195.60	1532.681
39	193.25	1551.319	**87**	195.65	1532.290
40	193.30	1550.918	**88**	195.70	1531.898
41	193.35	1550.517	**89**	195.75	1531.507
42	193.40	1550.116	**90**	195.80	1531.116
43	193.45	1549.715	**91**	195.85	1530.725
44	193.50	1549.315	**92**	195.90	1530.334
45	193.55	1548.915	**93**	195.95	1529.944
46	193.60	1548.515	**94**	196.00	1529.553
47	193.65	1548.115	**95**	196.05	1529.163
48	193.70	1547.715	**96**	196.10	1528.773

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Case Temperature		-5		70	°C	
ESD		500			V	High Speed i/o pins
		2000				All other pins
Receiver optical input power				+12	dBm	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
1.8V Supply	Vcc2	1.71	1.8	1.89	V	VPS not supported
3.3V Supply	Vcc3	3.15	3.3	3.45	V	
5.0V Supply	Vcc5	4.75	5.0	5.25	V	
Supply Current, 1.8V			160	200	mA	
Supply Current, 3.3V			310	400	mA	
Supply Current, 5.0V			100	200	mA	
Inrush current limit				100	mA/µs	
Total power consumption				2.5	W	Power Level 2 MSA classification

System Performance

Parameter	Min	Max	OSNR	BER	Conditions
Noise Loaded	-400ps/nm	1500ps/nm	19dB	1E-04	10.709Gb/s, -10 to -20dBm, 0.25nm filter, optimised RxDTV
Unamplified Links	0ps/nm	1600ps/nm	>35dB	1E-12	10.709Gb/s, -22dBm, 0.25nm filter, optimised RxDTV

Optical Characteristics

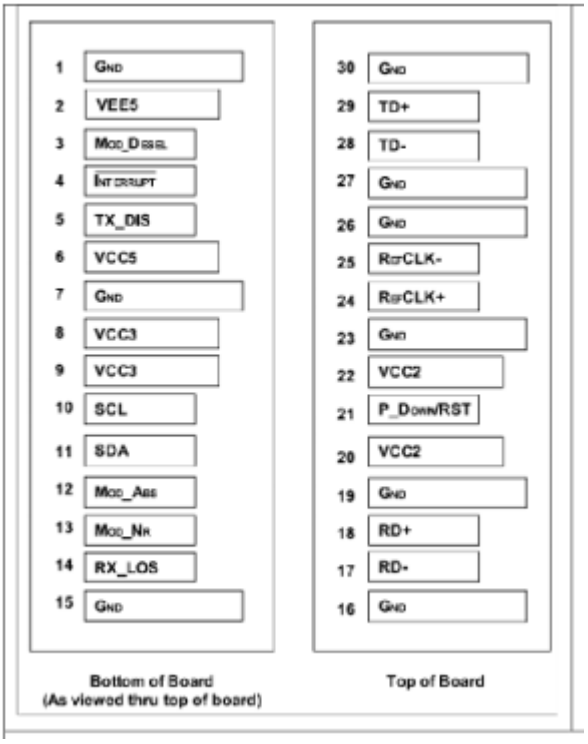
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Transmitter						
Data Rate		9.95		11.35	Gb/s	NRZ
Frequency range		191.35		196.10	THz	50GHz grid, 96 channels
Frequency accuracy		-2.5		+2.5	GHz	EOL
Optical transmit power	Po		+0.5		dBm	SOL, 25°C
Optical transmit power	Po	-1		+3.0	dBm	EOL
Shuttered output power			-45	-40	dBm	
Optical power stability	ΔPout	-1.0		+1.0	dB	All channels, SOL
Side mode suppression	SMSR	35			dB	±2.5nm, modulated
Spectral width	Δλ		0.3	0.5	nm	-20dB, modulated
Extinction ratio	ER	9.5			dB	Filtered, 10.709Gb/s
Eye diagram compliance	GR-253, ITU-T G.691					
Mask margin		10			%	
OSNR		50	55		dB	0.1nm RBW
SBS threshold		18			dBm	50km SMF
Tuning speed				50	ms	
Laser enable (turn on) time				50	ms	To >90% power
Laser disable (turn off) time				10	µs	To <10% power
Module initialization time				20	s	
Receiver						
Data rate		9.95		11.35	Gb/s	NRZ
Input operating wavelength	λ	1525		1575	nm	
Receiver Sensitivity			-26		dBm	10.709 Gb/s, IE-12, OSNR>35dB, optimized RxDTV
Maximum input power (overload)	Pin MAX	-5			dBm	
LOS assert	PA	-33		-28.5	dBm	
LOS de-assert	PD	-32.5		-26.5	dBm	
LOS Hysteresis	PD - PA	0.5		4	dB	
LOS assert time	T_A			100	µs	
LOS de-assert time	T_D			100	µs	

Pin Descriptions

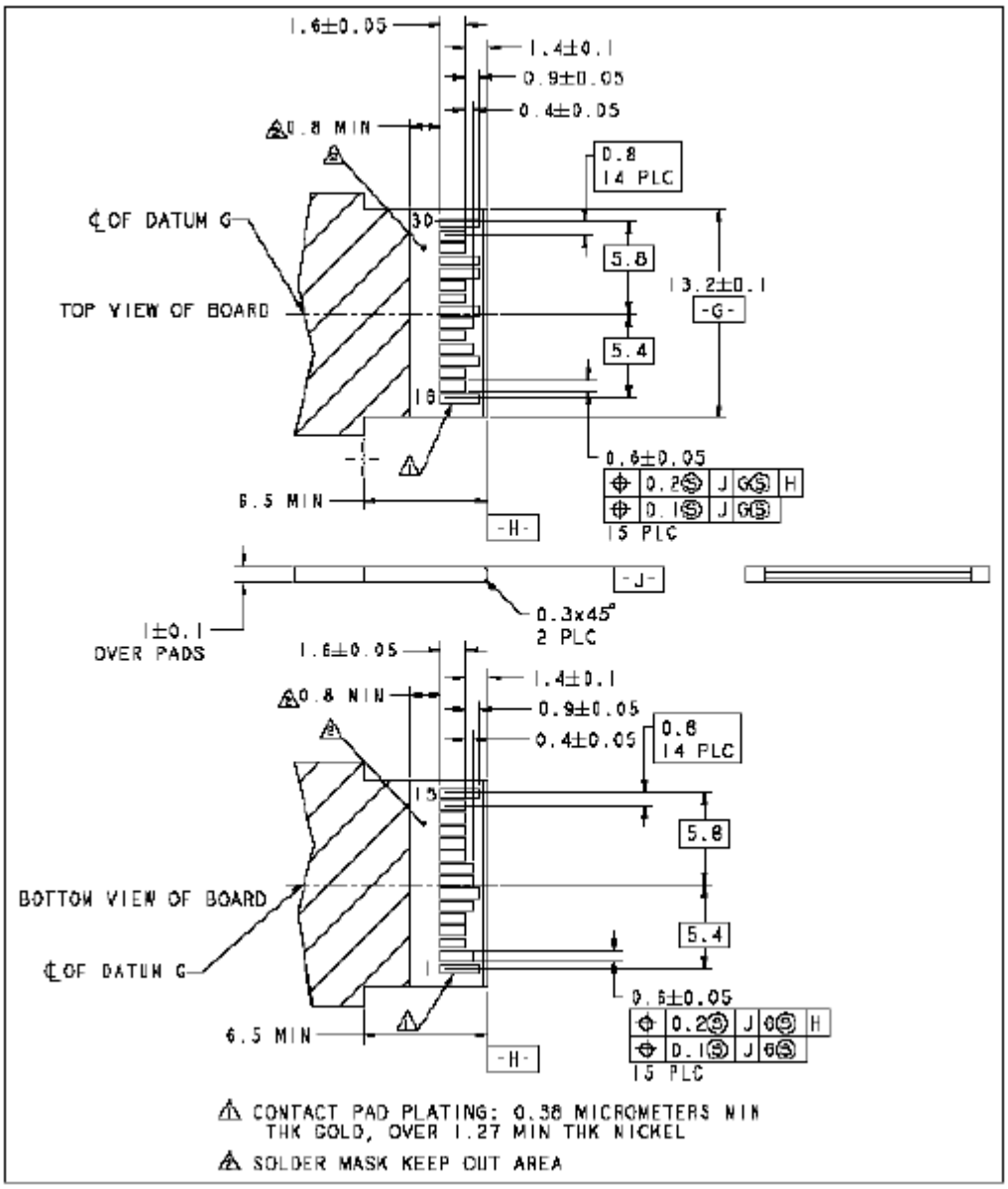
Pin	Logic	Symbol	Name/Descriptions	Notes
1		GND	Module Ground	1
2		VEE5	Optional -5.2V Power Supply	
3	LVTTL-I	Mod-Desel	Module De-select, when held low allows the module torespond to 2-wire serial interface commands	
4	LVTTL-O	Interrupt	Interrupt; Indicates presence of an important condition which can beread over the serial 2-wire interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Turns off transmitter laser output	
6		VCC5	+5V Power Supply	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I/O	SCL	2-wire Serial interface clock	2
11	LVTTL-I/O	SDA	2-wire Serial interface data line	2
12	LVTTL-O	Mod_Abs	Indicates Module is not present. Grounded in the Module	2
13	LVTTL-O	Mod_NR	Module Not Ready; Indicating Module Operational Fault	2
14	LVTTL-O	RX_LOS	Receiver Loss Of Signal Indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver Inverted Data Output	
18	CML-O	RD+	Receiver Non-Inverted Data Output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply	3
21	LVTTL-I	P Down/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode.	
			Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle	
22		VCC2	+1.8V Power Supply	3
23		GND	Module Ground	1
24	PECL-I	RefCLK+	Not required	
25	PECL-I	RefCLK-	Not required	
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter Inverted Data Input	
29	CML-I	TD+	Transmitter Non-Inverted Data Input	
30		GND	Module Ground	1

Notes:

1. Module ground pins (GND) are isolated from the module case and chassis ground within the module.
2. Shall be pulled up with 4.7K-10kOhms to a voltage between 3.15V and 3.45V on the host board.
3. Variable Power Supply (VPS) function is not supported.



Recommended Pattern Layout



Power Supply Noise Tolerance

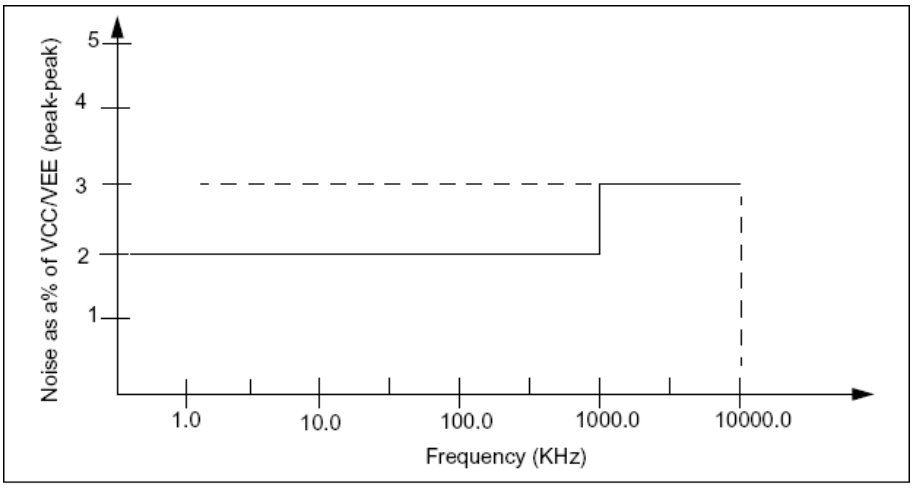
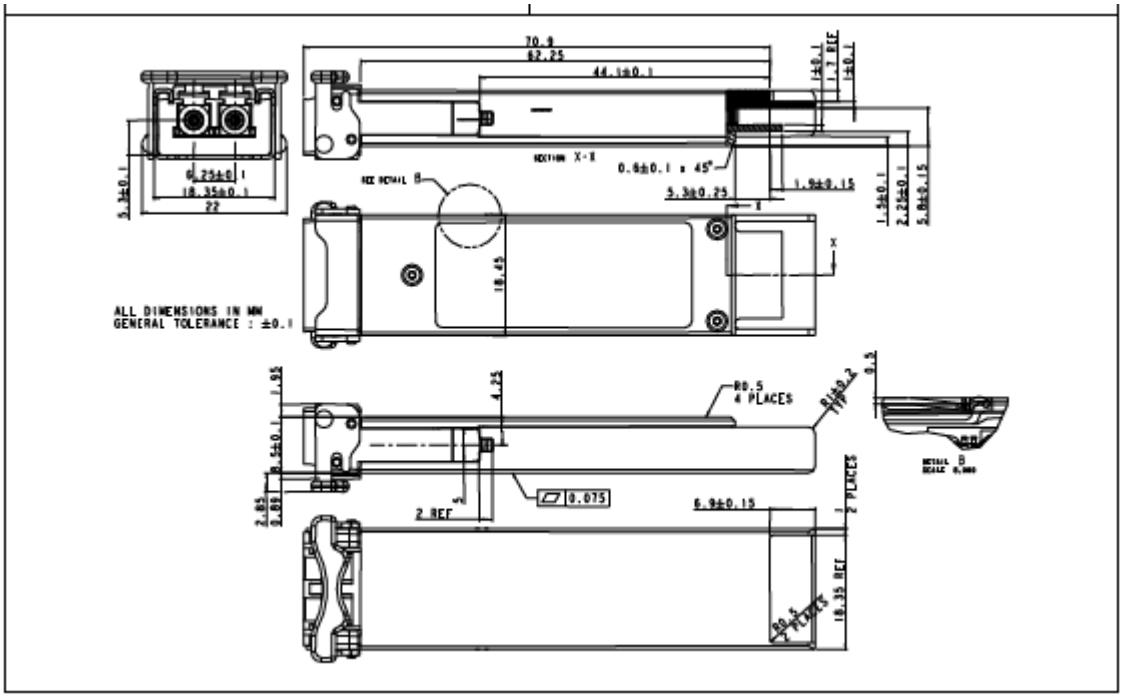


Figure 2 Power Noise Requirement

Mechanical Specifications



About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.

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